COUNTY OF IMPERIAL

EAST BRAWLEY GEOTHERMAL

VOLUME I: FINAL ENVIRONMENTAL IMPACT REPORT

SCH: 2010061054

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MAY 2012

County of Imperial

East Brawley Geothermal

Final

Environmental Impact Report

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Prepared for:

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1.0 INTRODUCTION

This Final Environmental Impact Report (Final EIR; FEIR) was prepared in accordance with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines (Section 15132). The County of Imperial (County) is the lead agency for the environmental review of the proposed East Brawley Geothermal Development project (proposed project; project) and has the principal responsibility for approving the project. This FEIR assesses the expected environmental impacts resulting from approval and implementation of the proposed project and responds to comments received on the Draft EIR (DEIR).

1.1 BACKGROUND AND PURPOSE OF THE EIR

OVERVIEW OF CEQA REQUIREMENTS FOR PREPARATION OF AN EIR

The County, acting as the lead agency, has prepared this EIR to provide the public and responsible/trustee agencies with information about the potential environmental effects of the proposed project. As described in State CEQA Guidelines Section 15121(a), an EIR is a public informational document that assesses potential environmental effects of the proposed project and identifies alternatives and mitigation measures to the proposed project that could reduce or avoid its adverse environmental impacts.

CEQA requires the preparation of an environmental impact report prior to approving any "project" which may have a significant effect on the environment. For the purposes of CEQA, the term "project" refers to the whole of an action which has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment (State CEQA Guidelines Section 15378[a]). With respect to the proposed project, the County has determined that the proposed action is a project within the definition of CEQA.

PROJECT SUMMARY

The East Brawley Geothermal Development project includes the following project components:

- A 49.9 net megawatt (MW) geothermal power plant consisting of up to six Ormat Energy Converter (OEC) binary generating units (16 MW gross each) with vaporizers, turbines, generators, condensers, preheaters, pumps and piping, motive fluid (isopentane) storage, a motive fluid vapor recovery system, a gas scrubber, and a regenerative thermal oxidizer (RTO) and related ancillary equipment.

- Two cooling tower batteries with a total of 14–20 cell counter flow, induced draft with drift eliminators.

- A control room, office, maintenance shop, parking, and other facilities located at the power plant site.

- Approximately 36 total wells, approximately half for production and half for injection. The final number of wells will be determined by drilling results. Each well will average 4,500 feet in depth. Production wells would have a gas separator and a corrosion and scale inhibitor, as well as a geothermal fluid booster pump to pump the fluid to the power plant. The production and injection wells may also have a sand separator. Six of these wells were already approved and constructed by the County under the East Brawley Exploration permit (CUP 07-0029), while two wells are approved (not constructed) and the remaining 28 wells would be new.

- Piping from production wells to the power plant and from the power plant to the individual injection wells. Gas pipelines would take gas contained in the brine from the gas separators to either the injection wells or to the gas scrubber at the power plant.

- Blowdown wells (2–4) at the power plant site to provide for injection of the cooling tower blowdown.

- Pumps, tank, valves, controls, flow monitoring, and other necessary equipment to the wells and pipelines.

- Maintenance of the production and injection wells cited above.

- Piping, canals or ditches, and pumps to bring water from the Imperial Irrigation District's (IID) Rockwood Canal to the power plant.

- A substation with a 2-mile-long double-circuit 13.8 and 92 kilovolt (kV) transmission line with 66-foot-high poles to interconnect to the IID at the North Brawley 1 substation at Hovley and Andre roads. The transmission line would span the New River. Two alternative transmission line routes have been identified.

- Improvements to the existing Brawley Wastewater Treatment Plant (BWWTP) to include a tertiary treatment system in order to provide reclaimed water to the proposed power plant as well as the construction of a pipeline to convey the water from the BWWTP to the power plant.

BACKGROUND OF ENVIRONMENTAL REVIEW PROCESS FOR THE PROJECT

The following is an overview of the environmental review process for the proposed project that has led to the preparation of this FEIR.

Notice of Preparation and Initial Study

In accordance with Section 15082 of the State CEQA Guidelines, the County prepared and released a Notice of Preparation (NOP) of this EIR on June 17, 2010. The County was identified as the lead agency for the proposed project. The NOP was circulated to the public as well as to local, state, and federal agencies and to other interested parties for 30 days to solicit comments on the proposed project (SCH No. 2010061054). The NOP and full text of responses to the NOP are presented in Appendix A of the DEIR. An Initial Study (IS) for the project was prepared and released for public review along with the NOP. Its conclusions supported preparation of an EIR for the project. The IS is also included in Appendix A of the DEIR. After releasing the NOP, a public scoping session was held on June 24, 2010, to receive additional comments. Concerns raised in response to the NOP were considered during preparation of the DEIR.

Draft EIR

The Draft EIR was released for a 45-day public and agency review on March 16, 2011, with the review period set to end on April 29, 2011. The DEIR contains a description of the project and environmental setting, identification of project impacts, and mitigation measures for impacts found to be potentially significant, as well as an analysis of project alternatives. The DEIR was provided to interested public agencies and the public and was made available for review at the County offices and on the County's website.

Final EIR

The County received comment letters from public agencies and an interest group regarding the DEIR. This document responds to the written comments received as required by CEQA. This document also contains minor edits to the DEIR, which are included in Section 4.0, Minor Revisions to the Draft EIR.

Certification of the Final EIR/Project Consideration

The County will review and consider the Final EIR. If the County finds that the FEIR is "adequate and complete," the County may certify the FEIR. Upon review and consideration of the FEIR, the County may act upon the proposed project. A decision to approve the project would be accompanied by written findings in accordance with State CEQA Guidelines Section 15091 and, if applicable, Section 15093. The County would also adopt a Mitigation Monitoring and Reporting Program for mitigation measures that have been incorporated into or imposed upon the project to reduce or avoid significant effects on the environment. The Mitigation Monitoring and Reporting Program will be designed to ensure that these measures are carried out during project implementation.

1.2 INTENDED USES OF THE EIR

The EIR is intended to evaluate the environmental impacts of the project to the greatest extent possible. This EIR, in accordance with State CEQA Guidelines Section 15126, should be used as the primary environmental document to evaluate all subsequent planning and permitting actions associated with the project. Anticipated subsequent actions are listed in Section 1.0, Introduction, of the DEIR.

KNOWN RESPONSIBLE AND TRUSTEE AGENCIES

In CEQA, the term "responsible agency" includes all public agencies other than the lead agency that may have discretionary actions associated with the proposed project. For the East Brawley Geothermal Development project, these agencies will likely include the following:

- City of Brawley
- Imperial County Air Pollution Control District
- Regional Water Quality Control Board – Region 7
- California Department of Fish and Game
- Imperial County Certified Unified Program Agency
- Imperial County Department of Public Health

For the purposes of CEQA, the term "trustee agency" means a state agency having jurisdiction by law over natural resources affected by a project, which are held in trust for the people of the State of California. The only potential trustee agency for the proposed project is the California Department of Fish and Game.

1.3 ORGANIZATION AND SCOPE OF THE FINAL EIR

This document is organized in the following manner:

SECTION 1.0 – INTRODUCTION

Section 1.0 provides an overview of the EIR process to date and what the FEIR is required to contain.

SECTION 2.0 – EXECUTIVE SUMMARY

Section 2.0 includes an updated Executive Summary that provides a brief project description and presents a summary table of probable environmental effects of the project.

Section 3.0 – COMMENTS AND RESPONSES TO COMMENTS ON THE DRAFT EIR

Section 3.0 provides a list of commenters, copies of written comments (coded for reference), and the responses to those written comments made on the Draft EIR.

Section 4.0 – MINOR REVISIONS TO THE DRAFT EIR

Section 4.0 provides a list of minor edits made to the Draft EIR as a result of comments received.

2.0 EXECUTIVE SUMMARY

This section provides an overview of the proposed East Brawley Geothermal Development project and the environmental analysis. For additional detail regarding specific issues, please consult the appropriate chapter of Sections 4.1 through 4.14 (Environmental Setting, Impacts, and Mitigation Measures) of the Draft EIR.

2.1 PURPOSE AND SCOPE OF THE FINAL ENVIRONMENTAL IMPACT REPORT

The Final EIR, which consists of the Draft EIR and comments and responses to comments as well as minor revisions made in this document, provides a reasonably thorough analysis of the potential environmental effects associated with the implementation of the proposed project, pursuant to the California Environmental Quality Act (CEQA).

This Final EIR analysis focuses on potential environmental impacts that could arise from implementation of the proposed project. The EIR adopts this approach in order to provide a credible worst-case scenario of the impacts resulting from project implementation. Where appropriate, some impacts are analyzed under future conditions, which assume buildout of reasonably foreseeable projects in the area. Other issues that are site-specific in nature are evaluated against baseline conditions.

2.2 PROJECT CHARACTERISTICS

The East Brawley Geothermal Development project includes the following project components:

- A 49.9 net megawatt (MW) geothermal power plant consisting of up to six Ormat Energy Converter (OEC) binary generating units (16 MW gross each) with vaporizers, turbines, generators, condensers, preheaters, pumps and piping, motive fluid (isopentane) storage, a motive fluid vapor recovery system, a gas scrubber, and a regenerative thermal oxidizer (RTO) and related ancillary equipment.

- Two cooling tower batteries with a total of 14–20 cell counter flow, induced draft with drift eliminators.

- A control room, office, maintenance shop, parking, and other facilities located at the power plant site.

- Approximately 36 total wells, approximately half for production and half for injection. The final number of wells will be determined by drilling results. Each well will average 4,500 feet in depth. Production wells would have a gas separator and a corrosion and scale inhibitor, as well as a geothermal fluid booster pump to pump the fluid to the power plant. The production and injection wells may also have a sand separator. Six of these wells were already approved and constructed by the County under the East Brawley Exploration permit (CUP 07-0029), while two wells are approved (not constructed) and the remaining 28 wells would be new.

- Piping from production wells to the power plant and from the power plant to the individual injection wells. Gas pipelines would take gas contained in the brine from the gas separators to either the injection wells or to the gas scrubber at the power plant.

- Blowdown wells (2–4) at the power plant site to provide for injection of the cooling tower blowdown.

- Pumps, tank, valves, controls, flow monitoring, and other necessary equipment to the wells and pipelines.

- Maintenance of the production and injection wells cited above.

- Piping, canals or ditches, and pumps to bring water from the Imperial Irrigation District's (IID) Rockwood Canal to the power plant.

- A substation with a 2-mile-long double-circuit 13.8 and 92 kilovolt (kV) transmission line with 66-foot-high poles to interconnect to the IID at the North Brawley 1 substation at Hovley and Andre roads. The transmission line would span the New River. Two alternative transmission line routes have been identified.

- Improvements to the existing Brawley Wastewater Treatment Plant to include a tertiary treatment system in order to provide reclaimed water to the proposed power plant as well as the construction of a pipeline to convey the water from the BWWTP to the power plant.

The main entrance to the power plant would be off Best Road just north of Ward Road from a left-hand turn pocket built for this project. It would be necessary to cover Best Canal along the property frontage to accommodate widening of the road for the turn pocket. Emergency access would be from Best Road into the south end of the property on the north side of the Livesley Drain. The emergency access road would be constructed with an all-weather surface and lead to a locked gate that could be opened by any emergency responders. Both entrances into the plant site would provide access from the new State Route (SR) 111 bypass that would include an exit onto Best Road just south of Shank Road. Traffic would come from Interstate 8, north of SR 111 to Best Road.

The proposed project site is located in unincorporated Imperial County and is subject to the Imperial County General Plan and Land Use Ordinance. The proposed project site is currently designated on the Imperial County General Plan Land Use Map as Agriculture and Urban Area. The Land Use Ordinance designates the site as A2G, A2GU, A2R, A2RG, A3, A3G, AM2G, M, M1G, M2G, M2GU, M2N, and S1.

The following objectives have been identified for the proposed project:

- Develop and operate a geothermal project

- Assist with meeting federal, state, and local clean and renewable energy goals

- Assist with meeting state mandates under Assembly Bill 32 for Greenhouse Gases

2.3 PROJECT ALTERNATIVES SUMMARY

State CEQA Guidelines Section 15126.6 requires that an EIR describe a range of reasonable alternatives to the project which could feasibly attain the basic objectives of the project and reduce the degree of environmental impact. Draft EIR Section 6.0, Alternatives, provides a qualitative analysis of alternatives as compared to the proposed project. Alternatives identified for the proposed project include the following:

- Under Alternative 1, the No Project, No Build Alternative scenario, the proposed project site is assumed to remain in its current condition as undeveloped agricultural land.

- Under Alternative 2, the project uses reclaimed water from the City of Brawley, geothermal brine, and cooling tower blowdown to make up the balance of water needed for the project.

- Under Alternative 3, the project uses reclaimed water and groundwater to make up the balance of water needed for the project.

- Under Alternative 4, the project would use IID water for the project needs.

2.4 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

The following potential areas of controversy were identified during the Notice of Preparation (NOP) and Initial Study phases of environmental review of the proposed project:

- **Biological Impacts.** Public concerns regarding reduction of water supplies to the Salton Sea.

- **Utilities.** Public concerns regarding availability of water and water quality impacts associated with uses of groundwater for the proposed project.

Concerns raised in response to the NOP were considered during the preparation of the Draft EIR. NOP comment letters are presented in Appendix A of the Draft EIR. Section 3.0 of this FEIR includes issues and concerns expressed relative to the Draft EIR.

2.5 SUMMARY OF ENVIRONMENTAL IMPACTS

Table 2.0-1 presents a summary of project impacts and proposed mitigation measures that would avoid or minimize potential impacts. In the table, the level of significance of each environmental impact is indicated both before and after the application of the recommended mitigation measure(s).

For detailed discussions of all project impacts and mitigation measures, the reader is referred to the topical environmental analysis in Section 4.0 of the Draft EIR.

TABLE 2.0-1
PROJECT IMPACTS AND PROPOSED MITIGATION MEASURES

Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
4.1 Aesthetics				
Impact 4.1.1	Implementation of the proposed project is not anticipated to result in the alteration of a scenic vista.	LTS	None required.	LTS
Impact 4.1.2	Implementation of the proposed project would change the existing visual character of the project site and its surroundings.	LTS	None required.	LTS
Impact 4.1.3	Development of the proposed project would introduce new sources of light and glare, resulting in an increase in ambient light and glare levels.	PS	**MM 4.1.3** All construction related lighting shall include shielding in order to direct lighting down and away from adjacent areas and consist of the minimal wattage necessary to provide safety at the construction site. The exterior finish of building materials shall be painted an earth-tone color to blend into the background. Exterior finishes shall be limited to non-reflective materials such as concrete, masonry, or stucco, though metal or synthetic wall panels with similar appearance to the aforementioned materials may also be acceptable as determined by the Planning and Development Services Department. *Timing/Implementation:* *Prior to the issuance of occupancy permits* *Enforcement/Monitoring:* *Imperial County Planning and Development Services Department*	LTS
Impact 4.1.4	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, would alter the visual character of the	LCC	None required.	LCC

N – No Impact ***PS – Potentially Significant*** ***SU – Significant and Unavoidable*** ***LCC – Less than Cumulatively Considerable***
LTS – Less Than Significant ***S – Significant*** ***PCC – Potentially Cumulative Considerable*** ***CC – Cumulatively Considerable***

Impact		Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
	area resulting in a change to public views as well as increased nighttime light and daytime glare levels.				
4.2 Agricultural Resources					
Impact 4.2.1	The proposed project includes the development of an industrial facility on land designated Prime Farmland.	LTS	None required.		LTS
Impact 4.2.2	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, could result in impacts to agricultural resources.	LCC	None required.		LCC
4.3 Air Quality					
Impact 4.3.1	Implementation of the proposed project would not result in violations or contributions to existing violations of air quality standards and does not therefore conflict with one or more applicable air quality plans.	LTS	None required.		LTS
Impact 4.3.2	Construction of the proposed project would result in short-term emissions of criteria air pollutants from construction equipment operation and soil disturbances, potentially violating or contributing to an existing violation of one or more air quality standards.	PS	**MM 4.3.2a**	The following fugitive PM_{10} and $PM_{2.5}$ control measures shall be implemented ~~where feasible~~, in addition to the requirements of ICAPCD Regulation VIII, at the project site during all construction activities~~:~~. In addition, the project applicant shall provide a copy of a dust control plan consistent with ICAPCD Rule 801 requirements for construction activities prior to any earth movement activity at the project site. Also, ten days prior to the commencement of any construction activity, the project proponent shall submit written notification to the District.	LTS

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LTS – Less Than Significant ***S – Significant*** ***PCC – Potentially Cumulative Considerable*** ***CC – Cumulatively Considerable***

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		a. Water exposed soil with adequate frequency (three times daily at a minimum) for continued moist soil. b. Replace ground cover in disturbed areas as quickly as possible. c. Install automatic sprinkler system on all soil piles. d. Limit vehicle speed for all construction vehicles to a maximum of 15 mph on any unpaved surface at the construction site. e. Develop a trip reduction plan to achieve a 1.5 average vehicle ridership (AVR) for construction employees. f. While clearing forms, use single-stage pours where allowed; use water spray to clear forms; use sweeping and water spray to clear forms; use vacuum to clear forms; and avoid use of high pressure air to blow soil and debris from the form. g. For large areas of disturbed land, prevent access by fencing, ditches, vegetation, berms or other barriers; install perimeter wind barriers. h. Pave project driveways as early as possible; install gravel pads and wheel cleaning features for construction equipment; and limit site access. i. All materials shall be covered in haul trucks and wetted; where appropriate, use bedliners in bottom-dumping haul vehicles. j. Remove the accumulation of mud or dirt from roadways at least once every 24	

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		hours when construction is occurring. k. Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. Complaints shall be responded to and resolved with 24 hours. l. Prior to power plant operation, the applicant shall demonstrate that all disturbed ground surfaces have been treated to minimize fugitive dust emissions. m. Gravel pads will be installed at all construction access points. n. The construction contractor shall designate a person or persons to monitor compliance with this mitigation measure to ensure minimization of fugitive dust emissions. o. Areas of excavated or disturbed soils where construction activities have ceased for more than 15 days will be covered or treated with a dust suppressant. p. Construction activities that typically generate significant amounts of fugitive dust emissions will be discontinued when wind speeds are greater than 20 miles per hour. *Timing/Implementation:* *Mitigation shall be implemented throughout project construction phase* *Enforcement/Monitoring:* *Imperial County Planning and Development Services Department*	

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Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		MM 4.3.2b The following construction equipment control measures shall be implemented at the project site during all construction activities~~, when feasible~~: a. Use alternative-fueled or catalyst-equipped diesel construction equipment, including all off-road and portable diesel-powered equipment. b. Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 3 ~~5~~ minutes at a maximum. c. Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the amount of equipment in use. d. Replace fossil-fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set). e. The project shall utilize construction and well redrilling equipment that meets or exceeds Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in the California Code of Regulations. f. Provide for on-site meals for construction workers by arranging a lunch wagon to visit the construction site. g. Suspend construction activities when the Imperial County Air Pollution Control District issues a Health Advisory Alert pursuant to District Rule 608.	

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LTS – Less Than Significant *S – Significant* *PCC – Potentially Cumulative Considerable* *CC – Cumulatively Considerable*

Impact		Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
			h. The construction contractor will be required to ensure that construction equipment is properly maintained. *Timing/Implementation:* *Mitigation shall be implemented throughout project construction phase* *Enforcement/Monitoring:* *Imperial County Planning and Development Services Department*		
Impact 4.3.3	Operation of the proposed project would result in long-term emissions of criteria air pollutants from mobile and area sources that could violate or substantially contribute to an existing violation of one or more air quality standards.	PS	**MM 4.3.3a**	The proposed project shall be required to implement the use of a regenerative thermal oxidizer (RTO) unit and caustic scrubber system, which shall be used to abate the combustible noncondensible gas air pollutant emissions, during project operations. The RTO/scrubber system represents best available control technology for removal of H_2S and C_6H_6 in the noncondensible gas. In addition, the proposed project shall be required to implement the use of a maintenance vapor recovery unit to limit OEC unit emissions as well as high-efficiency drift eliminators to abate PM_{10} emissions from the north and south cooling towers. *Timing/Implementation:* *Ongoing* *Enforcement/Monitoring:* *Imperial County Planning and Development Services Department in coordination with the Imperial County Air Pollution Control District*	SU
			MM 4.3.3b	The proposed project shall be required to fulfill its obligations mandated in Imperial County Air Pollution Control District Rule 207.C.2.a in order to mitigate project air pollutants associated with ozone or PM_{10} in	

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		excess of 137 pounds per day with the purchase of necessary ROC emission offset credits from one or more entities prior to the issuance of construction permits. *Timing/Implementation:* *Prior to the issuance of grading permits* *Enforcement/Monitoring:* *Imperial County Planning and Development Services Department in coordination with the Imperial County Air Pollution Control District*	
Impact 4.3.4 Implementation of the proposed project would not be anticipated to contribute to localized concentrations of mobile-source CO that would exceed applicable ambient air quality standards.	LTS	None required.	LTS
Impact 4.3.5 Project operations will result in low levels of hazardous air pollutant emissions in the vicinity of the project site.	PS	**MM 4.3.5** The proposed project shall achieve synthetic minor source status in order to mitigate project air pollutants associated with the HAP benzene (C_6H_6) prior to operation ~~the issuance of construction permits~~. *Timing/Implementation:* *Prior to operation ~~the issuance of construction permits~~* *Enforcement/Monitoring:* *Imperial County Planning and Development Services Department*	LTS
Impact 4.3.6 Receptors located in the vicinity of the proposed project may be exposed to small amounts of odorous emissions.	LTS	None required.	LTS

Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.3.7	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, would contribute to increased air quality emissions in the air basin.	PCC	Implementation of mitigation measure **MM 4.3.5**	LCC
4.4 Biological and Natural Resources				
Impact 4.4.1	Implementation of the proposed project could result in direct and indirect loss of habitat and individuals of endangered, threatened, rare, proposed, and candidate status, as well as plant species identified by the California Native Plant Society with a rating of List 1A or 1B (i.e., rare, threatened, or endangered plants).	PS	**MM 4.4.1a** A USFWS-approved biologist shall conduct protocol-level surveys for the southwestern willow flycatcher in all suitable habitat within the proposed project site according to the most current and available protocol (Survey Protocol for the Southwestern Willow Flycatcher by Mark K. Sogge, U.S. Geological Survey; Darrell Ahlers, Bureau of Reclamation; and Susan J. Sferra, U.S. Fish and Wildlife Service). *Timing/Implementation:* *Prior to the issuance of grading permits* *Enforcement/Monitoring:* *County of Imperial Planning and Development Services Department; USFWS; CDFG* **MM 4.4.1b** If southwestern willow flycatchers are detected at anytime during surveys, construction activities associated with the proposed project will be restricted during the breeding season (May 15 through August 15) in the areas within a 0.5-mile radius of the New River. *Timing/Implementation:* *May 15 through August 15 if the species is detected* *Enforcement/Monitoring:* *County of Imperial Planning and Development Services Department; USFWS; CDFG*	LTS

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Impact		Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
			MM 4.4.1c	Project pipelines shall be placed within existing roadway features or other disturbed areas outside of irrigation ditches and canals (with the exception of required crossing points). New pipelines associated with Well Sites 27-10, 11-15, and 18-15 shall be sited 100 feet outside of dense reed and cattail areas identified in Figure 5 of the East Brawley Geothermal Development Project Biological Resources Evaluation (September 2011), and construction exclusion fencing shall be established in these areas to avoid impacts. *Timing/Implementation:* *Prior to construction-related disturbance to water features* *Enforcement/Monitoring:* *County of Imperial Planning and Development Services Department*	
Impact 4.4.2	Implementation of the proposed East Brawley Geothermal Development project could result in direct and indirect loss of habitat and individuals of animal and plant species of concern, listed as "fully protected" in the California Fish and Game Code (Section 3511, 4700, 5050, 5515), migratory birds protected under the Migratory Bird Treaty Act, and other non-listed special-status species.	PS	**MM 4.4.2a**	For trees that must be removed to construct each phase of the proposed project, the project proponent will target the removal of trees and other vegetation to occur outside the nesting season between September 1 and February 28. If trees cannot be removed outside the nesting season, pre-construction surveys will be conducted prior to vegetation removal to verify the absence of active nests within 500 feet of construction activities. If construction or tree removal is proposed during the breeding/nesting season for local avian species (typically March 1 through August 31), a focused survey for active nests of raptors and migratory birds within and in the vicinity of (no less than 500 feet outside project boundaries, where possible) the project construction activities shall be	LTS

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		conducted by a qualified biologist prior to each phase of development. Surveys shall include searches of all potential nest sites, including snags, shrubs, ground, buildings, and cliff faces. If no active nests are found, vegetation removal or construction activities may proceed. If an active nest is located during pre-construction surveys, USFWS and/or CDFG (as appropriate) shall be notified regarding the status of the nest. Furthermore, construction activities shall be restricted as necessary to avoid disturbance of the nest until it is abandoned or the biologist deems disturbance potential to be minimal. Restrictions may include establishment of exclusion zones (no ingress of personnel or equipment at a minimum radius of 500 feet around an active bald eagle or osprey nest, 250 feet around an active other raptor nest, and 100 feet around an active migratory bird nest) or alteration of the construction schedule. No action is necessary if no active nests are found or if construction will occur during the non-breeding season (generally September 1 through February 28). *Timing/Implementation:* *Fourteen days prior to ground disturbance or tree removal for each phase of development* *Enforcement/Monitoring:* *County of Imperial Planning and Development Services Department* **MM 4.4.2b** A qualified biologist shall conduct a pre-construction den survey no more than two weeks prior to any grading or ground-breaking	

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		activity. The survey will identify dens for special-status mammals including Sierra Nevada red fox, California wolverine, and American badger. If active den/burrow sites for special-status mammals are identified, a mitigation plan shall be developed in consultation with the California Department of Fish and Game and/or U.S. Fish and Wildlife Service to ensure no animals are killed and that den/burrow sites are properly addressed. Measures may include, but are not limited to, enforcement of buffer zones restricting construction activities near den sites, and capture and relocation of the species. If active dens/burrows are present, they shall be monitored by a qualified biologist(s)/monitor(s) throughout construction to ensure no additional losses. If no active dens/burrows are found, then no further mitigation is necessary. *Timing/Implementation:* *Two weeks prior to construction and/or grading activities* *Enforcement/Monitoring:* *County of Imperial Planning and Development Services Department* **MM 4.4.2c** Worker Environmental Awareness Program. A worker environmental awareness program shall be established and implemented prior to construction to educate the construction crew on special-status species with the potential to occur in the area. The program shall include, at a minimum, species identification, a description of suitable habitat for this species, and measures to implement in the event that this species is found during construction. The program shall be presented to all members of	

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		the construction crew. *Timing/Implementation:* *Prior to any employee conducting work on the project site* *Enforcement/Monitoring:* *County of Imperial Planning and Development Services Department* **MM 4.4.2d** The following best management practices (BMPs) shall be implemented during construction to reduce impacts to special-status species and habitat: • Limit construction equipment and associated activities to the project routes in areas that support sensitive resources. • To eliminate an attraction to predators of special-status species, all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in solid, closed containers (trash cans) and removed at the end of each working day from the entire construction site. • Implement construction measures to avoid accidental transport and spread of invasive species including the cleaning of construction vehicles and equipment prior to entering the project site. • To the maximum extent feasible, nighttime construction will be minimized. *Timing/Implementation:* *During all project construction activities* *Enforcement/Monitoring:* *County of Imperial Planning and Development Services Department*	

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Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			MM 4.4.2.e All aboveground lines, transformers, or conductors shall comply with Avian Power Line Interaction Committee (APLIC) standards, including the use of deterrents such as marker balls, swinging markers, bird flight diverters, or other similar devices that are commercially available products designed to increase the visibility of overhead wires to birds. *Timing/Implementation:* *During project design and construction grading activities* *Enforcement/Monitoring:* *County of Imperial Planning and Development Services Department*	
Impact 4.4.3	Implementation of the proposed project could result in the loss of populations or essential habitat for the western burrowing owl, a California species of concern.	PS	**MM 4.4.3** Mitigation and surveys will be consistent with recommendations in the Staff Report on Burrowing Owl Mitigation (CDFG 2012). Surveys shall be undertaken during the nesting and wintering season for the burrowing owl to determine the type of site use (i.e., nesting activity, etc.) that is occurring within and adjacent to the project construction areas. Occupied western burrowing owl burrows shall not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist approved by CDFG verifies through non-invasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. If required, any mitigation actions shall be carried out prior to the nesting season, from September 1 to January 31. In addition, pre-construction surveys of suitable habitat on the project site and 150-foot buffer zones shall be	LTS

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		conducted within 30 days prior to construction. If avoidance is possible, then no disturbance of occupied burrows shall occur within 50 meters (approximately 160 feet) during the non-breeding season of September 1 through January 31 or within 75 meters (approximately 250 feet) during the breeding season of February 1 through August 31. Foraging habitat shall be permanently preserved contiguous with occupied burrow sites for each pair of breeding burrowing owls or single unpaired resident bird, or as approved by CDFG. When destruction of occupied burrows is unavoidable, in order to offset the loss of foraging and burrow habitat, foraging habitat per pair or unpaired resident bird shall be permanently protected in a location and configuration acceptable to CDFG. New burrows shall be created at a ratio or 2:1 in the protected habitat, or as approved by CDFG. If owls must be moved away from the disturbance area, passive relocation techniques shall be used. Passive relocation shall incorporate the following guidance, subject to approval by CDFG: Owls should be excluded from burrows in the immediate impact zone and within a 50-meter (approximately 160 feet) buffer zone by installing one-way doors in burrow entrances. One-way doors should be left in place 48 hours to ensure owls have left the burrow before excavation.	

Impact		Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
			Timing/Implementation:	*Prior to construction-related disturbance*	
			Enforcement/Monitoring:	*County of Imperial Planning and Development Services Department and CDFG*	
Impact 4.4.4	Implementation of the proposed project would result in disturbance, degradation, and/or removal of sensitive biological communities.	PS	**MM 4.4.4a**	Where impacts to riparian habitat are not avoidable and on-site preservation is not possible, habitat compensation shall be required at a 1:1 impact preservation ratio. To mitigate for the permanent direct and indirect impacts from the proposed project, a mitigation and monitoring plan will be prepared for submittal to USACE with the Section 404 permit application. The mitigation plan will identify impacts on all jurisdictional features and mitigation measures that will be implemented to achieve the "no net loss" (i.e., the same amount of wetland resources lost to site development shall be replaced/created). This may include creation of wetland resources on the project site or off site as determined acceptable to USACE. To assist in the on-site revegetation, areas of vegetation with a diameter at breast height (DBH) of 4 inches or less that do not require complete removal shall be cut at ground level with hand-operated power. <u>This mitigation will not apply if riparian habitat is not impacted.</u>	LTS
			Timing/Implementation:	*Prior to construction-related disturbance to riparian habitat*	
			Enforcement/Monitoring:	*County of Imperial Planning and Development Services Department*	

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Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		MM 4.4.4b A 1602 Streambed Alteration Agreement for removal of or disturbance to riparian habitat and waters of the United States (i.e., stream, lake, or river) from CDFG would also be required for the proposed project. This agreement will include measures to minimize and restore riparian habitat to pre-project conditions. The 1602 Streambed Alteration Agreement would require the project applicant to prepare and implement a riparian vegetation mitigation and monitoring plan for disturbed riparian vegetation. This mitigation will not apply if riparian habitat is not impacted. *Timing/Implementation:* *Prior to the start of construction activities that disturb riparian habitat* *Enforcement/Monitoring:* *County of Imperial Planning and Development Services Department*	
Impact 4.4.5 The proposed project would potentially result in a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, riverine, irrigation canals, and seasonal wetland) through direct removal, filling, hydrological interruption, or other means.	PS	**MM 4.4.5** The project applicant shall comply with the USACE "no net loss" policy for mitigation of wetlands/waters under the jurisdiction of USACE. The applicant must apply for a Section 404 permit, a Section 401 permit, and a 1602 Streambed Alteration Agreement. If wetland resources are proposed to be taken, the project applicant shall do the following: 1. If required, apply for a Section 404 permit from USACE after verification of the wetland delineation by USACE. Any waters of the U.S. that would be lost or disturbed shall be replaced or rehabilitated on a no net loss basis in accordance with the USACE mitigation guidelines. On-site creation of wetland	LTS

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		habitat is preferred to off-site mitigation. Habitat restoration, rehabilitation, and/or replacement shall be at a location and by methods agreeable to the USACE. 2. Obtain a Section 401 water quality waiver of certification from the RWQCB. 3. A mitigation plan shall be implemented that includes one of the following: a. Completion of an on-site mitigation and monitoring plan that includes on-site creation/preservation of the wetlands/waters. This will include measures to avoid impacts to wetlands and habitat to be preserved such as fencing, best management practices to protect water quality, and other appropriate measures. b. Credits may be obtained at an approved mitigation bank. The project applicant shall provide written evidence to the County of Imperial from USACE and CRBRWQCB that this measure has been complied with prior to project approval. *Timing/Implementation:* *Prior to the start of construction activities that would impact wetlands* *Enforcement/Monitoring:* *County of Imperial Planning and Development Services Department*	

Impact		Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
Impact 4.4.6	Development of the project site would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	LTS	None required.		LTS
Impact 4.4.7	Implementation of the proposed project would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or any adopted biological resources recovery or conservation plan of any federal or state agency.	N	None required.		N
Impact 4.4.8	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, would result in potential disturbance to special-status species and sensitive habitats throughout the region.	PCC	Mitigation measures **MM 4.4.1** through **MM 4.4.5**		LTS
4.5 Cultural and Paleontological Resources					
Impact 4.5.1	Implementation of the proposed East Brawley Geothermal Development project could result in impacts to prehistoric resources within project boundaries.	PS	**MM 4.5.1a**	If a Native American tribal monitor is available, the project applicant shall retain a Native American tribal monitor or Native American representative to be present during all excavation or other earth-moving activities within the East Brawley Geothermal Development project area. The project applicant shall notify the Imperial County Planning and Development Services Department immediately if any prehistoric or historic resources are uncovered. All construction must stop in the vicinity of the find and an archaeologist that meets the	LTS

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology shall be retained to evaluate the finds and recommend appropriate action. The archaeologist shall work in coordination with the Native American tribal monitor or representative. Imperial County and the project applicant shall consider mitigation recommendations presented by a professional archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards in prehistoric or historical archaeology for any unanticipated discoveries. Imperial County and the project applicant shall consult and agree upon implementation of a measure or measures that Imperial County and the project applicant deem feasible and appropriate. Such measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures. The project proponent shall be required to implement any mitigation necessary for the protection of cultural resources. *Timing/Implementation:* *As a condition of project approval, and implemented during ground-disturbing construction activities* *Enforcement/Monitoring:* *Imperial County Planning and Development Services Department* **MM 4.5.1b** During all excavation or other earth-moving activities within the East Brawley Geothermal Development project area, should human remains be discovered, all work must stop in the immediate vicinity of the find, the Imperial	

Impact		Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
				County Planning and Development Services Department shall be notified immediately, and the County Coroner must be notified according to Section 7050.5 of the California Health and Safety Code. If the remains are determined to be Native American, the coroner will notify the Native American Heritage Commission, and the procedures outlined in CEQA Section 15064.5(d) and (e) shall be followed. *Timing/Implementation:* *As a condition of project approval, and implemented during ground-disturbing construction activities* *Enforcement/Monitoring:* *Imperial County Planning and Development Services*	
Impact 4.5.2	Construction activities associated with implementation of the proposed project could result in impacts to undiscovered paleontological resources.	PS	**MM 4.5.2**	If any paleontological resources (fossils) are discovered during ground-disturbing project activity within the project area, all work in the immediate vicinity must stop and the project applicant shall notify the Imperial County Planning and Development Services Department immediately. A qualified paleontologist shall be retained to evaluate the finds and recommend appropriate mitigation measures for the inadvertently discovered paleontological resources. Imperial County and the project applicant shall consider the mitigation recommendations of the qualified paleontologist for any unanticipated discoveries. Imperial County and the project applicant shall consult and agree upon implementation of a measure or measures that Imperial County and the project applicant deem feasible and appropriate. Such	LTS

Impact		Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
			measures may include avoidance, preservation in place, excavation, documentation, curation, data recovery, or other appropriate measures. The project proponent shall be required to implement any mitigation necessary for the protection of paleontological resources**.** *Timing/Implementation:* *As a condition of project approval, and implemented during ground disturbing construction activities.* *Enforcement/Monitoring:* *Imperial County Planning Department*		
Impact 4.5.3	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, could result in impacts to prehistoric resources, historic resources, and human remains.	PCC	Mitigation measures **MM 4.5.1a** and **MM 4.5.1b**		LCC
Impact 4.5.4	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, could result in the potential disturbance of paleontological resources (i.e., fossils and fossil formations).	PCC	Mitigation measure **MM 4.5.2**		LCC
4.6 Geology and Soils					
Impact 4.6.1	The proposed project does not contain any known earthquake fault lines.	LTS	None required.		LTS
Impact 4.6.2	The project site is located in a seismically active area.	PS	**MM 4.6.2**	Prior to design and construction of the proposed project, site-specific geotechnical investigations, including areas underlying the proposed power plant, well field, water pipelines, transmission lines, and	LTS

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			river crossings, shall be performed, including subsurface exploration and laboratory testing. If any potential seismic hazards exists for the potential for ground-shaking through the geotechnical investigations, measures such as regrading, grout injection, or deep dynamic compression shall be incorporated into the site design and implemented during project construction to reduce potential hazards to a less than significant level, in accordance with CBC standards. *Timing/Implementation:* *Prior to approval of improvement plans* *Enforcement/Monitoring:* *Imperial County Department of Public Works and Department of Planning and Development Services*	
Impact 4.6.3	The risk of seismically induced liquefaction is low due to the depth of groundwater underlying the project site. However, some seismically induced settlement of the dry sands could occur.	LTS	None required.	LTS
Impact 4.6.4	Development of the proposed project may require excavation and grading that could result in soil erosion and loss of topsoil during construction.	PS	Implement mitigation measures **MM 4.8.1** and **MM 4.3.2a.**	LTS
Impact 4.6.5	The proposed project is not located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	LTS	None required.	LTS

<table>
<tr><th>Impact</th><th>Level of Significance Without Mitigation</th><th>Mitigation Measure</th><th>Resulting Level of Significance</th></tr>
<tr>
<td>Impact 4.6.6 The proposed project is located on expansive clay soils.</td>
<td></td>
<td>MM 4.6.6 During project grading and filling activities, native clay soils should be placed as fill only in nonstructural areas. The project proponent shall adhere to the following recommendations as provided in the geotechnical investigation:
Table 4.6-3
Specification for Imported Structural Fill
<table>
<tr><th>General Plan Policies</th><th>Consistency with General Plan</th><th>Analysis</th></tr>
<tr><td>Policy – Seismic and Geologic Hazards
<u>Program</u>:
Implement codified ordinances and procedures which require the review and restriction of land use due to possible natural hazards.
Ensure that no structure for human occupancy, other than one-story wood</td><td>Yes, with mitigation</td><td>A geotechnical report has been prepared by Black Eagle Consultants, Inc. for the proposed project, which includes safety considerations in land use planning. The geotechnical report has been referenced in this environmental document, and the report's recommended measures to mitigate potential geologic or seismic hazards that may be associated with the proposed project have been incorporated into this DEIR.
Since the project site is located in a seismically</td></tr>
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Impact	Level of Significance Without Mitigation	Mitigation Measure			Resulting Level of Significance
		frame structures, shall be permitted within fifty feet of an active fault trace as designated on maps compiled by the State Geologist under the Alquist-Priolo Geologist Hazards Zone Act.		active area, all proposed structures are required to be designed in accordance with the California Building Code (CBC) for near source factors derived from a design basis earthquake. In addition, appropriate mitigation measures have been incorporated into this DEIR to reduce risks associated with seismic hazards. The project site is not located within any Alquist-Priolo Earthquake Fault Zones as shown on the Index to Earthquake Fault Zone Map (Black Eagle 2008).	
		Objective 2.10 Reduce the risk of damage due to subsidence resulting from extraction of groundwater and geothermal resources by appropriate regulation.	Yes, with mitigation	The project would participate in the Imperial County Subsidence Detection Program.	

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			Timing/Implementation:	*Prior to approval of improvement plans*	
			Enforcement/Monitoring:	*Imperial County Department of Public Works and Department of Planning and Development Services*	
Impact 4.6.7	The project proposes the use of septic systems for wastewater disposal.	LTS	None required.		LTS
Impact 4.6.8	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, would result in continued urbanization of the area by increasing the density of development.	PCC	Implementation of mitigation measures **MM 4.6.2** and **MM 4.6.6**		LCC
4.7 Hazards and Human Health					
Impact 4.7.1	Implementation of the proposed project would result in the use, storage, and disposal of hazardous materials during both construction and operation.	PS	**MM 4.7.1a**	A comprehensive Hazardous Materials Business Plan shall be prepared for the project in accordance with the California Accidental Release Prevention Program. The Hazardous Materials Management Plan (HMMP) shall include (1) an Inventory and Site Map, (2) an Emergency Response Plan (ERP) and Owner/Operator Identification, and (3) employee training**.** The HMMP will be prepared and submitted to the California Department of Toxic Substances Control (DTSC), as the Certified Unified Program Agency (CUPA) for Imperial County. The HMMP will be maintained and revised as necessary. The project shall comply with all federal, state, Imperial County, and fire district requirements for temporary storage of	LTS

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Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		flammable/combustible materials at construction sites. The proposed project shall include staging areas where materials shall be stored during construction. The project proponent shall prepare a Hazard and Operability Review for the final geothermal plant design. The Hazard and Operability Review shall contain a structured and systematic evaluation of the planned operation for the power plan in order to identify and evaluate problems that may represent risks to personnel or equipment, or prevent efficient operation. The final design shall incorporate control valves, pump kill switches, and motor-operated valves. *Timing/Implementation:* *Prior to operation ~~issuance of a recoded conditional use permit~~* *Enforcement/Monitoring:* *Imperial County Planning and Development Services Department, Imperial County Fire Department, and California Department of Toxic Substances Control (DTSC), as the Certified Unified Program Agency (CUPA) for Imperial County* **MM 4.7.1b** A comprehensive Emergency Response Plan (ERP) shall be prepared for the East Brawley Geothermal Development project. Local emergency response providers shall be consulted regarding the Emergency Response Plan (ERP) and shall be provided copies of the document for their review. Approval of this ERP will be required by the Imperial County Sheriff's Office, Imperial County Office of Emergency Services, Imperial County Fire	

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		Department, Imperial County Department of Public Health, California Highway Patrol, and Caltrans prior to the commencement of site operations. The ERP shall address potential safety hazards associated with the project and identify public safety hazards that can be reduced or eliminated through specific protocols. The ERP also shall provide an overview of general procedures required to protect people and property during an emergency or disaster situation. The intent of the ERP is to establish a clear understanding of responsibilities for first responders, sheriff and police, local fire departments, emergency medical service agencies, and management of staff during an emergency situation. The ERP shall identify and assign personnel to various emergency tasks and responsibilities, thus creating a site emergency team. The ERP shall describe the emergency management procedures to cover possible emergencies (i.e., well blowouts, major fluid spills, earthquakes, etc.). There shall be at least one employee on call at all times (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility of coordinating all emergency response measures. The on-call emergency coordinator would be familiar with the ERP and would have the authority to commit the resources needed to carry out the contingency plan. Additionally, the ERP shall include designated assignments for on-site personnel, details of each position's responsibilities, procedures for coordination with outside resources, and	

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		establishment of a chain of command to take precedence in emergencies. The Emergency Response Plan shall be updated annually in coordination with the Imperial County Fire Department, Public Health Department, the Imperial County Certified Unified Program Agency, and the Imperial County Office of Emergency Services. *Timing/Implementation:* *Prior to issuance of a recoded conditional use permit* *Enforcement/Monitoring:* *Imperial County Department of Planning and Development Services* **MM 4.7.1c** Prior to the demolition of any building, structure, asphalt, or concrete-paved surface, the project applicant shall prepare a Phase II ESA to identify whether any hazardous materials, hazardous chemicals, lead-based paints, mercury, or asbestos-containing materials are located on the site. The applicant shall ensure that all ASTs, equipment, and debris have been cleared from the site. All contaminants shall be remediated in compliance with local, state, and federal requirements. *Timing/Implementation:* *Prior to the demolition of any building, structure, asphalt, or concrete-paved surface* *Enforcement/Monitoring:* *Imperial County Department of Planning and Development Services* **MM 4.7.1d** Before excavation within the areas proposed to be graded for development, the applicant shall prepare a Health and Safety Plan (HSP) to minimize the risk of exposure of workers to	

Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
			residual agricultural chemicals in soil. The plan shall describe the chemicals potentially contained in the soil and potential routes of exposure; incorporate construction safety measures (including appropriate personal protective equipment and procedures) for excavation and remediation or disposal activities; establish procedures for the safe storage and use of hazardous materials at the project site, if necessary; provide emergency response procedures; and designate personnel responsible for implementation of the HSP. The HSP shall be submitted to the Imperial County Public Health Department for review and approval prior to the issuance of a grading permit. *Timing/Implementation*: *Prior to the issuance of a grading permit* *Enforcement/Monitoring*: *Imperial County Planning and Development Department and Public Health Department*	
Impact 4.7.2	Implementation of the proposed project would require the transport of various substances, some of which are flammable. This transport could pose a significant hazard should an accident involving the substances occur.	LTS	None required.	LTS
Impact 4.7.3	Implementation of the proposed project may create a significant hazard to the public or environment in the event of an accident involving the release of hazardous materials into the environment.	LTS	None required.	LTS

Impact		Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
Impact 4.7.4	The nearest airport is approximately 1.3 miles from the project site. The project is not located within the flight path. The airport activities do not present a hazard to the proposed project's employees. However, future drilling wells may be located closer to the airport.	PS	**MM 4.7.4**	For future drilling activities within the East Brawley Geothermal Development project area, the project applicant(s) shall receive a Determination of No Hazard to Air Navigation from the Federal Aviation Administration for the drilling of additional wells. *Timing/Implementation:* *Prior to issuance of conditional use permits for the wells* *Enforcement/Monitoring:* *Project applicant; Imperial County Planning and Development Services Department; City of Brawley Planning Department*	LTS
Impact 4.7.5	The project is not located near a private airstrip. Therefore, implementation of the proposed project would not result in a safety hazard for people residing or working in the project area**.**	N	None required.		N
Impact 4.7.6	Implementation of the proposed East Brawley Geothermal Development project would lead to increases in demand for fire and police services, as discussed in Section 4.11, Public Services.	LTS	None required.		LTS
Impact 4.7.7	The project site is located in a relatively rural area. However, most of the site is currently irrigated for agricultural production or is fallow with little vegetation present.	LTS	None required.		LTS

Impact		Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
Impact 4.7.8	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, could increase the risk of public exposure to hazardous materials.	LCC	None required.		LCC
4.8 Hydrology and Water Quality					
Impact 4.8.1	Buildout of the proposed East Brawley Geothermal Development project area could result in soil disturbance associated with construction activities and other aspects of construction, resulting in accelerated erosion and sedimentation or the release of other pollutants to local waterways.	PS	**MM 4.8.1**	The project applicant shall prepare a stormwater pollution and prevention plan (SWPPP) to be administered during grading and project construction. The SWPPP must incorporate best management practices (BMPs) meeting technical standards of the General Construction permit to ensure that potential water quality impacts (including on- and off-site erosion) during construction phases are minimized and that a violation of water quality standards does not occur. The SWPPP must address spill prevention and include a countermeasure plan describing measures to ensure proper collection and disposal of all pollutants handled or produced on the site during construction, including sanitary wastes, cement, and petroleum products. BMPs included in the SWPPP must be consistent with the California Stormwater Best Management Practices Handbook for Construction. The SWPPP must be submitted to the Colorado River Basin Regional Water Quality Control Board, Region 7~~, and to the County for review prior to the issuance of grading permits~~. *Timing/Implementation:* *Prior to issuance of grading permits* *Enforcement/Monitoring:* *Project applicant; CRBRWQCB*	LTS

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Impact		Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
Impact 4.8.2	Buildout of the proposed East Brawley Geothermal Development project area would introduce impervious surfaces and structures to the project site, resulting in increased runoff and additional pollutants.	PS	**MM 4.8.2**	Stormwater drainage from on-site impervious surfaces (including roads) shall be collected and routed through specifically designed water quality treatment facilities for removal of pollutants of concern (e.g., sediment, oil/grease), as approved by the Imperial County Department of Planning and Development Services. As part of the Improvement Plans, the project applicant shall verify that the proposed stormwater retention basin and sumps/containment basins are appropriate to treat the pollutants of concern from this project. *Timing/Implementation:* *Prior to issuance of grading permits* *Enforcement/Monitoring:* *Project applicant; Imperial County Department of Planning and Development Services*	LTS
Impact 4.8.3	Buildout of the proposed East Brawley Geothermal Development project area would result in an increase in impervious surface area that could result in alteration of existing on-site drainage patterns and contributions to substantial runoff exceeding existing stormwater capacity.	PS	Mitigation measures **MM 4.8.1** and **MM 4.8.2**		LTS
Impact 4.8.4	Conversion of the project site from agricultural to commercial uses may cause groundwater levels to fluctuate and could affect recharge.	LTS	None required.		LTS
Impact 4.8.5	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, would contribute to the cumulative effects of degradation of water quality, changes	PCC	**MM 4.8.5**	Although this impact is expected to be addressed through design, retention basins, and required mitigation measure MM 4.8.2, the project applicant and Imperial Irrigation District will perform an analysis of these	LCC

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LTS – Less Than Significant ***S – Significant*** ***PCC – Potentially Cumulative Considerable*** ***CC – Cumulatively Considerable***

Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	to runoff patterns, and the potential for increased flooding.		impacts through a detailed drain hydraulic analysis in order to properly design system modifications, mitigate development impacts, and determine if associated drain impact fees are required. *Timing/Implementation:* *As a condition of approval for the proposed project* *Enforcement/Monitoring:* *Imperial County Department of Planning and Development Services; Imperial Irrigation District* Mitigation measures **MM 4.8.1** and **MM 4.8.2**	
4.9 Land Use				
Impact 4.9.1	The proposed East Brawley Geothermal Development project is consistent with the County of Imperial General Plan and Land Use Ordinance. The proposed project is also required to be consistent with General Plan and Land Use Ordinance standards.	LTS	None required.	LTS
Impact 4.9.2	The proposed project would develop a geothermal power plant and associated pipelines and wells, which will temporarily increase the intensity of land use on the project site and would place industrial development in an area of unincorporated Imperial County that is predominantly agricultural.	PS	**MM 4.9.2a** The project applicant shall prepare a Construction Notification Plan. Forty-five days (45) prior to construction, the project applicant shall prepare and submit the Construction Notification Plan to the County of Imperial for approval. The plan shall identify the procedures the applicant will use to inform property owners of the location and duration of construction, identify approvals that are needed prior to posting or publication of construction notices, and include text of proposed public notices and advertisements. *Timing/Implementation:* *Forty-five (45) days prior to construction*	LTS

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LTS – Less Than Significant ***S – Significant*** ***PCC – Potentially Cumulative Considerable*** ***CC – Cumulatively Considerable***

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
		Enforcement/Monitoring: *County of Imperial Department of Planning and Development Services* **MM 4.9.2b** A public notice mailer shall be prepared and mailed no less than 15 days prior to construction. The notice shall identify construction activities that would restrict, block, remove parking, or require a detour to access existing residential properties. The notice shall state the type of construction activities that will be conducted and the location and duration of construction. The applicant shall mail the notice to all residents or property owners within 1,000 feet of the project site and to any property owners or tenants that could be impacted by construction activities. If construction delays of more than seven days occur, additional noticing shall be required to the public and local and state agencies. *Timing/Implementation:* *No less than 15 days prior to construction* *Enforcement/Monitoring:* *County of Imperial Department of Planning and Development Services*	
Impact 4.9.3 The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, would result in development that would change existing land uses patterns and intensity.	LCC	None required.	LCC

Impact		Level of Significance Without Mitigation	Mitigation Measure		Resulting Level of Significance
4.10 Noise					
Impact 4.10.1	During the construction phases, implementation of the proposed project could result in temporary increased noise levels that may exceed Imperial County standards at adjacent noise-sensitive receptors off-site. The project proposes to implement best management practices to reduce noise levels including the minimization of unnecessary construction vehicle use and idling time.	LTS	None required.		LTS
Impact 4.10.2	Implementation of the proposed project would not result in a substantial increase in ambient noise levels at off-site noise-sensitive receptors or exceed the Imperial County standards for exterior noise levels.	LTS	None required.		LTS
Impact 4.10.3	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, would increase ambient noise but would not exceed the 3 dBA threshold.	LCC	None required.		LCC
4.11 Public Services					
Impact 4.11.1.1	Circulation and access to the site and surrounding parcels are not anticipated to be hindered during project construction or operation. Therefore, the project is not anticipated to affect emergency response times.	LTS	None required.		LTS
Impact 4.11.1.2	Implementation of the proposed East Brawley Geothermal Development project would result in an increase in demand for fire protection services over existing levels. However, the project design features include fire prevention	PS	**MM 4.11.1.2a**	The project applicant shall be required to pay a fair share contribution for additional fire facilities, equipment, and staff. Construction of such facilities and the structure(s) size, amount of equipment, and personnel required for	LTS

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LTS – Less Than Significant *S – Significant* *PCC – Potentially Cumulative Considerable* *CC – Cumulatively Considerable*

Impact	Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
and suppression features.		these services shall be determined in consultation with the Imperial County Fire Department. *Timing/Implementation:* *Prior to the initiation of any site development or ground-breaking activities* *Enforcement/Monitoring:* *Imperial County Fire Department; County of Imperial Planning and Development Services Department* **MM 4.11.1.2b** The Fire Impact Fees shall be imposed pursuant to Ordinance 1418 Section 2 (2006), which was drafted in accordance with the County's TischlerBise Impact Fee Study (TischlerBise, 2006). The value of the impact fees for each proposed project shall be assessed using the formula derived in the study. Specifically, impact Fees for nonresidential development shall be calculated on a per-employee basis. The Fire Impact Fees shall be calculated based on the cost of maintaining the County's current level of service to residential and nonresidential development. Fees collected shall only be used to mitigate the conditions created by the development, and such fees shall only be expended on facilities for which the fees were levied. This ensures that Fire Impact Fees will be used only to mitigate the impacts on fire service capabilities. *Timing/Implementation:* *Prior to the initiation of any site development or ground-breaking activities* *Enforcement/Monitoring:* *Imperial County Fire Department; County of Imperial Planning and Development Services Department*	

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LTS – Less Than Significant ***S – Significant*** ***PCC – Potentially Cumulative Considerable*** ***CC – Cumulatively Considerable***

Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.11.1.3	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, would increase demand for fire and emergency medical services.	PCC	Implementation of mitigation measures **MM 4.7.1a**, **MM 4.7.1b** and **MM 4.11.1.2**	LCC
Impact 4.11.2.1	Circulation and access to the site and surrounding parcels are not anticipated to be hindered during project construction and operation in a way that would affect law enforcement response times.	LTS	None required.	LTS
Impact 4.11.2.2	Development of the proposed project would minimally increase the intensity of use on the project site, thereby increasing the chances of requiring police protection.	LTS	None required.	LTS
Impact 4.11.2.3	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, would increase demand for law enforcement services.	LCC	None required.	
Impact 4.11.3.1	Implementation of the proposed project would result in an increase in solid waste generation and the demand for waste disposal. Based on the nature of the project as a geothermal power plant, the proposed project is not anticipated to produce substantial amounts of solid waste that would adversely affect landfill capacity.	LTS	None required.	LTS
Impact 4.11.3.2	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, would increase solid waste generation and demand for landfill capacity. However, Imperial County has implemented its	LCC	None required.	LCC

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LTS – Less Than Significant ***S – Significant*** ***PCC – Potentially Cumulative Considerable*** ***CC – Cumulatively Considerable***

Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	Countywide Integrated Waste Management Plan, and adequate capacity is available at landfills that serve the county.			
4.12 Transportation and Circulation				
Impact 4.12.1	Buildout of the proposed project would result in increased project-related traffic volumes, which are not predicted to result in increased delays and deterioration in levels of service at area intersections and street segment operations.	LTS	None required.	LTS
Impact 4.12.2	Buildout of the proposed project would result in increased construction-related traffic volumes, which are not expected to result in increased delays and deterioration in levels of service at area intersections and street segment operations.	LTS	None required.	LTS
Impact 4.12.3	Buildout of the proposed project would not result in the construction of new access roads or traffic improvements, which could increase hazards.	LTS	None required.	LTS
Impact 4.12.4	Buildout of the proposed project would result in the construction new private roads and improvements to existing roadways consistent with adopted policies, plans, and programs for alternative transportation.	LTS	None required.	LTS
Impact 4.12.5	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, would result in increased traffic volumes that are not expected to result in increased delays or deterioration of levels of service at	LCC	None required.	LCC

Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
	area intersections or roadway segments.			
4.13 Utilities and Service Systems				
Impact 4.13.1.1	Water obtained from the Brawley Wastewater Treatment Plant (WWTP) would require tertiary level treatment prior to use as cooling makeup water at the proposed geothermal plant. As such, upgrades at the WWTP will be required.	LTS	None required.	LTS
Impact 4.13.1.2	The proposed project would have a total water demand of approximately 5,500 acre-feet per year, which would be obtained from IID and the City of Brawley's Wastewater Treatment Plant. According to the water supply assessment (DDE 2010), adequate water supplies and entitlements are available to serve the proposed project.	LTS	**MM 4.13.1.2** The project applicant shall be required to comply with all conditions and requirements as set forth by the IID in the water supply agreement prepared for the proposed project by the IID. A copy of the fully executed water supply agreement shall be provided to the County for oversight of compliance with conditions and requirements prior to initiation of plant operations. *Timing/Implementation:* *Prior to initiation of plant operations* *Enforcement/Monitoring:* *Imperial County Department of Planning and Development Services; Imperial Irrigation District.*	LTS
Impact 4.13.1.3	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, would increase demand for water from IID. However, IID will have sufficient water supplies from existing entitlements to serve future growth.	LTS	None required.	LTS
Impact 4.13.2.1	The proposed project would generate demand for sewage treatment in an area that is not currently served by a sewer district and would require the construction of an on-site septic system.	LTS	None required.	LTS

Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
Impact 4.13.2.2	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, could increase demand for wastewater treatment services.	LCC	None required.	LCC
Impact 4.13.3.1	The project site is currently provided electric service by IID Energy. The proposed project's anticipated power demands would not require improvements to IID's distribution system.	LTS	None required.	LTS
Impact 4.13.3.2	The proposed project would not require the extension of telephone service infrastructure.	LTS	None required.	LTS
Impact 4.13.3.3	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, would increase demand for electric service. However, the proposed project would not require improvements to IID Energy's distribution system and would not contribute significantly to this cumulative impact.	LCC	None available.	LCC
Impact 4.13.3.4	The proposed project, in combination with approved, proposed, and other reasonably foreseeable projects in the cumulative study area, would result in increased demand for telephone services. However, the proposed project would not require improvements to AT&T's distribution system and would not contribute significantly to this cumulative impact.	LCC	None required.	LCC

Impact		Level of Significance Without Mitigation	Mitigation Measure	Resulting Level of Significance
4.14 Climate Change and Greenhouse Gases				
Impact 4.14.1	Long-term operations of the project could result in a substantial net increase of CO_2e, either directly or indirectly generating greenhouse gas emissions, that may have a significant impact on the environment.	LCC	None required.	LCC
Impact 4.14.2	The proposed project is required to be consistent with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.	LCC	None required.	LCC

3.0 COMMENTS AND RESPONSES TO COMMENTS ON THE DRAFT EIR

3.1 INTRODUCTION

This Final EIR was prepared in accordance with the California Environmental Quality Act (CEQA) (California Public Resources Code, Section 21000, et seq.) and the State CEQA Guidelines (California Code of Regulations, Section 15000, et seq.). The County of Imperial is the lead agency for the environmental review of the proposed project and has the principal responsibility for approving the project. This Final EIR assesses the expected environmental impacts resulting from the approval and implementation of the proposed project and responds to comments received on the DEIR.

3.2 LIST OF COMMENTERS

The following individuals and representatives of organizations and agencies submitted written comments on the DEIR.

Letter	Individual or Signatory	Affiliation	Date
A	Kim T. Smith, Chief	California Department of Transportation, District 11, Environmental Stewardship and Ecological Studies	May 3, 2011
B	Gordon R. Gaste, AICP, Planning Director	City of Brawley	May 10, 2011
C	Donald Vargas, Environmental Specialist	Imperial Irrigation District	May 10, 2011
D	Belen Leon, Environmental Coordinator	Imperial County Air Pollution Control District	May 11, 2011
E	Al Shami, Project Manager	Department of Toxic Substances Control	April 22, 2011
F	Paula L. Backs	Marine Air Corps Station	May 3, 2011
1	Adams Broadwell Joseph & Cardozo, Attorneys at Law	California Unions for Reliable Energy (CURE)	May 10, 2011

3.3 COMMENTS AND RESPONSES

REQUIREMENTS FOR RESPONDING TO COMMENTS ON A DRAFT EIR

State CEQA Guidelines Section 15088 requires that lead agencies evaluate all comments on environmental issues received on the DEIR and prepare a written response to each. The written response must address the significant environmental issue raised and must be detailed, especially when specific comments or suggestions (e.g., additional mitigation measures) are not accepted. In addition, there must be a good faith and reasoned analysis in the written response. However, lead agencies need only respond to significant environmental issues associated with the project and do not need to provide all the information requested by commenters, as long as a good faith effort at full disclosure is made in the EIR (State CEQA Guidelines Section 15204).

State CEQA Guidelines Section 15204 recommends that commenters provide detailed comments that focus on the sufficiency of the Draft EIR in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated. State CEQA Guidelines Section 15204 also notes that commenters should

provide an explanation and evidence supporting their comments. Pursuant to State CEQA Guidelines Section 15064, an effect shall not be considered significant in the absence of substantial evidence supporting such a conclusion.

State CEQA Guidelines Section 15088 also recommends that where a response to comments results in revisions to the Draft EIR, those revisions be incorporated as a revision to the Draft EIR or as a separate section of the Final EIR.

RESPONSES TO COMMENT LETTERS

Written comments on the Draft EIR are reproduced on the following pages, along with responses to those comments. To assist in referencing comments and responses, the following coding system is used:

- Agency and service provider comment letters are coded by letters, and each issue raised in the comment letter is assigned a number (e.g., Comment Letter A, comment 1 is referred to as A-1).

- Individual and interest group comment letters are coded by numbers, and each issue raised in the comment letter is assigned a number (e.g., Comment Letter 1, comment 1 is referred to as 1-1).

Where changes to the Draft EIR text result from responding to comments, those changes are included in the response and demarcated with revision marks (<u>underline</u> for new text, ~~strikeout~~ for deleted text).

Letter A

STATE OF CALIFORNIA - BUSINESS, TRANSPORTATION AND HOUSING AGENCY EDMUND G. BROWN Jr., Governor
DEPARTMENT OF TRANSPORTATION
DISTRICT 11
4050 Taylor Street
SAN DIEGO, CA 92110
PHONE: (619) 688-0107
FAX: (619) 688-6998

May 3, 2011

Angelina Havens, Planner III
County of Imperial Planning and Development Services Department
801 Main Street
El Centro, CA 92243

Dear Ms. Havens,

The California Department of Transportation (Caltrans) has reviewed the Draft Environmental Impact Report for ORMAT, East Brawley Geothermal Development Project, Orni 19, LLC. (Sch No. 2010061054).

The Draft EIR for the ORMAT East Brawley Geothermal Development Project does not identify Caltrans' wetland mitigation site immediately north of the Brawley Wastewater Treatment Plant. Caltrans has a 30.35-acre wetland mitigation site that was graded and planted in 2008 and is in its third year of plant establishment. The site is wetland mitigation for the Brawley Bypass Project. Well location 44-15 is located immediately adjacent to the site boundaries. Please provide an assessment of potential indirect impacts to the habitat and wildlife within the Caltrans mitigation site and what mitigation measures will be used to offset impacts of noise, movement, dust, and erosion to the mitigation site during construction and operation of the wells. In addition, the potential effects on groundwater at the mitigation site from Well 44-15 installation and operation should be analyzed to ensure the groundwater level is not adversely affected as it supports the wetland onsite. The mitigation site already supports a number of bird species including nesting black-necked stilts, killdeer, and verdin, plus a variety of other species. As the vegetation grows and matures additional wildlife species are expected to use the site. **A-1** **A-2**

Well 44-15 is also immediately adjacent to the access road used to access the mitigation site. Caltrans requests additional information concerning use of this road to access our site and assurances that this road will remain open to access our site.

Sincerely,

Kim T. Smith, Chief
Environmental Stewardship and Ecological Studies

Letter A Kim T. Smith, Chief, California Department of Transportation, District 11, Environmental Stewardship and Ecological Studies

Response A-1: Since release of the Draft EIR, additional biological resource technical evaluation of the project was conducted and has been included as **Appendix A** to this document (East Brawley Geothermal Development Project Biological Resources Evaluation, September 2011). As noted on page 2.0-10 of the East Brawley Geothermal Development Project Biological Resources Evaluation, the mitigation site currently has marginal habitat value. It is acknowledged that proposed Well Site 44-15 would be placed near the mitigation site. The Draft EIR identifies mitigation measures MM 4.3.2a (dust control measures) and MM 4.3.2b (construction equipment operation standards) and mitigation measure MM 4.8.1 (construction water quality control) for dust and erosion impacts during construction associated with the project that would also apply to proposed Well Site 44-15. While construction and operation of the well site would generate noise levels around 80 dBA (see Draft EIR pages 4.10-17, -18, and -19), these noise levels are not expected to adversely impact the mitigation site given that none of the special-status wildlife species identified in the East Brawley Geothermal Development Project Biological Resources Evaluation were identified as likely to occur near this well facility (see East Brawley Geothermal Development Project Biological Resources Evaluation, pages 2.0-14 through -21). However, the Draft EIR does include mitigation measures MM 4.4.2a, MM 4.4.2c, and MM 4.4.2d to address potential construction impacts to migratory birds and raptors, as well as mitigation measure MM 4.4.3 that addresses potential impacts to burrowing owls. No operational impacts to biological resource impacts are expected.

Response A-2: As identified in the Draft EIR, pages 4.8-17 and -18, the proposed project would not extract any groundwater as part of its operation, and impacts to groundwater interference are considered less than significant. In addition, mitigation measure MM 4.8.1 has been included in the Draft EIR requiring preparation of a stormwater pollution and prevention plan (SWPPP) to ensure groundwater resources are not impacted during construction activities.

The access road adjacent to Well Site 44-15 is currently anticipated to be utilized for construction of the well site and for occasional maintenance and inspection of the facility. This access road would remain open and would not be gated or restricted for Caltrans use.

Letter B

May 10, 2011

Angelina Havens
County of Imperial
Planning and Development Services Department
801 Main Street
El Centro, CA 92243

SUBJECT: East Brawley Geothermal Draft Environmental Impact Report (DEIR)

Dear Ms. Havens:

The City of Brawley Planning Department received a copy of the Draft Environmental Impact Report (DEIR) for the East Brawley Geothermal project.

The City of Brawley has the following comments on the DEIR:

1. City will keep its National Pollution Discharge Elimination System (NPDES) permit and shall retain the ability to divert flow to the New River from the City's Wastewater Treatment Plant. **B-1**
2. Wherever permits and approvals are listed in the DEIR, the City of Brawley shall be included in the list of permitting agencies / jurisdictions for construction within the City limits or anything that could potentially affect City infrastructure or residents' quality of life. **B-2**
3. Transportation of hazardous materials and flammable substances shall take place outside of the City limits or on SR 111. **B-3**
4. Section 2.0, Table – Impact 4.7.4 - Under Mitigation Measures – Enforcement/ Monitoring - the City of Brawley should be included. **B-4**
5. Recycled water obtained from the City may require improvements at the Wastewater Treatment Plant and shall be per the agreement between the City and ORMAT once established. **B-5**
6. The water conveyance system shall be in accordance to the City approved plans and the agreement between the City and ORMAT once established. **B-6**

The City of Brawley reserves the right to submit further comments on the Conditional Use Permit and Environmental Impact Report (EIR) prior to approval. We look forward to working with the County of Imperial in implementing the project.

If you have any questions, please contact me at 760-344-8822.

Sincerely,

Gordon R. Gaste, AICP
Planning Director

cc: City Manager
Public Works Director

Letter B Gordon R. Gaste, AICP, Planning Director, City of Brawley

Response B-1: The commenter states that the City plans to maintain its existing National Pollutant Discharge Elimination System (NPDES) permit and retain the ability to discharge effluent from its wastewater treatment plant to the New River. The comment is noted. There are no aspects of the proposed project, as identified in Section 3.0, Project Description, that will prohibit the City from maintaining its NPDES permit and discharging effluent from its wastewater treatment plant to the New River. In those circumstances where effluent is not available for use, the project may require obtaining water supply from the Imperial Irrigation District.

Response B-2: The commenter states that the City should be described in the Draft EIR as a responsible agency for the proposed project for potential future construction or other activities associated with the proposed project that would occur within the city limits or that would affect City infrastructure or residents' quality of life. Pages 1.0-2 and -3 of the Draft EIR provide a list of responsible agencies and associated subsequent planning and permitting actions for the proposed project. The subsection titled Imperial County Department of Public Health includes the City of Brawley as a responsible agency for the proposed upgrades to the City's wastewater treatment plant. In addition, DEIR page 3.0-26 provides a list of agency approvals required for the project, including the City's approval of an agreement for provision of water service to the project.

Response B-3: As described on Draft EIR page 4.7-9 and pages 4.7-20 and -21 under Impact 4.7.2, it is anticipated that any hazardous or flammable materials required for construction or operation of the proposed project would likely be transported along State Route (SR) 78, which bisects the city, and SR 111, which lies north of the city. Any such transport would occur in compliance with all applicable federal, state, and local regulations, including those codified in 49 CFR 173 and 49 CFR 177 and CCR Title 26, Division 6, which are primarily enforced by the California Highway Patrol (CHP). Any vendor transporting such materials to the project site must have a hazardous materials transportation license (either temporary or otherwise) from the CHP. The CHP would advise licensed transporters as to the most appropriate routes to and from the project site according to applicable regulations and local conditions.

Response B-4: The applicable DEIR text in Subsection 4.7.4, page 4.7-22, has been revised as follows:

Timing/Implementation:	*Prior to issuance of conditional use permit~~s~~ for the wells*
Enforcement/Monitoring:	*Project applicant; Imperial County Planning and Development Services Department; City of Brawley Planning Department*

Response B-5: The comment is noted. It is anticipated that any improvements required to the City's wastewater treatment plant for the provision of recycled

water to the project will be addressed in the agreement between the City and Ormat once established.

Response B-6: The comment is noted. It is anticipated that the water conveyance system will be in accordance with the City-approved plans and agreements between the City and Ormat once established.

Letter C

IMPERIAL IRRIGATION DISTRICT

ENVIRONMENTAL, REGULATORY AND EMERGENCY PLANNING • P.O. BOX 937 • IMPERIAL, CA 92251
TELEPHONE (760) 482-3600 • FAX (760) 482-3603

GS-EREP

May 10, 2011

Ms. Angelina Havens
Planner III
Planning & Development Services Dept.
County of Imperial
801 Main Street
El Centro, CA 92243

SUBJECT: Draft Environmental Impact Report for ORMAT East Brawley Geothermal Development Project, Orni 19, LLC CUP #08-0023 (SCH No. 2010061054)

Dear Ms. Havens:

On March 24, 2011 we received from the Imperial County Planning & Development Services Department, the Draft Environmental Impact Report (DEIR) for the ORMAT East Brawley Geothermal Development Project, Orni 19, LLC. The project consists of the development of a 49.9 net megawatt geothermal power plant one 33.7-acre parcel and 39 leased parcels encompassing approximately 3033.2 acres that will contain proposed wells and pipelines. The total area of disturbance for the project site is approximately 188.75 acres, which includes both the plant site and the wells and pipelines. The project site is located in the unincorporated area of Imperial County, north of the City of Brawley; specifically, east of State Route (SR) 111 and north of SR 78. A majority of the project site is located along Best Road from Shank to Rutherford Roads.

Pursuant to the above, the Imperial Irrigation District (IID) has reviewed the above mentioned document and submits the following comments:

1. IID water facilities that may be impacted include the Rockwood Canal, Best Canal, Oakley Canal, New River, Livesley Drain, Shellenberger Drain, Stahl Drain, and McNeal Drain. **C-1**

2. Section 2.2 Project Characteristics (p. 2.0-2), second paragraph, second sentence, states that the main entrance to the power plant would be off Best Road just north of Ward Road from a left-hand turn pocket built for this project, and it would be necessary to cover Best Canal along the property frontage to accommodate widening of the road for the turn pocket. Any construction or operation on IID property or within its existing and proposed right of way or easements will require an encroachment permit, including but not limited to: surface improvements such as proposed new streets, driveways, parking lots, landscape; all water, sewer, storm water; and any other above ground or underground utilities. A copy of the encroachment permit application is included in the Imperial Irrigation District's Developer Project Guide available at: **C-2**

Letter C Continued

http://www.iid.com/Modules/ShowDocument.aspx?documentid=2328. For more information regarding encroachment permits, the IID Real Estate Section should be contacted at (760) 339-9239. **C-2 cont.**

3. Section 4.8.5, Cumulative Impact to Hydrology and Water Quality (p. 4.8-20), second paragraph, first and second sentences, state the proposed project will contribute to cumulative effects of changes to runoff patterns. The proponent plans to minimize impacts through design, retention basins, and required mitigation measures. Analysis of these impacts will require a detailed drain hydraulic analysis to properly design system modifications to mitigate development impacts and includes an associated drain impact fee. **C-3**

4. Section 2.2 Project Characteristics (p. 2.0-2), third bullet sentence, states that one of the project components include bringing water from the IID's Rockwood Canal to the power plant. There is no 'landlord allocation' available for industrial purposes. All new non-agricultural water project supply requests are processed in accordance with the IID's Interim Water Supply Policy for Non-Agricultural Projects (IWSP) (see http://www.iid.com/index.aspx?page=152 for a link to the IWSP). For additional information regarding the Interim Water Supply Policy, the IID Water Supply Planning/Colorado River Manager may be contacted at (760) 339-9038. **C-4**

5. In order to obtain a water supply from IID for the project, the project proponent will be required to comply with all applicable IID policies and regulations and enter into a water supply agreement with IID. Such policies and regulations require, among other things, that all potential environmental and water supply impacts of the project have been adequately assessed, appropriate mitigation has been developed and appropriate conditions have been adopted by the relevant land use permitting/approving agencies. **C-5**

6. The Imperial County General Plan Renewable Energy Element (2006), the IID Interim Water Supply Policy for Non-Agricultural Projects (IWSP), California State Water Resource Control Board (SWRCB) policy and California Energy Commission (CEC) policy, all require that geothermal development efficiently utilize water supplies in order to avoid impacts to water supplies, other water users and the environment. These policies discourage the use of fresh inland water for power plant use. Water use criteria and Best Management Practices (BMPs) are set out in the IID IWSP and by the SWRCB and CEC. The CEC manual (Best Management Practices and Guidance Manual, Desert Renewable Energy Projects, November 2010), specifically addresses standards for renewable plants water supplies, and even gives guidance for appropriate geothermal cooling technologies for binary plants in the Imperial Valley. However, given all these requirements there is very little recognition of these issues or information contained in the DEIR concerning water supply issues. **C-6**

7. The project is described as a geothermal plant utilizing binary technology (p. 2.0-1). The "water demand" for the project is approximately 5,500 acre-feet per year (af/y). The sources of the water supply are identified as "IID and the upgraded Brawley Wastewater Treatment Plant (BWWTP) (p. 3.0-34). The explanation given as to how much water and over what period of time supplies will be obtained from either of these two sources is vague and confusing. The upgrades **C-7**

2

Letter C Continued

to the BWWTP are "anticipated in 2014." At that point the project "will obtain most of its water demand (4,369 af/y) from the outflow of the BWWTP" (p. 4.13.11). The DEIR "estimates" that "within approximately 10 years" the outflow of the BWWTP will be "sufficient to meet project demand" (p. 4-13-12). However, there is no documentation to suggest the likelihood or feasibility of the reclaimed water project. Will IID Colorado River water be used for the full life of the project? How much IID water will be required? There is no discussion about any other alternative water sources besides IID and BWWTP.

C-7 cont.

8. There is no discussion at all concerning water use BMPs at the proposed plant. The plant is intended to operate with standard wet cooling (p. 3.0-21). There is no discussion in the DEIR concerning the use of less water intensive options such as dry or hybrid cooling technologies, including whether any consideration has been given to these technologies and if so what constraints eliminated these options from the final project design. While this document does not offer any sort of detailed discussion concerning alternative water supply sources and alternative cooling technologies and why the choices that were rejected by the project developer are "environmentally undesirable or economically unsound", IID will require this analysis prior to consideration of a water supply agreement. As such these issues should be addressed, especially given that the water use for this 49.9 MW binary plant, at 5,500 af/y, exceeds that contemplated by the top tier of the IWSP Water Supply Development fee schedule. Typical 49.9 MW flash technology geothermal plants currently under development in the Imperial Valley utilize only a small fraction of that amount of water, about 750 af/y (for perspective, the amount of water utilized by the City of Imperial per year is approximately 4,000 af and about 7,000 af for the City of El Calexico), so it would be appropriate to have additional discussion on this issue to demonstrate the water demands associated with a binary plant meet the reasonable use criteria.

C-8

9. Section 4.13 (and the Water Supply Assessment) in the document summarize IID water accounting data. Please note that 2008 and 2009 U.S. Bureau of Reclamation Decree Accounting data is now final and available at http://www.usbr.gov/lc/region/g4000/wtracct.html. Calculations of IID underuse can be made from data in these reports and is summarized in the Water Accounting section of IID's most recent (2009) Annual QSA Implementation Report (see http://www.iid.com/index.aspx?page=381).

C-9

10. Page 4.13-10 notes that "bottled or bulk drinking water form an approved provider will be supplied for employee use'. Please note this is a requirement of IID's SDWA compliance efforts for structures connected to its raw water canal system, however Imperial County may require a permitted water system if this facility meets certain criteria as outlined by the California Department of Public Health or its local enforcement authority.

C-10

11. Page 48 of the Water Supply Assessment for this project reference a variety of findings developed by the project proponent. Given the likely policy mechanism to supply water from IID to the EBGDP is IID's IWSP, it would be appropriate to note the adoption of this policy and perhaps even the current 'balance' of 24,200 acre-feet of water associated with this policy

C-11

3

Letter C Continued

12. The analysis of impacts to IID drains and the Salton Sea due to loss of agricultural runoff water should consider pupfish habitat in order to comply with any Endangered Species Act provisions. **C-12**

13. Any new, relocated, upgraded or reconstructed IID facilities required for and by the project (which can include but is not limited to electrical utility substations, electrical transmission and distribution lines, etc.) need to be included as part of the project's CEQA and/or NEPA documentation, environmental impact analysis and mitigation. Failure to do so will result in postponement of any construction and/or upgrade of IID facilities until such time as the environmental documentation is amended and environmental impacts are fully mitigated. **Any and all mitigation necessary as a result of the construction, relocation and/or upgrade of IID facilities is the responsibility of the project proponent**. **C-13**

Should you have any questions, please do not hesitate to contact me by phone at 760-482-3609 or by e-mail at dvargas@iid.com. Thank you for the opportunity to comment on this matter.

Respectfully,

Donald Vargas
Environmental Specialist

cc: Mario Escalera. – Manager, Energy Dept. Operations & Infrastructure
Carlos Z. Villalon. – Manager, Water Dept.
Mike L. King. – Manager, Water Dept.
Jeff M. Garber. – General Counsel
Joel K. Ivy. – Asst. Mgr., Energy Dept.
Juan Carlos Sandoval. – Asst. Mgr. Energy Dept.
Carlton L. King. – Asst. Mgr., Energy Dept. Customer Service Operations
Tina Shields. – Asst. Mgr., Water Dept. Resources Planning & Management
David L. Barajas. – General Supt., Energy Dept. System Planning & Engineering
Michael S. Trump. – General Supt., Energy Dept. Customer Operations & Planning
Ismael Gomez. – Chief Engineer, Water Dept. Engineering Services
Bruce Wilcox. – Environ. Proj. Mgr., Water Dept. QSA Water Transfer
James P. Kelley. – Supervisor, Real Estate & Right-of-Way
Vikki Dee Bradshaw. – Asst. Supv., Environmental Management

4

Letter C Donald Vargas, Environmental Specialist, Imperial Irrigation District

Response C-1: The commenter states that IID facilities that may be impacted include Rockwood Canal, Best Canal, Oakley Canal, New River, Livesley Drain, Shellenberger Drain, Stahl Drain, and McNeal Drain. A comprehensive discussion of IID's facilities and water supply for the proposed project is contained in Subsection 4.13.1, Water Supply, on page 4.13.1 of the DEIR. In addition, as stated in the East Brawley Geothermal Development Project (EBGDP) SB 610 Water Supply Assessment (WSA), Best Canal abuts the parcel where the power plant is proposed and currently services the parcel via Gate 110. Due to real estate development that has occurred or is planned south of the City of Brawley, the IID has determined that there would not be adequate capacity in the Best Canal to service the EBGDP. Alternatively, the proposed project seeks to utilize the Rockwood Canal for raw water service to operate the EBGDP. In order to do so a pipeline from Rockwood Canal Gate 131 to the proposed power plant would be constructed.

Response C-2: The comment is noted. On Draft EIR page 1.0-3, the following text is added:

IMPERIAL IRRIGATION DISTRICT

- Encroachment permit for covering of Best Canal for project access

Response C-3: The following mitigation measure will be added to Subsection 4.8.5, page 4.8-20 of the DEIR:

Mitigation Measures

MM 4.8.5 Although this impact is expected to be addressed through design, retention basins, and required mitigation measure MM 4.8.2, the project applicant and Imperial Irrigation District will perform an analysis of these impacts through a detailed drain hydraulic analysis in order to properly design system modifications, mitigate development impacts, and determine if associated drain impact fees are required.

Timing/Implementation: As a condition of approval for the proposed project

Enforcement/Monitoring: Imperial County Department of Planning and Development Services; Imperial Irrigation District

No other additional mitigation is required. Mitigation measures MM 4.8.1, MM 4.8.2, and MM 4.8.5 described above, in addition to the proposed project's drainage features, would ensure that the project's contribution to cumulative water quality impacts would remain less than cumulatively considerable.

Response C-4: The commenter is referred to **Appendix B** to this FEIR, a letter dated May 4, 2011, from Tina Anderholt Shields, Assistant Water Department Manager of the IID, to Bob Sullivan, Ormat Nevada, Inc., which provides that the IID will supply water to the proposed project if all necessary conditions and requirements are met.

Response C-5: The following text revisions are made to Section 4.13, Utilities, page 4.13-11 of the DEIR:

Mitigation Measures

~~None.~~

MM 4.13.1.2 The project applicant shall be required to comply with all conditions and requirements as set forth by the IID in the water supply agreement prepared for the proposed project by the IID. A copy of the fully executed water supply agreement shall be provided to the County for oversight of compliance with conditions and requirements prior to initiation of plant operations.

Timing/Implementation: Prior to initiation of plant operations

Enforcement/Monitoring: Imperial County Department of Planning and Development Services; Imperial Irrigation District

Response C-6: The proposed project's ultimate water supply has been identified, and upon completion of the proposed Brawley Wastewater Treatment Plant (BWWTP) upgrades to provide tertiary treatment (expected in 2014), the project will utilize reclaimed water from the plant as its primary supply. The upgraded plant is projected to have an average daily flow of 3.9 million gallons per day, or 4,369 acre-feet per year (AFY). The remaining approximately 1,131 acre-feet per year (5,500 – 4,369 = 1,131) will continue to be purchased from the IID as necessary. Use of reclaimed water from the BWWTP for the project would reduce its demand on IID water sources.

Response C-7: The project applicant previously entered into a Memorandum of Understanding (MOU) with the City of Brawley regarding system upgrades the applicant will provide to the BWWTP in order to upgrade the treatment facility, resulting in the ability to treat water to a tertiary level. The commenter is referred to Response C-5 above, concerning the IID serving the proposed project. Lastly, the commenter is referred to Section 6.0, Alternatives, of the DEIR, which provides three alternative water supply scenarios for the proposed project.

Response C-8: The *Best Management Practices and Guidance Manual: Desert Renewable Energy Projects*, prepared by the California Energy Commission (CEC), states on page 76, first paragraph, "Dry cooling, however, can reduce the

efficiency or electrical energy output of the power plant by as much as 50 percent in hot weather. Refer to the geothermal technology section in Appendix B for more detail." Further, on page 76, fourth paragraph, the report states, "Binary geothermal power plants use air-cooled condensers (that is, dry cooling) to reject heat and condense steam, because the ambient air temperatures in those locations allow the heat to be rejected efficiently. In the extreme summer temperature conditions of the Imperial Valley, however, heat rejection may not be technically feasible without drastic reductions in electric power output." According to the CEC (and the project applicant), and for reasons stated in the CEC's *Best Management Practices and Guidance Manual: Desert Renewable Energy Projects*, dry cooling technology is not a feasible option for projects located in the Imperial Valley. The commenter is referred to Section 6.0, Alternatives, of the DEIR, which provides three alternative water supply scenarios for the proposed project.

Response C-9: The commenter states that Section 4.13 and the Water Supply Assessment in the document 2008 and 2009 accounting data is now available and calculations of IID underuse can be made from data in these reports and are summarized in the Water Accounting Section of the IID's Annual QSA Implementation Report. The comment is noted. The Water Supply Assessment (WSA) prepared for the proposed project (see Draft EIR Appendix K) contains the 2008 and 2009 data in Table 4.

Response C-10: The commenter states that bottled or bulk drinking water is a requirement of the IID's SDWA compliance efforts for structures connected to its raw water canal system. The commenter further states that Imperial County may require a permitted water system if the project meets certain criteria as outlined by the California Department of Public Health or its local enforcement authority. The comment is noted. It is not currently anticipated that a water system will be required for the project.

Response C-11: The commenter is referred to Response C-9 regarding the WSA data prepared for the proposed project. As stated on page 35 of the WSA, IID currently has an Interim Water Supply Policy (IWSP) for non-agricultural uses. In addition, the IWSP currently designates a total of 25,000 acre-feet per year (not 24,200 as noted in the commenter's comment) as stated on page 4.13-9 of the Draft EIR.

Response C-12: The project will not result in reductions of irrigation return water flows in desert pupfish habitat in IID drains and the Salton Sea that exceed existing annual variations. The project proposes to remove 188.75 acres (6 percent of the project site) of actively cultivated farmland from agricultural production for a period of approximately 30 years. The remaining 2,844.5 acres that the project area covers will remain under agricultural production. According to the "Imperial Irrigation District Annual Inventory of Areas Receiving Water Years 2011, 2010, 2009," in 2011, IID provided irrigation water to 440,650 acres of cropland in which the project will result in the conversion of 0.04 percent. As seen in the Imperial Irrigation District Annual Inventory, this loss is well within the annual variation of water delivery of the Imperial Irrigation District.

Response C-13: The commenter is referred to Section 4.13, Utilities, page 4.13-18, which describes new IID Energy facilities that will be required as part of the proposed project. Potential environmental impacts associated with the installation of the proposed electrical service infrastructure are addressed throughout the DEIR and include temporary and permanent impacts to aesthetics, soil erosion, water quality degradation, disturbance to biological and cultural resources, excessive noise from construction equipment, and temporary roadway closures. These issues are adequately addressed in the appropriate sections of the DEIR. In addition, Figure 3 of the East Brawley Geothermal Development Project Biological Resources Evaluation that was prepared following release of the DEIR adequately depicts the location of proposed and alternative facility footprints along with the area of disturbance that was evaluated in the DEIR.

Letter D

150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

AIR POLLUTION CONTROL DISTRICT

TELEPHONE: (760) 482-4606
FAX: (760) 353-9904

May 11, 2011

Mr. Armando Villa
Planning & Development Services Department
801 Main Street
El Centro, CA 92243

SUBJECT: Draft EIR for the East Brawley Geothermal

Dear Mr. Villa,

The review of the Draft EIR for the East Brawley Geothermal has been finalized. The proposed project is located in North of the City of Brawley and it consists of a "geothermal plant on a 33.7 parcel. However, the project also encompasses 3015 acres that contain wells and pipelines. The total disturbance for the project site is approximately 188.75 acres." Therefore, the following comments were determined.

Appendix D – Page 5

Although the statement "ORMAT will develop and implement a dust control plan consistent with ICAPCD Rule 801 requirements for construction activities." is true, the Air District also require the dust control plan be made available to the ICAPCD prior to any earth movement activity. In addition, ten days prior to the commencement of any construction activity the Project proponent shall submit a written notification to the air District. **D-1**

Appendix D – Page 12

The Air District does not agree on the following statement:"Project is exempt from any further review for conformity determination for PM10 and O3" and references "EPA 2004a". The sited EPA 2004a for conformity determination is not listed in the references section for further review by the Air District. For clarification purposes, please **D-2**

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

Letter D Continued

provide the reference information in order to determine in the project is in fact exempt from any further review. **D-2 cont.**

Appendix D – Page 12

The Air Districts understand that the reference to tons/per year was analyzed by the project proponent. However, please keep in mind that all project operations must not exceed the daily threshold of 150 lbs/day for PM_{10}, 75 lbs/day of ROG, 100 lbs/day of NOx, and 550 lbs/day of CO at any given time. **D-3**

Appendix D - Page 14

For your information, the most current modeling tool recently adopted is CALeeMOD and until the Air District finalizes its comparative analysis between URBEMIS and CALeeMOD we are requesting that both models be used utilizing Imperial County modeling factors. **D-4**

Table 2.0-1 Section Impact 4.3.2

Addition to the mitigation measures listed in this section, a reference to the Rule 310 – Operational Development Fee must included. **D-5**

Section 4.0 Page 4.0-2 - Tabel 4.0-1

It necessary to reference the Brawley PV Solar ARRAY Project that is proposed to be build near the East Brawley Geothermal in Table 4.0-1 as the project will have cumulative impacts during both construction and operation. This reference must also reflect in the Cumulative Impact Analysis. **D-6**

Section 4.3 Page 4.3-21

As shown in Table 4.3-7, ROG emissions will exceed thresholds for construction. The Air District requires that the project complies with the CEQA Handbook, Section 7.1, Standard Mitigation Measures for Construction Equipment. Please be advised that these mitigations must be listed and included in the EIR as well. **D-7**

Furthermore, please be advised that the Air District is currently in the process of reviewing the projected emissions of the project by using the URBEMIS2007 model and CalEEMod. The Air District reserves the right to comment and address the results during the final EIR review process. **D-8**

In closing, project proponent submitted an application to the Air District for an Authority to Construct/Permit to Operate (ATC/PTO) by which is currently under review by the Air District Engineers. Therefore, all other Air Districts' concerns for the East Brawley Geothermal will be addressed in the ATC/PTO. **D-9**

Letter D Continued

The Air Districts' rule book, including all new regulations can be accessed via internet at www.Imperialcounty.net under "Air Pollution Control." Thank you for allowing the Air District an opportunity to comment on this project. Should you have any questions please do not hesitate to call the office at (760)482-4606.

D-9 cont.

Sincerely,

Belen Leon
APC Environmental Coordinator

Cc: Brad Poiriez
Monica Soucier

Letter D Belen Leon, Environmental Coordinator, Imperial County Air Pollution Control District

Response D-1: The following text changes have been made to mitigation measure MM 4.3.2a on Draft EIR page 4.3-17:

MM 4.3.2a The following fugitive PM_{10} and $PM_{2.5}$ control measures shall be implemented ~~where feasible~~, in addition to the requirements of ICAPCD Regulation VIII, at the project site during all construction activities~~:~~. In addition, the project applicant shall provide a copy of a dust control plan consistent with ICAPCD Rule 801 requirements for construction activities prior to any earth movement activity at the project site. Also, ten days prior to the commencement of any construction activity, the project proponent shall submit written notification to the District.

a. Water exposed soil with adequate frequency for continued moist soil.

b. Replace ground cover in disturbed areas as quickly as possible.

c. Install automatic sprinkler system on all soil piles.

d. Limit vehicle speed for all construction vehicles to a maximum of 15 mph on any unpaved surface at the construction site.

e. Develop a trip reduction plan to achieve a 1.5 average vehicle ridership (AVR) for construction employees.

Timing/Implementation: *Mitigation shall be implemented throughout project construction phase*

Enforcement/Monitoring: *Imperial County Planning and Development Services Department*

Response D-2: Page 12 of the Draft EIR Appendix D provides justification as to why this determination was made and does not specifically reference "EPA 2004a" for this determination. Based on consultations with Environmental Management Associates, this information was originally available at http://www.epa.gov/air/data. However, this air data is no longer available from the EPA air data website in the same form as used earlier. However, similar data from the 2008 national emission inventory database is available via the same website (see the attached summary and printouts for PM_{10}, NOx, and VOC in **Appendix C** of this document). This more recent emission inventory information supports the findings of the Air

Quality Assessment in that the projected maximum annual PM_{10}, VOC, and NOx emissions of less than 25 tons, 30 tons, and 5 tons per year, respectively, would be considerably less than 10 percent of the respective regional emissions.

Response D-3: Since the time of this comment, an updated assessment of the air pollutant emissions from the construction of the proposed project as well as proposed project emissions associated with activities not subject to ICAPCD Permit 207.C.2.a was prepared (see **Appendix C**). The commenter is referred to Responses 1-54 and 1-68 for a comparison of these project emission sources, respectively, to ICAPCD thresholds in pounds per day.

In terms of project emissions associated with activities that are subject to ICAPCD Permit 207.C.2.a (emissions from the power plant itself), it is true that the Draft EIR identifies these emissions as well as ICAPCD Rule 207.C.2.a thresholds in tons per year. The ICAPCD Rule 207.C.2.a thresholds for all listed pollutant types are 137 pounds per day or 25 tons per year. In the case of the one pollutant type projected to exceed 25 tons per year (ROC emissions) as identified in Impact 4.3.3, the projected emissions in pounds per day are identified on page 4.3-21 of the Draft EIR. The Draft EIR identifies mitigation measures MM 4.3.3a and 4.3.3b that would reduce Impact 4.3.3 to a less than significant level.

Response D-4: Since the time of this comment, an updated assessment of the air pollutant emissions from the construction of the proposed project as well as proposed project emissions associated with activities not subject to ICAPCD Permit 207.C.2.a was prepared using CalEEMod computer software (see **Appendix C**). The commenter is referred to Responses 1-54 and 1-68 for these updated air pollutant projections. It should be noted that the CalEEMod model was not available at the time of preparation of the Draft EIR.

CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for the use of government agencies, land use planners, and environmental professionals. This model was developed in coordination with the South Coast Air Quality Management District and is the most current emissions model approved for use in the State of California by various other air districts.

Both the URBEMIS and CalEEMod models quantify emissions from the various phases of construction and operation for land uses identified in the Institute of Transportation Engineers (ITE) Trip Generation Manual. The primary differences between the two models are the following features and functions that are included in CalEEMod, but *not* in the URBEMIS model:

- Incorporates Pavley standards and Low Carbon Fuel Standards into the mobile source emission factors.
- Quantifies emissions from parking lots and/or structures as a separate land use type.

- Includes the usage of consumer products at nonresidential facilities.
- Modifies methods for calculating fugitive dust from grading and site preparation.
- Provides ability to insert spreadsheet for large projects (e.g., construction equipment list).
- Allows for the user to select different vehicle classes for construction worker, vendor, and hauling trips.
- Uses CARB's BURDEN model (a component of the EMFAC model) emission factors to provide more accurate characteristics (fleet mix, vehicle miles traveled, etc.) of the affected area.
- Uses weighted average trip rates to reflect accurate vehicle activity from a specific land use type.
- Defaults have been provided by the various air districts throughout the state to account for local requirements and conditions.

Response D-5: According to the ICAPCD description of Rule 310, the purpose of the rule is to provide ICAPCD with a sound method for mitigating the emissions produced from the operation of new commercial and residential development projects throughout Imperial County and in incorporated cities. All project proponents have the option to either provide off-site mitigation or pay the operational development fee, or a combination of both. The proposed project is not a new commercial or residential development project. Rather, the proposed project is a new industrial project; thus, Rule 310 is not applicable to the proposed project.

Furthermore, the ICAPCD description of Rule 310 states that a development project on a facility whose primary functions are subject to Rule 207, New and Modified Stationary Source Review Rule, and/or Rule 201, Permits Required, which is the case with the proposed project, is exempt from Rule 310.

Response D-6: The cumulative project list provided in Draft EIR Table 4.0-1 was based on known current projects at the time of Draft EIR preparation. The cumulative list of projects in this area of Imperial County is constantly changing, and the Brawley PV Solar ARRAY project referred to by the commenter was not proposed at the time the Draft EIR was prepared, and has yet to be formally proposed. Draft EIR page 4.3-27 specifically identifies cumulative air quality impacts and mitigation measures that address project-specific impacts to cumulative air quality impacts. The commenter is also referred to Responses 1-54 and 1-68 for updated air pollutant projections associated with the project. The commenter is also referred to Response 1-162.

Response D-7: The commenter is incorrect. Table 4.3-7 on page 4.3-21 of the DEIR does not depict projected construction emissions but projected emissions resulting from the proposed geothermal power plant during operations.

The commenter is referred to Response 1-54 for an updated disclosure of project construction-related air pollutant emissions.

Mitigation measures MM 4.3.2a and MM 4.3.2b on page 4.3-17 of the DEIR, sourced from Section 7.1 of the ICAPCD 2007 CEQA Air Quality Handbook, would ensure fugitive dust (PM_{10} and $PM_{2.5}$) control measures are incorporated into the project plans to reduce the emissions of fugitive dust and diesel-powered equipment during construction activities (see Response 1-63, 1-168 and 1-171 for revisions to these mitigation measures). The project would also be subject to requirements of ICAPCD Regulation VIII, which has the primary purpose of reducing the amount of PM_{10} entrained into the atmosphere as a result of anthropogenic (man-made) fugitive dust sources.

Response D-8: The comment is noted. The County welcomes further comment by the ICAPCD on this FEIR. The commenter is referred to the Updated Air Pollutant Emissions Assessment, East Brawley Project Construction, in **Appendix C** of this FEIR, for output data files of the construction emissions model. The reader is also referred to Response D-4.

Response D-9: Comment noted.

Letter E

Department of Toxic Substances Control

Linda S. Adams
Acting Secretary for
Environmental Protection

Leonard E. Robinson
Acting Director
5796 Corporate Avenue
Cypress, California 90630

Edmund G. Brown Jr.
Governor

RECEIVED
APR 25 2011
IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

April 22, 2011

Mr. Armando Villa
COUNTY OF IMPERIAL
DEPARTMENT OF PLANNING AND DEVELOPMENT SERVICES
801 MAIN STREET
EL CENTRO, CA 92243

NOTICE OF COMPLETION & ENVIRONMENTAL IMPACT REPORT (EIR) FOR EAST BRAWLEY GEOTHERMAL DEVELOPMENT PROJECT (SCH # 2010061054)

Dear Mr. Villa:

The Department of Toxic Substances Control (DTSC) has received your submitted Notice of Availability of the Environmental Impact Report for the above-mentioned project. The following project description is stated in your document: "The project would construct a new 49.9 net megawatt (MW) geothermal power plant consisting of up to six Ormat Energy Converter (OEC) binary generating units (16 MW gross each) with vaporizers, turbines, generators, condensers, preheaters, pumps and piping, motive fluid (isopentane) storage, a motive fluid vapor recovery system, a gas scrubber, and a regenerative thermal oxidizer (RTO) and related ancillary equipment. **E-1**

Two cooling tower batteries with a total of 14–20 cell counter flow, induced draft with drift eliminators of 0.0005 efficiency, and a control room, office maintenance shop, parking, and other facilities located at the power plant site".

DTSC sent you comments on the Notice of Preparation document on 7/7/2010. Based on the review of the submitted document DTSC has the additional following comments:

1) If buildings, other structures, asphalt or concrete-paved surface areas are being planned to be demolished, an investigation should also be conducted for the presence of other hazardous chemicals, mercury, and asbestos containing materials (ACMs). If other hazardous chemicals, lead-based paints (LPB) or products, mercury or ACMs are identified, proper precautions should be taken during demolition activities. Additionally, the contaminants should be remediated in compliance with California environmental regulations and policies. **E-2**

Letter E Continued

2) Human health and the environment of sensitive receptors should be protected during any construction or demolition activities. If necessary, a health risk assessment overseen and approved by the appropriate government agency should be conducted by a qualified health risk assessor to determine if there are, have been, or will be, any releases of hazardous materials that may pose a risk to human health or the environment. **E-3**

3) If it is determined that hazardous wastes are, or will be, generated by the proposed operations, the wastes must be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5). If it is determined that hazardous wastes will be generated, the facility should also obtain a United States Environmental Protection Agency Identification Number by contacting (800) 618-6942. Certain hazardous waste treatment processes or hazardous materials, handling, storage or uses may require authorization from the local Certified Unified Program Agency (CUPA). Information about the requirement for authorization can be obtained by contacting your local CUPA. **E-4**

4) DTSC can provide cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies that are not responsible parties, or a Voluntary Cleanup Agreement (VCA) for private parties. For additional information on the EOA or VCA, please see www.dtsc.ca.gov/SiteCleanup/Brownfields, or contact Ms. Maryam Tasnif-Abbasi, DTSC's Voluntary Cleanup Coordinator, at (714) 484-5489. **E-5**

If you have any questions regarding this letter, please contact me at ashami@dtsc.ca.gov, or by phone at (714) 484-5472.

Sincerely,

Al Shami
Project Manager
Brownfields and Environmental Restoration Program

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044
state.clearinghouse@opr.ca.gov

Letter E Continued

CEQA Tracking Center
Department of Toxic Substances Control
Office of Environmental Planning and Analysis
P.O. Box 806
Sacramento, California 95812
ADelacr1@dtsc.ca.gov

CEQA # 3180

Letter E **Al Shami, Department of Toxic Substance Control**

Response E-1: The commenter provides a brief summary of the proposed project. The comment is noted.

Response E-2: The following text has been added to DEIR Section 4.7, page 4.7-16:

Demolition

The project proposes to demolish both of the residences located on the site of the proposed power plant and the residence located directly across Best Road from the power plant site.

The following text has been added to DEIR Section 4.7, page 4.7-20:

MM 4.7.1c Prior to the demolition of any building, structure, asphalt, or concrete-paved surface, the project applicant shall prepare a Phase II ESA to identify whether any hazardous materials, hazardous chemicals, lead-based paints, mercury, or asbestos-containing materials are located on the site. The applicant shall ensure that all ASTs, equipment, and debris have been cleared from the site. All contaminants shall be remediated in compliance with California environmental regulations and policies.

Timing/Implementation: Prior to the demolition of any building, structure, asphalt, or concrete-paved surface

Enforcement/Monitoring: Imperial County Department of Planning and Development Services

Response E-3: The commenter is referred to Response E-2, which provides for the preparation of a Phase II environmental site assessment and remediation in accordance with California environmental regulations and policies. In addition, the commenter is referred to mitigation measures MM 4.7.1a and MM 4.7.1b that require preparation of a comprehensive Hazardous Materials Business Plan and Emergency Response Plan to further reduce the risk to human health and the environment of exposure to hazardous materials.

Response E-4: The proposed project will not generate hazardous materials other than the materials identified in Section 4.7 of the DEIR, specifically isopentane. The commenter is referred to the discussion of Impact 4.7.1 and mitigation measure MM 4.7.1a in the DEIR, which requires that a Hazardous Materials Business Plan be prepared for the project in accordance with the California Accidental Release Prevention Program, and mitigation measure MM 4.7.1b, which requires the development of a comprehensive Emergency Response Plan.

Response E-5: Comment noted.

Letter F

Marine Corps Air Station
Yuma, AZ
Community Planning and Liaison
Case Comments

DATE: May 3, 2011

JURISDICTION: Imperial County

CASE NUMBER: CUP 08-0022

CASE SUMMARY: Draft Environmental Impact Report for ORMAT, East Brawley Geothermal Development Project, Orni 19, LLC. to construct a new 49.9 net megawatt binary power plant. The location is north of the City of Brawley with the eastern boundary at Dietrich Road and Rutherford Road. APNS 037-140-006,017,011-000.

STAFF PLANNER: Angelina Havens

CONDITIONS OF APPROVAL:

☐ CONDITIONS ☐ NO CONDITIONS ☒ COMMENT

Enter Conditions here: This geothermal power plant is located beneath Military Low Level training route, Visual Route (VR)-288. The mining site is located under a military low-level training route, Visual Route (VR)-288. Military aircraft are authorized to fly at up to but not exceeding the speed of sound and at altitudes as low as the published minimum while operating inside these routes. Each route corridor has a minimum altitude of 300' above ground level (AGL) and route width is 10 miles wide. **F-1**

It is recommended that the Imperial County Planning Department notify the military agency that controls low-level routes VR-288 for submission of comments/concerns. The controlling officer is located at this address: **F-2**

452nd OSS/OSK
1250 Graeber Street
March Air Reserve Base, CA 92518-11721
Phone Number (909) 655-4376 FAX (909) 655-3118

The Marine Corps Air Station does not have any additional comments at this time. Thank you for giving this Command the opportunity to comment.

DATE: 5/3/2011

NAME: PAULA L. BACKS

AGENCY: MCAS YUMA AZ

PHONE: (928) 269-2103

POC EMAIL ADDRESS: paula.backs@usmc.mil

LETTER F **PAULA BACKS, MARINE AIR CORPS STATION, YUMA, AZ**

Response F-1: Development of the proposed project and its associated infrastructure and utilities will not exceed a height of 70 feet above ground level. Therefore, the project as proposed will not conflict with Military Low Level training route, Visual Route (VR)-288.

Response F-2: Project materials have been forwarded to the requested agency.

Letter 1

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May 10, 2011

By Email and Overnight Mail

Angelina Havens
Planner III
County of Imperial Planning and
Development Service Department
801 Main Street
El Centro, CA 92243
angelinahavens@co.imperial.ca.us

Re: Comments on the Draft Environmental Impact Report for the East Brawley Geothermal Project (State Clearinghouse Number 2010061054)

Dear Ms. Havens:

We are writing on behalf of California Unions for Reliable Energy ("CURE") to provide comments on the Draft Environmental Impact Report ("DEIR") prepared by Imperial County (the "County"), pursuant to the California Environmental Quality Act ("CEQA"),[1] for the East Brawley Geothermal Project ("Project") proposed by Ormat Nevada, Inc. (the "Applicant"). The Applicant seeks a conditional use permit to develop a 49.9 megawatt ("MW") geothermal power plant and well field on approximately 3,000 acres of agricultural land and New River habitat, in unincorporated Imperial County, approximately three miles north of the City of Brawley ("City"). The Applicant also seeks: (1) an agreement with the City for the purchase of 4,400 acre feet per year ("AFY") of reclaimed water, pursuant to which the Applicant will expand the existing Brawley Wastewater Treatment Plant ("BWWTP") to include a tertiary treatment system, and a water purchase agreement with the Imperial Irrigation District ("IID") for the purchase of up to 5,500 AFY of Colorado River water. The Project may also require a Clean Water Act section 404 permit from the U.S. Army Corps of Engineers to authorize the

1-1

[1] Pub. Resources Code, §§ 21000 et seq.

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Letter 1 Continued

construction of several New River crossings and other activities that involve discharge into potential waters of the U.S. **1-1 cont.**

The Project includes: a 49.9 MW (net) geothermal power plant consisting of up to six 16 MW binary generating units, two cooling tower batteries, up to 18 production and 18 injection wells, an associated piping system, up to four blowdown wells, a storm water retention basin, and a communications tower; a water conveyance structure (either an above-ground canal or an underground pipe) and a water pump for transporting water from IID's Rockwood Canal to the Project site; a water pipeline interconnecting the Project and the BWWTP; the expansion of the BWWTP to include a tertiary treatment system; a 2 to 5-mile double circuit 92 kV transmission line and substation; and New River crossings extending the Project geothermal pipeline system in a westerly direction and toward the Applicant's existing North Brawley 49.9 MW geothermal project. **1-2**

Based upon our review of the DEIR, County records, as well as pertinent public records in the possession of other agencies, we conclude that the DEIR is so inadequate under CEQA that it must be withdrawn. **1-3**

As a preliminary matter, the DEIR fails to comply with CEQA's most basic requirements for format and content because it does not contain an accurate Project description, a map, or any other description of the proposed location of the Project's linear features, and fails to consistently describe the Project's boundaries. The DEIR also fails to provide adequate environmental baseline information for ambient air quality, biological resources, geology and soil resources and surrounding land uses. The DEIR also violates CEQA's prohibition on the use of a hypothetical environmental baseline in assessing the Project's impacts on worker health and safety during Project construction. As a result of these significant shortcomings, as well as the pervasive lack of supporting documentation regarding Project impacts in several resource categories, the DEIR fails to identify and mitigate the Project's potentially significant environmental impacts. These defects render the DEIR inadequate as an informational document. **1-4**

The DEIR is also invalid in several other respects. In particular, the DEIR violates CEQA's prohibition against piecemealing environmental review by failing to consider this Project together with the recent expansion of the Applicant's North Brawley geothermal plant and by segmenting environmental review of Project well field drilling activities. The DEIR is also inadequate because it fails to identify the Project's water supply, as required by CEQA and the California Water Code. The **1-5**

Letter 1 Continued

numerous defects in the County's analysis, set forth in greater detail in the following paragraphs, are fatal errors. The County must withdraw the DEIR and prepare a revised DEIR which fully complies with CEQA. **1-5 cont.**

In preparing a revised DEIR, we urge the County to go one step further than the environmentally preferred alternative identified in the DEIR and require dry cooling technology as a condition of Project approval. Dry cooling is feasible and eliminates many of the Project's potentially significant, unmitigated environmental impacts. For the same reasons, the DEIR's failure to require dry cooling cannot be justified as a matter of law or policy. The Applicant's proposed use of 5,500 AFY for power plant cooling flies in the face of State and local policies for water use and for renewable resource development. **1-6**

Lastly, we note that neither the Applicant nor the County have demonstrated that the County is the appropriate lead agency in this case. As discussed in our comments, the Project's net generating capacity has not been verified and likely meets the California Energy Commission's ("CEC") jurisdictional net generating capacity threshold. Accordingly, the County cannot adopt the DEIR unless and until the Applicant provides supporting documentation for the claimed net generating capacity of 49.9 MW. **1-7**

We prepared these comments with the assistance of air quality expert Petra Pless, Ph.D., biology expert Scott Cashen, M.S., and geology expert Tania Gonzalez, PG, CEG. Their technical comments are attached hereto and submitted in addition to the comments in this letter. Accordingly, the County must address and respond to the comments of Dr. Pless, Mr. Cashen and Ms. Gonzalez separately. **1-8**

I. STATEMENT OF INTEREST

CURE has an interest in enforcing environmental laws that encourage sustainable development and ensure a safe working environment for its members. Environmentally detrimental projects can jeopardize future jobs by making it more difficult and more expensive for industry to expand in Imperial County, and by making it less desirable for businesses to locate and people to live in the County, including the Project vicinity. Continued degradation can, and has, caused construction moratoriums and other restrictions on growth that, in turn, reduce future employment opportunities. **1-9**

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CURE members live, work, recreate and raise their families in Imperial County, including in and around the City of Brawley. Accordingly, CURE's members would be directly affected by the Project's adverse environmental impacts. The members of CURE's member unions may also work on the Project itself. They will, therefore, be first in line to be exposed to any hazardous materials, air contaminants, and other health and safety hazards, that exist onsite. **1-9**

II. THE DEIR FAILS TO SATISFY CEQA'S PURPOSE AND GOALS

CEQA has two basic purposes, neither of which the DEIR satisfies. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project.[2] CEQA requires that an agency analyze potentially significant environmental impacts in an EIR.[3] The EIR should not rely on scientifically outdated information to assess the significance of impacts, and should result from "extensive research and information gathering" including consultation with state and federal agencies, local officials, and the interested public.[4] To be adequate, the EIR should evidence the lead agency's good faith effort at full disclosure.[5] Its purpose is to inform the public and responsible officials of the environmental consequences of their decisions ***before*** they are made. For this reason, the EIR has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return.[6] Thus, the EIR protects not only the environment but also informed self-government."[7] **1-10**

Second, CEQA directs public agencies to avoid or reduce environmental damage when possible by requiring alternatives or mitigation measures.[8] The EIR serves to provide public agencies, and the public in general, with information about the effect that a proposed project is likely to have on the environment and to "identify ways that environmental damage can be avoided or significantly

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2 Cal. Code Regs., tit. 14, § 15002, subd. (a)(1) (hereafter "CEQA Guidelines").
3 *See* Pub. Resources Code § 21000; CEQA Guidelines § 15002.
4 *Berkeley Keep Jets Over the Bay Comm. v. Board of Port Comm.* (2001) 91 Cal. App.4th 1344, 1367 and Schaeffer *Land Trust v. San Jose City Council*, 215 Cal.App.3d 612, 620.
5 CEQA Guidelines § 15151; *see also Laurel Heights I* (1998) 47 Cal.3d 376, 406.
6 *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.
7 *Citizens of Goleta Valley v. Bd. of Supervisors* (1990) 52 Cal.3d 553, 564 (citations omitted).
8 CEQA Guidelines § 15002(a)(2)-(3); *Berkeley Keep Jets Over the Bay Com.*, 91 Cal.App.4th at 1354.

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reduced."[9] If a project has a significant effect on the environment, the agency may approve the project only upon a finding that it has "eliminated or substantially lessened all significant effects on the environment where feasible," and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns" specified in CEQA section 21081.[10]

1-10 cont.

The DEIR fails to satisfy the basic purposes of CEQA. Specifically, the DEIR fails to reflect a good faith effort at public disclosure by failing to describe the Project and set forth a defensible environmental baseline, identify and mitigate the Project's significant impacts on agricultural resources, air quality, biological resources, public health and safety, and utilities, and to disclose and analyze the Project's potential to induce urban growth in Imperial County. As a result, the DEIR's conclusions with regard to the Project's environmental impacts are unsupported. These significant informational gaps in the County's analysis preclude the possibility that the Project's potentially significant impacts have been reduced to a less than significant level. The DEIR also fails to propose feasible measures to reduce significant impacts that are identified in the DEIR, including the Project's significant impacts on air quality and biological resources. In sum, the DEIR fails to inform decision makers and the public of the Project's potentially significant environmental effects and to reduce damage to the environment ***before*** they occur.

1-11

III. THE PROJECT DESCRIPTION IN THE DEIR IS INCOMPLETE

The DEIR does not meet CEQA's requirements because it fails to include a complete Project description, rendering the entire analysis inadequate. CEQA places the burden of environmental investigation on the government rather than the public. Accordingly, a lead agency may not hide behind its failure to obtain a complete and accurate Project description.[11] An accurate and complete project description is necessary to perform an adequate evaluation of the potential environmental effects of a proposed project. In contrast, an inaccurate or incomplete project description renders the analysis of environmental impacts inherently unreliable. Without a complete project description, the environmental

1-12

[9] CEQA Guidelines § 15002 subd. (a)(2).
[10] CEQA Guidelines § 15092, subd. (b)(2)(A)-(B).
[11] *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 311.

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Letter 1 Continued

analysis under CEQA will be impermissibly narrow, thus minimizing the project's impacts and undercutting public review.[12] **1-12 cont.**

A. The DEIR Describes the Wrong Project

The DEIR appears to be based on the wrong conditional use permit ("CUP") application. In 2009, the Applicant amended the CUP application to include New River crossings and a revised well field to allow "connection of geothermal wells located on both sides of the [New] [R]iver." In January 2010, the Applicant again revised the CUP application, and the revised application is appended to the DEIR. However, the DEIR fails to incorporate the major new, as well as some of the originally proposed, Project components, including:

1. a wastewater pond at the BWWTP with a storage capacity of 5 million gallons;
2. an additional water source to meet the Project's water demand during summer heat conditions, consisting of a system for conveying and cycling cooling tower blowdown between the Applicant's adjacent North Brawley geothermal facility and the Project; **1-13**
3. installation of piping over the New River north of the City of Brawley, and the extension geothermal lines, noncondensable gas lines, cooling water pipes, control cables, and a maintenance walkway over the New River;
4. footings to support the pipes on either side of the New River;
5. a substation, to be located west of the power plant;
6. a transmission line up to 5 miles in length;
7. a stormwater retention basin near the power plant;
8. a communications tower proposed for the power plant site;

[12] *See, e.g., Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal.3d 376.

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Letter 1 Continued

9. improvements to the Best Canal necessary to accommodate widening of Best Road for access to the Project power plant; and

10. a complete description of the activities proposed for the Project geothermal well field, including the redrilling and testing of production and injection wells over the course of the Project's operational life.

1-13 cont.

Because the DEIR fails to describe the Project, it lacks foundation for its conclusion that the Project will not result in significant environmental impacts. Moreover, the failure to describe the Project renders public comment and review meaningless since the DEIR fails to provide basic information about the Project.

None of the potential impacts of the above-listed Project components have been evaluated in the DEIR. The shortcomings in the Project description have the very real consequence of defeating the public's efforts to understand and assess the Project's impacts. For example, the DEIR fails to identify or provide the height and design features of the proposed communication tower. However, this information is necessary to analyze the Project's potentially significant avian collision impacts.[13] Similarly, with respect to the proposed improvements to the Best Canal, the DEIR does not disclose the portion of the canal which is proposed to be covered and the methods that will be used to cover the canal. Covering the canal will alter the functions and values of the canal's aquatic resources, and will result in the direct loss of habitat.[14] Information regarding these variables is necessary to assess the Project's direct and indirect impacts on biological resources.[15] The failure to describe ongoing well re-drilling activities skews the Project's air quality impacts and, as a result, the DEIR underestimates the Project's operational air quality and public health impacts.[16] These deficiencies in the project description prevent the public and decision makers from evaluating the Project's environmental impacts.

1-14

B. The Project Description Appears to Exclude a Diesel-Powered Generator

1-15

The Project and the Applicant's North Brawley facility are practically identical from an engineering standpoint.[17] The North Brawley facility operates a

[13] Scott Cashen Comments, p. 1 (attached hereto as Exhibit B).
[14] *Id.*
[15] Scott Cashen Comments, pp. 1-2.
[16] Petra Pless Comments, pp. 36-37 (attached hereto as Exhibit A).
[17] Petra Pless Comments, p. 18.

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Letter 1 Continued

diesel-powered 286-horsepower generator, which is used to "black-start" the facility.[18] However, the Project Description in the DEIR fails to include a black-start generator. As a result, the DEIR's conclusions regarding the Project's total construction emissions are not reliable. The DEIR must be revised to include emissions of criteria pollutants from this source in the estimate of total Project emissions. **1-15 cont.**

Accordingly, the DEIR must be withdrawn and the County must prepare a revised DEIR which analyzes the Project as proposed.

IV. THE DEIR FAILS TO PROVIDE BASIC INFORMATION REGARDING THE PROJECT'S LINEAR FEATURES AND BOUNDARIES

California courts have repeatedly held that "[a]n accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR."[19] CEQA requires the lead agency to describe the project with enough particularity to enable environmental review.[20] "A curtailed or distorted project description may stultify the objectives of the reporting process."[21] "Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost . . . ."[22] As articulated by the court in *County of Inyo v. City of Los Angeles*, "a curtailed, enigmatic or unstable project description draws a red herring across the path of public input."[23] The Project description included in the DEIR is inconsistent, precluding decision makers and the public from understanding the actual scope and magnitude of the Project's environmental impacts. **1-16**

In particular, the DEIR fails to consistently describe the Project's linear features, substation and boundaries, the network of geothermal pipelines proposed to be developed on the Project site, and the network of new access, maintenance and perimeter roads proposed for the Project site. These errors render the DEIR inadequate as an informational document. The DEIR must be revised to provide a clear description of the Project boundaries and all Project components. **1-17**

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18 Petra Pless Comments, p. 18.
19 *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 193.
20 *Id.* at 192.
21 *Id.* at 192-193.
22 *Id.*
23 *Id.* at 198.

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Letter 1 Continued

A. The DEIR Fails to Include a Map and Description of the Project's Proposed Linear Features and Substation

State law requires the County to include in the DEIR a map depicting the Project's precise location.[24] Although the Project includes a transmission line and a substation, the DEIR fails to include a map and a description of the proposed location of these Project components. The omission of a Project's linear features and substation is a fatal flaw under CEQA. In *Santiago County Water District v. County of Orange*, the court found an EIR inadequate for this very defect.[25] There the court explained that, "a description of the necessary construction had to be included if the EIR was to serve its informational purpose."[26] The omission of information regarding the project's linear features obstructed CEQA's goals because, "important ramifications of the proposed project remained hidden from view at the time the project was being discussed and approved."[27] This case is no different. 1-18

The DEIR states that the proposed transmission line would span the New River and that two potential routes are under consideration. However, the DEIR does not identify the location of either route. The DEIR also fails to include a description of the footings, pull sites, staging areas, and maintenance roads that will be required to install and maintain the Project transmission line, as well as a description of the construction activities associated with the proposed substation. Without this information, the Project's direct and indirect impacts on biological resources, among others, cannot be assessed.[28] The County must revise the DEIR to include a complete description and map of the Project's transmission facilities.

B. The DEIR's Description of the Project Boundaries is Inconsistent

An EIR must include a clear and precise map and description of the Project's boundaries.[29] However, the DEIR fails to satisfy even this basic requirement. Instead, the DEIR presents contradictory descriptions of the Project boundaries, thus, impermissibly placing the burden of environmental investigation on the public. For example, Figure 3.0-2 in the DEIR is inconsistent with the significantly 1-19

[24] CEQA Guidelines § 15124 subd.(a).
[25] *Santiago Water District v. County of Orange* 118 Cal.App.3d 818, 829.
[26] *Id.* at 829-830.
[27] *Id.* at 830.
[28] *See* Comments of Scott Cashen, pp. 1-2.
[29] CEQA Guidelines § 15124 subd. (a).

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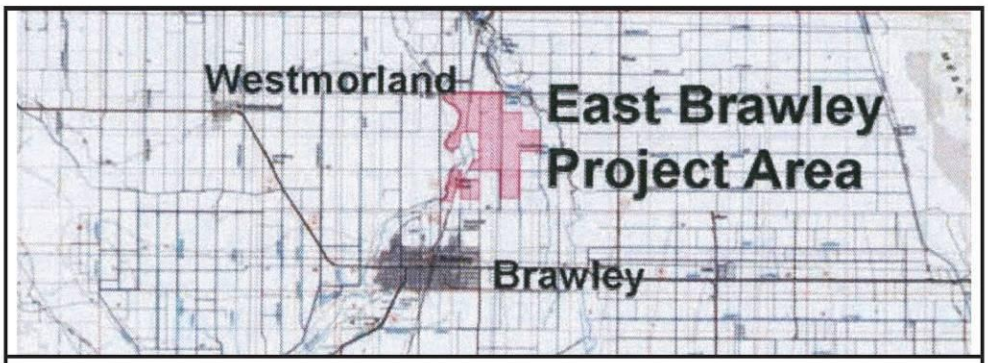
larger Project footprint presented in Appendix J to the DEIR. The DEIR also states that Best Road, Groshen Road and Deitrich Road align north-south through the Project site, and that Ward Road, Baum Road, Moorehead Drive, Shank Road, and Kershaw Road align east-west through the Project site.[30] These boundaries are depicted below in Figure 1 and are inconsistent with those provided in Figure 3.0-2 of the DEIR. Each of the referenced figures is presented below for ease of comparison.

1-19 cont.

The public cannot comment on a Project of unknown proportions. Without a clear description of the Project boundaries, it is impossible to assess the Project's impacts on biological resources, among others. The DEIR should be revised to clearly describe the Project's boundaries. Absent this basic information, the Project's direct and indirect impacts on biological resources, among others, cannot be assessed.[31]

1-20



DEIR, Appendix J

[30] DEIR, p. 3.0-2.
[31] Scott Cashen Comments, pp. 1-2.

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Letter 1 Continued

DEIR Figure 3.0-2

Figure 1

1-21

C. The DEIR's Description of the Project Geothermal Pipeline Network is Inconsistent

The mileage of geothermal pipeline is inconsistently described throughout the DEIR. The DEIR states that "if all 36 wells are connected, then approximately 9 miles of new pipeline would be constructed."[32] Elsewhere the DEIR provides that "[a]pproximately 18 miles of either single pipeline or combined production and injection pipeline route will be built."[33] Therefore, the total mileage of pipeline proposed cannot be known from the DEIR, and neither can the related environmental impacts of the proposed construction, including impacts to agricultural resources, air quality and biological resources. The County must revise

1-22

[32] DEIR, p. 3.0-22.
[33] DEIR, p. 4.9-7.

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Letter 1 Continued

the DEIR to include a clear and consistent description of the geothermal pipeline network. **1-22 cont.**

D. The DEIR Fails to Consistently Describe the Network of Roads on the Project Site

The DEIR fails to state whether the Project will include the construction of new roads, how many miles of new roads are proposed, and whether the proposed road will be paved or unpaved. In particular, the DEIR states that "[w]ell pads may be accessed from other County roads in the vicinity of the project, such as Dietrich Road, Groshen Road, Rutherford Road, Ward Road, and Wills Road."[34] Elsewhere, the DEIR states that new access roads will be constructed from existing County roads to the well pads for Project development and operation.[35] Elsewhere still, the DEIR provides that "new access roads would be constructed or improved only as needed to safely accommodate traffic required for well pad construction, well drilling, and maintenance of wells and roads."[36] Therefore, the total mileage of roads and their characteristics cannot be known from the DEIR, and neither can the related environmental impacts of the proposed construction, including impacts to air quality. **1-23**

Fugitive dust particulate matter emissions from both paved and unpaved areas and roads due to wind erosion and entrainment and re-suspension into the air by vehicle tires can be substantial, particularly from unpaved roads.[37] One need only observe the dust clouds that trail even slow moving vehicles traveling the area's many unpaved roads to realize that erodible, friable soils are pervasive in Imperial County. The County must revise the DEIR to include a clear and consistent description of the proposed road network. **1-24**

V. THE DEIR FAILS TO PROVIDE AN ADEQUATE DESCRIPTION OF THE ENVIRONMENTAL BASELINE

The DEIR employs an inaccurate and incomplete baseline, thereby skewing the impact analysis. An accurate description of the environmental setting is important because it establishes the baseline physical conditions against which a lead agency can determine whether an impact is significant. The failure to **1-25**

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34 DEIR, p. 3.0-1.
35 DEIR, p. 3.0-15, Table 3.0-2.
36 DEIR, pp. 3.0-18, 3.0-22.
37 Petra Pless Comments, pp. 18-19.

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Letter 1 Continued

adequately describe the existing setting contravenes the fundamental purpose of the environmental review process, which is to determine whether there is a potentially substantial, adverse change compared to the existing setting. **1-25 cont.**

CEQA requires the lead agency to include a description of the physical environmental conditions in the vicinity of a project as they exist at the time environmental review commences.[38] The description of the environmental setting constitutes the baseline physical conditions by which a lead agency may assess the significance of a project's impacts. The EIR must also describe the existing environmental setting in sufficient detail to enable a proper analysis of project impacts.[39] Guidelines section 15125 provides, in relevant part, that "[k]nowledge of the regional setting is critical to the assessment of environmental impacts."[40] This level of detail is necessary to "permit the significant effects of the project to be considered in the full environmental context."[41] **1-26**

The description of the environmental setting in the DEIR is inadequate because it omits highly relevant information regarding surrounding land uses, air quality, biological and geological resources, as well as soil contamination on the Project site. The County is required to gather the relevant data, and provide an adequate description of the existing environmental setting in a revised DEIR. **1-27**

A. The DEIR Fails to Provide a Sufficiently Detailed Description of Surrounding Land Uses

An EIR must demonstrate a good faith effort at full disclosure.[42] "The EIR must demonstrate that the significant environmental impacts of the proposed project were investigated and discussed" and permit project effects "to be considered in the full environmental context."[43] An EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project.[44] A prejudicial abuse of **1-28**

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38 CEQA Guidelines § 15125, subd. (a); *see* also *Communities For A Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 321.

39 *Galante Vineyards v. Monterey Peninsula Water Management District* (1997) 60 Cal.App.4th 1109, 1121-22.

40 CEQA Guidelines § 15125, subd. (d).

41 *Id.*

42 *Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1390.

43 CEQA Guidelines § 15125 subd. (c).

44 *Association of Irritated Residents,* 107 Cal.App.4th at 1390.

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Letter 1 Continued

discretion occurs if the failure to include relevant information precludes informed decisionmaking and informed public participation, thereby thwarting the statutory goals of the EIR process.[45]

1-28 cont.

Here, the DEIR fails to satisfy CEQA's informational goals and requirements. In particular, the DEIR fails to provide critical information regarding the Project's environmental context by failing to describe surrounding land uses; this information is necessary to disclose the Project's impacts on air quality and land uses, among other resources.

1-29

1. The DEIR Fails to Identify the North Brawley Geothermal Facility

One of the most egregious errors in the County's analysis is the failure to identify the North Brawley Geothermal facility in the DEIR. The North Brawley facility is located approximately one mile from the Project. Therefore, its omission from the description of surrounding land uses is not justified. The County must revise the DEIR to identify the North Brawley facility in its description of the environmental setting. Absent this information the Project's significant effects on air quality, agricultural, biological and water resources, among others, cannot be considered in their full environmental context.

1-30

2. Cattle Feedlot Facilities and Slaughterhouse Operations Surrounding the Project Site

In *Galante Vineyards v. Monterey Peninsula Water Management District*, the Fourth District Court of Appeals found an EIR inadequate under CEQA because it failed to describe with a sufficient degree of detail an important regional industry and how it may be impacted by the project.[46] The court held that "[d]ue to the inadequate description of the environmental setting for the project, a proper analysis of project impacts was impossible."[47] In this case, the DEIR's discussion of the Project's setting suffers from a similar error.

1-31

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45 *Al Larson Boat Shop, Inc. v. Board of Harbor Commissioners* (1993) 18 Cal.App.4th 729, 748.
46 *Galante Vineyards v. Monterey Peninsula Water Management District* (1997) 60 Cal.App.4th 1109, 1122.
47 *Id.*

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Letter 1 Continued

Livestock production is a major form of agricultural production in Imperial County, second only to irrigation agriculture.[48] In 2007, "the annual gross income from livestock production was over 410 million dollars, which represented approximately 30 percent of the total agricultural and livestock gross income."[49] The DEIR states that "[i]n the general category of livestock production, beef cattle represent the single most important product to date."[50] The DEIR states further that cattle production "represents a major role in the county's economy by providing income, tax revenue, employment, and the purchase of local goods and services."[51] Although cattle production is a critically important regional industry, the DEIR's discussion of the environmental setting does not identify the large cattle feed and slaughterhouse operations located in close proximity to the Project site.[52]

1-31 cont.

Superior Cattle Feeders, LLC operates four feedlots within three miles of the Project site.[53] Each feedlot houses thousands of cattle while the cattle is fattened and prepared for slaughter.[54] The Superior Hannon Yard, located less than three miles from the Project on 649 East Rutherford Road, occupies approximately 27 acres and has the potential to house approximately 4,500 heads of cattle.[55] Superior Cattle Feeders, LLC also operates the Triangle Yard, approximately one quarter mile from the Project, at 352 East Shank Road; the Superior Kershaw Yard, approximately three miles from the Project site, at 5455 Kershaw Road; and the Beefeaters Yard, located approximately three miles north of the Project site on Dietrich Road near Wiest Lake. The DEIR fails to identify these adjacent land uses.

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National Beef, a large cattle slaughterhouse and packing facility formerly known as Brawley Beef, LLC, is located approximately one half mile east of the Project site at 57 Shank Road. In 2005, National Beef slaughtered and packed

1-33

48 DEIR, pp. 4.2-1-4.2-2.
49 DEIR, p. 4.2-2.
50 *Id.*
51 *Id.*
52 *See* DEIR, p. 3.0-4.
53 Imperial County Air Pollution Control District, Notice of Preliminary Decision to Issue an Authority to Construct and Permit to operate for the Following Six Large Confined Animal Facilities Operated by Superior Cattle Feeders, LLC: (Main Yard, Hannon Yard, Kershaw Yard, Fairline Yard, Hacienda Yard, and Rutherford Yard No. 2) (attached hereto as Exhibit D).
54 Imperial County Air Pollution Control District, Authority to Construct and Permit to Operate Review Final Inspection Report, February 8, 2008 (attached hereto as Exhibit E)
55 *Id.*

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1,650 heads of cattle daily.[56] In 2004, approximately 340,000 heads of cattle were slaughtered and packed at the National Beef site.[57] The DEIR includes a brief mention of the National Beef facility in the Hazards and Public Health section of the DEIR, but is otherwise silent on the subject. This scant information is insufficient to permit an evaluation of the Project in its full environmental context.

1-33 cont.

A description of the numerous, large cattle feedlots and slaughterhouse operations located in close proximity to the Project is critical to an adequate analysis of the Project's impacts on agricultural production. The Project represents an additional strain on IID's aging water supply infrastructure, on which these existing uses now depend. In addition, disclosure of these surrounding uses is required to assess the Project's air quality and odor impacts.[58] Feedlots are identified as potential odor sources by the Imperial County Air Quality Pollution Control District's CEQA handbook, and must be included within a revised analysis of air quality and odor impacts in a revised DEIR.[59] The County must prepare a revised DEIR which adequately describes the local and regional Project setting, including the surrounding livestock production facilities.

1-34

B. The DEIR Fails to Adequately Describe Background Concentrations of Air Pollutants at the Project Site

The DEIR does not, as is customary for CEQA documents, provide a table with ambient air background concentrations of pollutants.[60] This information is necessary to evaluate the Project within its environmental context. In 2007 and through 2009, concentrations of particulate matter ("PM10") in the Salton Sea Air

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56 Clint Peck, *Brawley Beef County*, BEEF, May 1, 2005 (attached hereto as Exhibit F); Silvio J. Panta, *National Beef and Brawley OK water, wastewater deal*, Imperial Valley Press, March 24, 2011 (attached as Exhibit G).

57 Letter from Pat Cleveland, Brawley Beef LLC to Brad Poiriez, Air Pollution Control Officer, Imperial County Air Pollution Control District, January 2002 (attached as Exhibit H).

58 Imperial County Air Pollution Control District CEQA Handbook (2007), pp. 14-15 ("District CEQA Handbook").

59 *Id.*

60 Petra Pless Comments, p. 13; *see,* e.g., Imperial Landfill Plan, Draft Environmental Impact Report, Imperial County, p. 4.2-11 (December 2009) at ftp://ftp.co.imperial.ca.us/icpds/eir/imperial-landfill/07air-quality.pdf, County of Imperial Rancho Los Lagos Draft Environmental Impact Report, p. 4.3-21 (October 2009) at ftp://ftp.co.imperial.ca.us/icpds/eir/rancho-los-lagos/07air-quality.pdf, McCabe Ranch II Special Plan, Draft Environmental Impact Report, Imperial County, p. 4.3-8 (February 2010) at ftp://ftp.co.imperial.ca.us/icpds/eir/mccabe-ranch-ii/17air-quality.pdf.

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Basin exceeded the state 24-hour PM10 ambient air quality standards on an average of 204 days out of the year.[61] Similarly, ozone concentrations during the same time period exceeded the state 8-hour ozone ambient air quality standard on an estimated average of 87 days out of the year.[62]

1-35 cont.

Describing the Salton Sea Air Basin simply by identifying its status under the federal Clean Air Act – as is done in the DEIR – does not inform the public or decision makers of the extremely degraded air quality conditions in and around the Project site. The County should include a table listing existing ambient air quality concentrations of regulated pollutants, and the respective ambient air quality standards in a revised DEIR.

1-36

C. The DEIR Fails to Identify and Adequately Describe the Biotic Communities Occurring on the Project Site

According to the DEIR, four biotic communities occur in the Project area: (1) agricultural; (2) urban; (3) irrigation ditches and canals; and (4) the New River. However, the DEIR fails to provide essential information regarding these communities, including a map or an estimate of the acreage that will be impacted by the Project. The information that ***is*** included in the DEIR is inaccurate and misleading.

1-37

1. Native Vegetation Communities

The DEIR states that native vegetation communities do not exist within the Project impact area. This is incorrect. The Applicant has yet to conduct field surveys to establish the absence of native vegetation. Therefore, the DEIR lacks substantial evidence to support its assumption that native vegetation communities do not exist.[63] Furthermore, contrary to the DEIR, substantial evidence shows that the proposed sites for well pad 44-15 and well pad 45-15 contain native vegetation.[64]

1-38

61 Petra Pless Comments, p. 12.
62 *Id.*
63 Scott Cashen Comments, pp. 5-6.
64 *Id.*

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2. Canals and Ditches

The DEIR recognizes the habitat value of the irrigation canals and ditches that exist on the Project site.[65] However, neither the Applicant, nor the County, surveyed the canals and ditches that would be impacted by the Project, and the DEIR contains no estimate of the Project's impact acreage to this biotic community.[66] The County should require the Applicant to provide site-specific information on the canals and ditches in the Project area. Otherwise, the County must obtain this information. Without this information, the Project's impacts to biological resources cannot be determined, and the DEIR lacks substantial evidence upon which to base its conclusions.

1-39

3. New River Habitat

The DEIR significantly understates the biological significance of the New River. The DEIR's discussion of the River is limited to the following:

> Vegetation within the project area consists of a perimeter of mostly salt cedar. The New River is heavily polluted and offers marginal wildlife habitat opportunities.[67]

This abbreviated description misrepresents the habitat values of the New River and its banks.

1-40

The New River, while polluted, provides some of the last available riparian wildlife habitat in Imperial Valley.[68] Approximately 40 species of birds, 20 species of mammals, and 10 species of reptiles and amphibians utilize the salt cedar community type.[69] Salt cedar also provides habitat for numerous special status species.[70] The New River also provides an important north-south corridor for many riparian, wetland, and upland species, both locally and regionally.[71] The potential for various special-status species to occur in the Project area depends on the specific

65 *See* DEIR, pp. 4.4-4-4.4-5.
66 Scott Cashen Comments, pp. 8-9.
67 DEIR, p. 4.4-4.
68 Scott Cashen Comments, pp. 8-9.
69 *Id.*
70 *Id.*
71 *Id.*

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habitat characteristics present along the New River. The DEIR should be revised to accurately describe the habitat values of this biotic community. **1-40 cont.**

D. The DEIR Fails to Include Baseline Data for Wetlands and Riparian Resources Occurring on the Project Site and its Vicinity

The DEIR states that "the riverine and riparian habitats within the project site are sensitive habitats under the jurisdiction of the CDFG [California Department of Fish and Game] and the U.S. Army Corps of Engineers."[72] However, the DEIR provides virtually no information regarding these resources. The DEIR is devoid of even an estimate of the riparian resources that will be impacted.[73]

Significantly, the DEIR fails to identify the Brawley Bypass Wetland Mitigation Project, located immediately adjacent to the Project footprint, as well as the New River Wetlands Project, located south of the Project site.[74] These omissions are fatal to the DEIR because they preclude an evaluation of the Project's potentially significant impacts to sensitive habitat.[75] In *Mira Monte Homeowners Association*, petitioners satisfied CEQA's high evidentiary standard for the preparation of a subsequent or supplemental EIR with evidence of previously unknown impacts to wetland resources.[76] Therefore, the County should require the Applicant to conduct all the necessary investigation regarding the wetlands that may be impacted by the Project, or conduct the investigation itself. Thereafter, the DEIR must be revised to include that information and a revised analysis of impacts. **1-41**

E. The DEIR Fails to Provide a Sufficiently Detailed Description of Geologic Conditions on the Project Site

The DEIR fails to establish an adequate baseline for geology and soil resources on the Project site. In particular, the DEIR fails to disclose that the Project is located near several faults associated with the transitional zone between the southern San Andreas and the Imperial faults, in the area referred to as the **1-42**

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72 DEIR, p. 4.4-4.
73 DEIR, pp. 4.4-37-4.4-38.
74 Compare DEIR Figure 3.0-3 and DEIR Appendix J, 2009 Phase I ESA, Fig. 2.
75 *See Mira Monte Homeowners Assn. v. County of Ventura* (1985) 165 Cal.App.3d 357, 363-64.
76 *Id.*; *see also San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 728.

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Brawley Seismic Zone.[77] Although many active faults in California, such as these, have not yet been zoned by the California Geological Survey under the Alquist-Priolo Earthquake Fault Zone Act, they still have the potential to rupture the ground surface and should have been identified in the DEIR.[78]

1-42 cont.

The proposed location of the East Brawley geothermal plant site is located within about 500 feet of the Brawley fault and of the eastern margin of the Brawley seismic zone.[79] Some of the northwest-trending right-lateral faults that have been mapped or have been inferred through the area include, from northeast to southwest, the Wister or Sand Hills fault, the Calipatria fault, the Red Hill fault, the Brawley fault, the Fondo fault and the Westmorland fault.[80] A discussion of these geological features must be included in a revised DEIR.

1-43

F. The DEIR Fails to Use the Appropriate Environmental Baseline for Hazardous Materials and Public Safety

It is well established that the baseline environmental setting for CEQA review is the existing environment; not the environmental setting that could exist under existing entitlements and not a hypothetical environmental setting that might possibly exist in the future.[81]

1-44

The DEIR fails to analyze the existing environment for soil resources. Specifically, although the DEIR identifies substantial hazardous contamination at the Project site, the DEIR includes no analysis of these hazards because the County *assumes* that these hazards *will be* removed by the former landowner.[82] The County's approach violates CEQA. Moreover, the County's assumptions are unsupported. Although the DEIR appears to rely on the 2008 Phase I Environmental Site Assessment ("ESA"), the 2008 Phase I ESA does not support the conclusions reached in the DEIR.[83]

In particular, the 2008 Phase I ESA states that prior oil and gas production "may have resulted in adverse impacts to the soil and/or groundwater underlying

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77 Tania Gonzalez Comments, p. 1 (attached hereto as Exhibit C).
78 *Id.*
79 *Id.* at p. 2.
80 *Id.*
81 *CBE v. SCAQMD* (2010) 48 Cal.4th 310, 321-322, 322, n. 6-7.
82 DEIR, p. 4.7-5.
83 *See* DEIR, p. 4.7-5.

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the Site" and recommends that "the potential for such impact *should be addressed* prior to, or during, Site redevelopment activities."[84] Although nowhere described in the DEIR, the 2008 Phase I ESA also identifies the possible presence of residual agricultural chemicals, including pesticides, herbicides, and fertilizers, and recommends soil testing to ascertain the hazard level of the extant contamination and to mitigate worker exposure as necessary.[85] A Phase I ESA prepared for the Project in 2009 suggests that the above hazards were never addressed.[86]

1-45 cont.

Rather than assuming that the site contains no hazards, the County must revise the DEIR to describe the existing soil conditions at the Project. Once the baseline is accurately described, the DEIR must be revised with a description of the work proposed to clean up the site, an analysis of potential impacts from such Project activity and an identification of all necessary and feasible measures to reduce potential impacts, including measures necessary to protect workers from exposure during Project construction.

1-46

In sum, the description of the environmental setting in the DEIR is inadequate and fails to comply with CEQA. The DEIR omits highly relevant and necessary information regarding surrounding land uses, air quality, biological and geological resources, as well as soil contamination on the Project site. The County is required to gather the relevant data, and provide an adequate description of the existing environmental setting in a revised DEIR.

1-47

VI. THE CONCLUSIONS IN THE DEIR REGARDING PROJECT IMPACTS TO AGRICULTURAL RESOURCES ARE INVALID

CEQA requires the lead agency to consider the Project's direct, indirect, and cumulative environmental impacts.[87] To be adequate, "the EIR must contain facts and analysis, not just bare conclusions of a public agency."[88] The DEIR is legally deficient because it does not consider the Project's indirect impacts on surrounding agricultural lands, and its conclusions regarding agricultural resource impacts are not based on substantial evidence.

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84 DEIR, Appendix J, 2008 Phase I ESA, p. 2 (emphasis added).
85 *Id.* p. 3.
86 *See* DEIR, Appendix J, 2009 Phase I ESA, p. 2.
87 *See* CEQA Guidelines § 15064 subd. (d).
88 *Santiago Water District v. County of Orange* (1981) 118 Cal.App. 3d 818, 831.

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A. The DEIR Fails to Evaluate the Project's Indirect Impacts on Agricultural Resources

For the purpose of a significance determination under CEQA, the lead agency is required to consider a project's direct and reasonably foreseeable indirect environmental impacts.[89] In particular, CEQA Guidelines sections 15064(d)(2)-(3) provide:

> An indirect physical change in the environment is a physical change in the environment which is not immediately related to the project, but which is caused indirectly by the project. If a direct physical change in the environment in turn causes another change in the environment, then the other change is an indirect physical change in the environment . . . .
>
> An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the project. A change which is speculative or unlikely to occur is not reasonably foreseeable.

1-49

According to the DEIR, the Project site consists of 1,058.3 acres of prime farmland, 1,658 acres of farmland of statewide importance, 19.6 acres of farmland of local importance, and five acres of unique farmland.[90] However, the DEIR concludes that the Project would impact only 188.75 acres from agricultural production, which corresponds to the immediate footprint of the power plant site, wells, well pads, and pipelines.[91] Yet, the information presented in the DEIR shows that impacts to agricultural lands beyond the immediate Project footprint are reasonably foreseeable and should be included in the total impact acreage.

The DEIR acknowledges that "private farm roads" may be used to access the Project well field and that such access may impact farming operations.[92] The DEIR also provides that new access roads may be constructed over adjacent lands to provide access to well pads to support construction and maintenance activities.[93]

1-50

[89] CEQA Guidelines § 15064 subd. (d).
[90] DEIR, p. 4.2-8.
[91] *See* DEIR, p. 4.2-16.
[92] DEIR, pp. 3.0-18.
[93] DEIR, p. 3.0-18.

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This Project activity and construction beyond the 188.75 acre "footprint" would result in indirect impacts to agricultural resources. The County is required to consider the Project's indirect impacts to agricultural resources in a revised DEIR. **1-50 cont.**

B. The DEIR's Conclusion That Project Impacts to Agricultural Resources Are Insignificant is Not Supported by Substantial Evidence

The County lacks the substantial evidence to make a significance finding regarding the Project's impacts on agricultural resources. The DEIR assumes that the total acreage of Project disturbance is approximately 188 acres.[94] However, this figure does not include the disturbance acreage associated with the proposed transmission line and substation, and the water pipelines that will connect the power plant to the Rockwood Canal and the BWWTP, all of which are part of the Project. Further, the DEIR's conclusion that the Project's impacts to agricultural resources are insignificant is utterly unsupported and therefore invalid. **1-51**

The DEIR states that the Project's removal of approximately 188 acres of agricultural land is insignificant and not cumulatively considerable because "according to the CUP application prepared for the project" the disturbed lands will be returned to agricultural use once the wells are abandoned.[95] This analysis is inadequate under CEQA. "A conclusory statement unsupported by . . . explanatory information of any kind not only fails to crystallize issues but affords no basis for a comparison of the problems involved with the proposed project."[96] The CUP application does not state that the Project site will be returned to agricultural use, and the County proposes no mitigation measures to achieve this result.[97] Moreover, the DEIR's conclusion that impacts to agricultural lands will not be significant cannot be squared with the DEIR's conclusion that "[o]nce farmland is used for urban development, it is essentially lost as an agricultural resource."[98] For these reasons, the conclusions in the DEIR lack basis. The County's analysis of the Project's impacts on agricultural resources must be revised. **1-52**

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94 DEIR, p. 4.2-16
95 DEIR, p. 4.2-16-4.2-17.
96 *People v. County of Kern* (1974) 39 Cal.App.3d 830, 841-42 (internal quotations omitted).
97 *See, generally*, DEIR, Appendix B.
98 DEIR, p. 4.2-17.

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VII. THE DISCUSSION AND CONCLUSIONS IN THE DEIR REGARDING PROJECT IMPACTS TO AIR QUALITY AND PUBLIC HEALTH ARE INVALID

The DEIR concludes that with implementation of mitigation measures proposed in the DEIR the Project's construction and operational emissions would result in less than significant impacts. This conclusion is unsupported. The DEIR fails to identify and mitigate the Project's total emissions of particulate matter, ozone, and carcinogenic compounds, and fails to adequately analyze and mitigate the Project's significant odor impacts. These numerous errors, described more fully in the following paragraphs, render the DEIR inadequate under CEQA. Substantial evidence shows that the Project will result in significant, unmitigated impacts on air quality and public health. The County must analyze these impacts and propose all feasible mitigation measures to reduce the Project's significant air quality and public health impacts in a revised DEIR. **1-53**

A. The DEIR Fails to Identify and Analyze the Project's Significant Emissions of Fine Particulate Matter

A DEIR must identify and focus on the possible significant environmental impacts of a proposed project.[99] The DEIR relies on Appendix G of the CEQA Guidelines, which states that any project that emits air pollutants at a level that causes a violation or contributes substantially to an existing or projected violation of an ambient air quality standard, results in a significant air quality impact.[100] The U.S. Environmental Protection Agency ("U.S. EPA") and the State established ambient air quality standards for emissions of particulate matter equal to or less than 2.5 micrometers ("PM 2.5").[101] As such, a discussion of the significance of the Project's emissions of PM2.5 must be included in the DEIR. However, the DEIR fails to quantify and determine the significance of the Project's emissions of PM2.5. **1-54**

Substantial evidence shows that the Project will result in unmitigated, significant emissions of PM2.5. According to Dr. Pless, emissions of PM2.5 from the **1-55**

99 Pub. Resources Code § 21100 subd. (b)(1); CEQA Guidelines §§ 15126, subd. (a).
100 CEQA Guidelines, Appendix G, and Draft EIR, p. 4.3-11.
101 *See* U.S. Environmental Protection Agency, PM2.5 NAAQS Implementation – Guidance Documents, *available at* http://www.epa.gov/ttnnaaqs/pm/pm25_guide.html; California Air Resources Board, Particulate Matter Overview, *available at* http://www.arb.ca.gov/research/aaqs/caaqs/pm/pm.htm.

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Project's two cooling towers alone will exceed regulatory thresholds for PM2.5.[102] The DEIR's failure to identify and mitigate the Project's emissions of fine particulate matter is inexcusable, particularly because Imperial County is a designated federal non-attainment area for PM2.5.[103] As fully detailed by Dr. Pless, overwhelming scientific evidence shows that fine particulate matter causes distinct and more acute health impacts than PM10.

1-55 cont.

Since 1996, more than 2,000 peer-reviewed studies have been published validating earlier epidemiologic studies that link both acute and chronic fine particle pollution with serious morbidity and mortality.[104] Overwhelming scientific evidence shows that long-term exposure to fine particulate air pollution contributes to pulmonary and systemic oxidative stress, inflammation, progression of atherosclerosis, and risk of ischemic heart disease and death.[105] Another recent study found that each 10-µg/m^3 increase in PM2.5 air pollution was associated with an approximately six percent increase in cardiopulmonary mortality and an eight percent increase in lung cancer mortality.[106]

1-56

Additionally, studies show that short-term exposure to emissions of PM2.5 is equally damaging and contributes to complications of atherosclerosis, such as plaque vulnerability, thrombosis, and acute ischemic events.[107] The U.S. EPA concluded with respect to short-term exposure studies that "epidemiological evidence was found to support likely causal associations between PM2.5 and both mortality and morbidity from cardiovascular and respiratory diseases."[108]

The DEIR must be revised to include an analysis of the Project's significant impacts on air quality due to emissions of PM2.5, and propose mitigation accordingly. Absent this analysis, the County cannot conclude that the Project's

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102 Petra Pless Comments, p. 16.
103 *Id.* at p. 15.
104 Petra Pless Comments, pp. 16-17.
105 *Id.*
106 A.A. Pope III, R.T. Burnett, M.J. Thun, E.E. Calle, D. Krewski, K. Ito, G.D. Thurston, Lung Cancer, Cardiopulmonary Mortality, and Long-term Exposure to Fine Particulate Air Pollution, Journal of the American Medical Association, v. 287, no. 9, pp. 1132-1141, 2002.
107 Petra Pless Comments, p. 16.
108 U.S. Environmental Protection Agency, National Center for Environmental Assessment, Office of Research and Development, Provisional Assessment of Recent Studies on Health Effects of Particulate Matter Exposure, EPA/600/R-06/063, July 2006; http://www.epa.gov/oar/particlepollution/pdfs/ord_report_20060720.pdf, accessed March 4, 2009.

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adverse air quality and public health impacts have been mitigated to a less than significant level. **1-56 cont.**

B. The DEIR Fails to Identify and Analyze the Project's Significant Emissions of PM2.5 and PM10 Precursors

A lead agency may not rely on scientifically outdated information in assessing the significance of project impacts.[109] The DEIR is inadequate because it fails to employ generally accepted methodology for calculating Project emissions of particulate matter. In June 2002, the EPA determined that ammonia is a precursor for PM2.5.[110] Since PM2.5 is a subset of PM10, ammonia is also a precursor for PM10.[111] Hydrogen sulfide is also a precursor for particulate matter formation.[112] **1-57**

The technical analyses underlying the DEIR quantify ammonia and hydrogen sulfide emissions for both Project construction and operation but the DEIR fails to discuss their contribution to formation of particulate matter. Substantial evidence shows that the Project's emissions of particulate matter precursors are significant.[113] Project emissions of ammonia and hydrogen sulfide will contribute to PM10 emissions in excess of the District's significance thresholds.[114] Therefore, the DEIR must be revised to include estimates for secondary particulate formation of ammonia and hydrogen sulfide. Absent this information, the County cannot conclude that the Project's air quality and public health impacts have been mitigated to a less than significant level. **1-58**

C. The DEIR's Conclusions Regarding the Odor Impacts from Project Emissions of Hydrogen Sulfide Are Unsupported

To comply with CEQA, the lead agency's significance determination must be supported by credible analysis and substantial evidence.[115] The DEIR relies on the State ambient air quality standard for hydrogen sulfide as a significance threshold for odor impacts. However, the State ambient air quality standard was set to **1-59**

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109 *Berkeley Keep Jets Over the Bay Comm. v. Board of Port Comm.* (2001) 91 Cal.App.4th 1344, 1367.
110 Petra Pless Comments, pp. 23-24.
111 *Id.*
112 *Id.*
113 *See id.*
114 *Id.* at p. 24.
115 *See Berkeley Keep Jets Over the Bay Committee*, (2001) 91 Cal.App. 4th at 1382.

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protect public health impacts and is not intended to determine nuisance conditions. The State ambient air quality standard for hydrogen sulfide – set at 42 µg/m^3 – is also considerably higher than the odor significance threshold employed by the California Air Resources Board ("CARB") and the CEC. **1-60**

The CEC uses a nuisance threshold of 10 µg/m3.[116] CARB concludes that "an unpleasant odor is at or above the threshold of annoyance for half the people, when its concentration reaches 5 times the average threshold of detection" and, thus, the concentration that is expected to effect a considerable number of people ranges from 2 µg/m3 to 3.5 µg/m3.[117] In light of these significance thresholds, the conclusion in the DEIR that Project odor impacts are insignificant because hydrogen sulfide emissions are below 42 µg/m^3 lacks scientific credibility and is invalid under CEQA. Moreover, substantial evidence shows that the Project's unmitigated odor impacts are significant. **1-61**

D. The DEIR's Discussion of the Project's Construction Emissions is Inadequate

An EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project.[118] A prejudicial abuse of discretion occurs if the failure to include relevant information precludes informed decision-making and informed public participation, thereby thwarting the statutory goals of the EIR process.[119] The air quality section of the DEIR is inadequate because it fails to disclose information necessary to evaluate the significance of the Project's construction emissions. **1-62**

The DEIR does not describe the Applicant's plan for construction, and does not provide an estimate of daily construction emissions. Instead, the DEIR includes a table listing the Project's maximum ***annual*** emissions and a brief description of the activities that will be involved during construction.[120] This information does not assist agencies and the public in reviewing whether the Project may contribute substantially to violations of State and federal air quality standards. The DEIR **1-63**

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116 Petra Pless Comments, p. 33.
117 *Id.*
118 *Association of Irritated Residents*, 107 Cal.App.4th at 1390.
119 *Al Larson Boat Shop, Inc. v. Board of Harbor Commissioners* (1993) 18 Cal.App.4th 729, 748.
120 DEIR, pp. 4.3-14- 4.3-15; *see id.* Table 4.3-5.

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must provide sufficient information to enable the public and decision makers to understand which construction activities will occur on the same day. **1-63 cont.**

Construction emissions vary by day, depending on the activities and equipment used.[121] For this reason, the Imperial County Air Pollution Control District employs significance thresholds which measure criteria pollutant emissions on a ***daily*** basis.[122] The District's thresholds are intended to assist in determining whether a proposed project may have a significant air quality impact.[123] The District employs the following significance thresholds for constructions emissions: 150 lbs/day for PM10; 75 lbs/day for ROG; 100 lbs/day for NOx; and 550 lbs/day for CO.[124] To satisfy CEQA's informational goals, the DEIR must be revised to disclose the Project's daily construction emissions so that the public and decision makers may assess the significance of the Project's impacts on air quality. **1-64**

E. The Conclusions in the DEIR Regarding Project Construction Emissions are Unsupported

The County has no substantial evidence to determine the significance of the Project's construction emissions. The DEIR presents maximum mitigated emissions associated with Project site construction and well pad construction, including upgrades to the BWWTP.[125] However, the technical analyses underlying the DEIR do not include the output files for these model runs.[126] Thus, the presented maximum abated emissions are unsupported and could not be verified. Further, the DEIR neither compares emissions to any thresholds nor presents any ambient air quality modeling; thus, its conclusion that construction emissions are less than significant is pure speculation.[127] As shown by Dr. Pless, the Project will result in significant, unmitigated emissions during construction.[128] **1-65**

121 District CEQA Handbook, p. 11.
122 *See* Petra Pless Comments, p. 40.
123 District CEQA Handbook, p. 7.
124 District CEQA Handbook, pp. 8-9.
125 Draft EIR, Table 4.3-5, p. 4.3-15.
126 Petra Pless Comments, p. 40.
127 *Id.* at pp. 39-41.
128 *Id.* at pp. 38-41.

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F. The Conclusions in the DEIR Regarding the Project's Construction Odor Impacts Are Unsupported

The Project has the potential to release hydrogen sulfide, a known irritant and odorous compound. The DEIR concludes that while receptors in the vicinity of the Project may be exposed to small amounts of emissions, impacts due to odors are considered less than significant. This conclusion is unsupported. 1-66

Emissions of hydrogen sulfide are released during well drilling and testing, as well as during Project operations (emanating from the proposed scrubber stack).[129] The conclusion in the DEIR that emissions from well drilling and testing activities are insignificant relies on the assumption that flow-testing is temporary and only one well is flow-tested a time. However, the DEIR's conclusion is entirely without basis because the DEIR does not require the Project to limit well testing activities accordingly. As such, the County has no substantial evidence to conclude that odor impacts during Project construction emissions are insignificant.

G. The DEIR's Analysis of the Project's Operational Emissions of Criteria Pollutants is Invalid

In *Kings County Farm Bureau v. City of Hanford* ("*Kings County*"), the court found that the EIR was inadequate under CEQA because the lead agency improperly segmented the Project's operational emissions, thus failing to identify and mitigate the Project's potentially significant impacts on air quality.[130] In particular, the court held that CEQA prohibits the lead agency from segmenting a project's on-site and secondary emissions to support the finding that the project's operational emissions are insignificant.[131] Such an approach results in an "inaccurate and misleading analysis of the project's impact on air quality."[132] 1-67

In *Kings County*, the lead agency relied on regulations promulgated pursuant to the federal Clean Air Act to assess the Project's operational emissions from stationary sources within the plant site.[133] The lead agency then separately assessed the project's mobile source emissions.[134] The court explained that this 1-68

129 *Id.*
130 *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 716-717.
131 *Id.*
132 *Id.*
133 *Id.*
134 *Id.*

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approach violates CEQA, which is "designed to measure all project-related pollution emissions and prohibits the division of a project into parts for purpose of environmental review."[135] In other words:

> The fact that on-site emissions alone and secondary emissions alone do not exceed KCAPCD [Kern County Air Pollution Control Measures] offset levels ***cannot*** properly be used to invoke the presumption that the project will have no significant impact on air quality.[136]

1-68 cont.

Here, the DEIR's analysis of the Project's operational emissions of criteria pollutants is similarly invalid.

Just as in *King County*, the DEIR segments emissions from the Project's stationary sources from all other sources of operational emissions. In particular, the DEIR fails to consider stationary source emissions together with emissions from any of the mobile sources required for Project operations, including on-site maintenance equipment, employee commuter vehicles, and maintenance vehicles.[137] Combustion exhaust emissions from these sources must be quantified and included in the analysis of the Project's total operational emissions.

The DEIR also fails to consider: emissions of criteria pollutants from entrained road dust and wind erosion; particulate emissions from the sand separators at the Project production and injection wells; fugitive emissions from the proposed isopentane storage tanks and hundreds of other Project components, including valves, flanges, pumps, compressors, and expansion tanks involved in geothermal fluid handling; and criteria pollutant emissions from accidental releases of isopentane together with the emissions from the Project's stationary sources.[138] Substantial evidence shows that total operational emissions will result in significant, unmitigated impacts on air quality and public health.

1-69

1. Particulate Emissions from Entrained Road Dust

1-70

As demonstrated by Dr. Pless in her comments, fugitive emissions due to the re-suspension into the air by vehicle tires together with particulate emissions from

135 *Id.*
136 *Id.* (emphasis added).
137 Petra Pless Comments, p. 19.
138 *Id* at pp. 18-24.

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the Project's stationary sources equal to at least 34.1 tons per year.[139] This amount exceeds the District's annual significance threshold by 9.1 tons.[140]

1-70 cont.

2. Particulate Emissions from the Proposed Sand Separators

The geothermal resource underlying the Project has high levels of sand in the geothermal fluid.[141] The unanticipated high levels of these undissolved solids were encountered at the nearby North Brawley facility and can be expected at the Project site. At the North Brawley facility, sand separators are vented for a period of 20 to 30 seconds every four hours, each releasing up to 300 gallons of geothermal fluid.[142] During each venting of the sand separators, undissolved solid particles are released into the atmosphere.[143] During each vent, a steam plume extends up to approximately eight feet high and two to three feet wide; at this time particulate precursors are released into the atmosphere.[144] The DEIR fails to account for these emissions and to consider emissions from the sand separators together with emissions from the Project's stationary sources.[145]

1-71

According to correspondence between the Applicant and the District, a test method for determining particulate matter emissions from the sand separator venting events has not been developed, and a specific emission factors for this source also has not been developed.[146] Accordingly, the DEIR must be revised to identify the foreseeable scenario of particulate matter emissions from sand separator venting events, based on the amount of particulates suspended in the geothermal fluid. The County must then include a revised analysis of the Project's total operational emissions of particulate matter in a revised DEIR. Absent this information, the County cannot conclude that the Project's significant impacts to air quality and public health have been mitigated to a less than significant level.

1-72

139 Petra Pless Comments, p. 21.
140 *Id.*
141 *Id.* at pp. 22-23.
142 *Id.* at p. 22.
143 *Id.*
144 *Id.* at p. 23.
145 *See* DEIR, Table 4.3-7, p. 4.3-21, and Appendix B to Draft EIR, Appendix D.
146 Petra Pless Comments, p. 23.

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3. Ozone Precursor Emissions from Accidental Releases of Working Fluid

Ozone and its precursors, reactive organic gases ("ROG"), are federally and state-regulated criteria pollutants. The DEIR fails to consider accidental releases of the working fluid isopentane – a ROG – in its calculation of the Project's total operational emissions of ozone. Substantial evidence shows that the Project will result in potentially significant emissions of ozone precursors due to accidental releases of isopentane.[147] Since startup in 2008, the North Brawley facility has experienced losses of more than 8,000 gallons of isopentane, requiring the Applicant to purchase at least 14.57 tons of additional offsets to mitigate for the release.[148] 1-73

The DEIR should be revised to address the Project's total operational ozone emissions and require mitigation ***before*** environmental damage occurs. Absent this analysis, the County cannot conclude that the Project's significant air quality impacts have been mitigated to a less than significant level.

H. The Conclusions in the DEIR Regarding Project Ozone Emissions are Invalid

CEQA requires the lead agency to include a description of the physical environmental conditions in the vicinity of a project as they exist at the time environmental review commences.[149] The description of the environmental setting constitutes the baseline physical conditions by which a lead agency may assess the significance of a project's impacts. If an EIR concludes that a particular impact is insignificant, the lead agency is required to provide a brief explanation of this conclusion.[150] The discussion of the Project's operational ozone emissions in the DEIR is invalid under CEQA because the DEIR fails to assess the significance of the Project's ozone emissions against background ambient concentrations and fails to provide an explanation for its conclusion that unmitigated Project ozone emissions will be insignificant. 1-74

The DEIR fails to assess the Project's emissions of reactive organic compounds ("ROC" or "ROG"), an ozone precursor, in combination with existing ambient concentrations. This approach violates CEQA, which requires that Project 1-75

147 Petra Pless Comments, pp. 24-26.
148 *Id.* at p. 25.
149 CEQA Guidelines § 15125, subd. (a).
150 *Citizens to Preserve the Ojai v. County of Ventura* (1985) 176 Cal.App.3d 421, 429.

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emissions are assessed with respect to baseline conditions. The County is required to prepare a revised DEIR which demonstrates, through ambient air quality modeling, that the Project would not result in or contribute significantly to violations of ambient air quality standards when added to existing baseline conditions.[151] The modeling should provide concentrations in ambient air at the fenceline of the Project, as well as existing residential receptors.[152]

1-75 cont.

Even assuming that the DEIR's assessment of Project ROC emissions is valid – which it is not – the DEIR fails to explain its conclusion that ROC emissions are insignificant. In particular, the DEIR finds that abated Project operational emissions of ozone precursors would exceed the Imperial County Air Pollution Control District's offset threshold of 25 tons/year (137 lbs/day) and requires the purchase of ROC offsets. The DEIR further concludes that with the implementation of this mitigation measure, the Project's ROC emissions will be reduced to a level of insignificance. This conclusion is unsupported.

1-76

The Imperial County Air Pollution Control District established CEQA significance thresholds, on which the DEIR claims to rely. Pursuant to the District's CEQA handbook, emissions of ROC in excess of 55 lbs/day are deemed significant. Thus, even with the mitigation proposed in the DEIR, Project ROC emissions amount to 137 lbs/day – that is more than double the District's significance threshold. The DEIR fails to explain why a ROC emission rate of 137 lbs/day should be deemed insignificant. Accordingly, the County cannot conclude based on the information provided in the DEIR that Project emissions have been mitigated to a less than significant level.

1-77

I. The Conclusions in the DEIR Regarding Odor Impacts During Project Operations Are Invalid

The conclusion in the DEIR that Project operations will not result in significant odor impacts lacks basis because the DEIR fails to evaluate total Project emissions of ammonia and hydrogen sulfide. Substantial evidence shows that the Project's operational odor impacts are significant and unmitigated. As such, the County cannot find that the Project's air quality impacts have been mitigated to a less than significant level.

1-78

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151 Petra Pless Comments, pp. 26-27.
152 *Id.* at p. 27.

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1. The DEIR Fails to Consider Ammonia Emissions

Ammonia is a nasal and respiratory irritant and has an extremely sharp, irritating odor.[153] The DEIR fails entirely to address potential odor impacts associated with this pollutant. As demonstrated by Dr. Pless, the Project would emit 58.6 tons of ammonia per year.[154] To put the Project's emissions into perspective, a typical feedlot with 1,500 heads of cattle emits approximately 124 tons of ammonia per year.[155] The County must prepare a revised DEIR which evaluates the significance of the Project's ammonia emissions in light of existing conditions. The abysmal odor conditions at the Project site are no secret. As reported by the Imperial Valley Press, nearby residents are subjected to an "unbearable stench" emanating from the National Beef facility and describe the odor as "so bad [that] you can taste the bitterness of the smell."[156] At a minimum, the DEIR must evaluate the Project's contribution to cumulative odor impacts, including the Applicant's North Brawley facility, the BWWTP and the cattle feedlots surrounding the Project site. **1-79**

2. The DEIR Fails to Consider Total Operational Emissions of Hydrogen Sulfide

CEQA requires the lead agency to include a description of the physical environmental conditions in the vicinity of a project as they exist at the time environmental review commences.[157] The description of the environmental setting constitutes the baseline physical conditions by which a lead agency may assess the significance of a project's impacts. **1-80**

The DEIR fails to consider the Project's hydrogen sulfide emissions in light of the existing environmental setting. This approach violates CEQA. In addition, the DEIR fails to consider hydrogen sulfide emissions from all Project components. As such, the DEIR's conclusion that operational odor impacts due to emissions of hydrogen sulfide are insignificant is unsupported. According to Dr. Pless, if total Project emissions of hydrogen sulfide are considered, the Project is likely to **1-81**

153 *Id.* at p. 34.
154 *Id.*
155 *Id.*
156 Silvio J. Panta, Imperial Valley Press Online, *Brawley residents complaint about stench from National Beef; officials say they heard nothing*, September 2, 2009 (attached hereto as Exhibit X).
157 CEQA Guidelines § 15125, subd. (a).

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contribute to, or cause a violation of, the state 1-hour ambient air quality standard for hydrogen sulfide.[158] As such, the Project will result in significant, unmitigated emissions of hydrogen sulfide. **1-81 cont.**

Furthermore, because well flow-testing would occur occasionally during the lifespan of the Project, emissions from these maintenance activities must be included in an analysis of the Project's total operational emission of hydrogen sulfide. The air quality impacts of these activities dwarf those of the power plant site. Assuming that routine well field maintenance would result in the same emissions rate as in the Project's initial phase, emissions from maintenance activities would be 600 times higher than those assumed in the DEIR for the power plant.[159] It is not only likely, but virtually certain that the state ambient air quality standard would be exceeded during the two years of well flow-testing and whenever maintenance of wells requires flow testing over the life of the Project.[160] The County's failure to consider emissions from well field maintenance activities vastly understates the Project's operational odor impacts. **1-82**

The DEIR must be withdrawn and a revised DEIR prepared which adequately describes the Project's direct odor impacts and proposes all necessary mitigation measures to reduce those impacts to a less than significant level. **1-83**

J. The DEIR Fails to Consider the Project's Total Operational Emissions of Hazardous Air Pollutants

The conclusion in the DEIR that the Project's emissions of hazardous air pollutants have been mitigated to a less than significant level is unsupported. The DEIR considerably underestimates hazardous air pollutant emissions associated with the Project's operation and, as a result, fails to identify and mitigate the Project's significant health risks. **1-84**

CEQA prohibits the lead agency from segmenting a project's emissions to support the finding that the project's operational emissions are insignificant.[161] The DEIR impermissibly segments emissions from the power plant and the well field to conclude that the Project will not result in significant hazardous pollutant emissions. The DEIR estimates potential health risks due to emissions of hydrogen **1-85**

158 Petra Pless, Comments, pp. 30-31.
159 *Id.* at p. 32.
160 *Id.*
161 *See Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 716-717.

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sulfide and benzene.[162] However, the DEIR excludes from the Project health risk assessment hazardous pollutant emissions associated with the sand separators, the injection filters, and the non-condensable gas pipeline condensate drains and fails. Emissions from these sources are substantial and are considerably higher than those from the power plant.[163] Therefore, the County lacks substantial evidence to support its conclusion that the Project's emissions of hazardous air pollutants have been mitigated to a less than significant level. Furthermore, substantial evidence shows that the Project will result in significant, unmitigated emissions of hazardous air pollutants.

1-85 cont.

1. The DEIR Fails to Identify Significant Public Health Impacts from the Emission of Hydrogen Sulfide and Benzene

As demonstrated by Dr. Pless, the health risk assessment included in the DEIR considers less than 35% of total Project hydrogen sulfide emissions on an hourly basis, and only 22% of total Project emissions on annual basis.[164] With regard to benzene, the health risk assessment considers only 29% of total emissions on an hourly basis, and 20% of total emissions on annual basis.[165] Based on a 100% of total Project emissions of benzene, incremental health risks at nearby residences exceed regulatory significance tresholds for cancer risks.[166]

1-86

The DEIR fails to identify and mitigate the Project's significant emissions of carcinogenic compounds. As a result, the County cannot conclude that the Project's significant air quality and public health impacts have been mitiated to a less than significant level. The County should withdraw the DEIR and prepare a revised DEIR that analyzes the Project's total emissions of hazardous air pollutants and propose mitigation accordingly.

1-87

2. Hydrogen Sulfode and Benzene Emissions from Well Drilling, Flow Testing and Maintenanece Are Not Included

As discussed in these comments, well testing, maintenance, and redilling will occur throughout the Project's operational life. However, the DEIR fails to consider hazardous air pollutant emissions associated with these activities. There are 36

1-88

162 *See* Appendix C to Draft EIR, Appendix D.
163 Petra Pless Comments, pp. 34-37.
164 Petra Pless Comments, p. 36.
165 *Id.*
166 *Id.* at p. 37.

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wells, each of which will be drilled over a period of 20 to 30 days, with flow testing occurring over a period of approximately 20 days.[167] Hydrogen sulfide emissions from these Project components are significant, representing approximately 99% of total Project emissions.[168] The DEIR should be revised to include hourly, daily, and annual emission estimates for well testing and to use these estimates to assess and mitigate potential health risks. **1-88 cont.**

3. The DEIR Fails to Consider Health Risks Due to Project Emissions of Diesel Particulate Matter Emissions

The DEIR fails to address incremental cancer risks due to emissions of diesel particulate matter, a known carcinogen. The DEIR presents estimates for diesel particulate matter emissions from the Project's emergency fire water pump and diesel generator but fails to conduct a health risk assessment for this recognized carcinogen.[169] The DEIR also fails to address diesel particulate matter emissions from drill rigs and mobile sources associated with well pad maintenance, deliveries, and waste handling (and also possibly from the black-start generator).[170] Substantial evidence shows that if diesel particulate matter emissions are added to total Project emissions of hazardous air pollutants, the incremental health risk will most likely exceed the DEIR's *de minimus* threshold of one in one million.[171] **1-89**

The DEIR must be revised to include an analysis of the Project's significant public health impacts due to emissions of diesel particulate matter. Absent this analysis, the County cannot conclude that the Project's public health impacts have been mitigated to a less than significant level. **1-90**

K. The DEIR's Conclusions Regarding the Project's Cumulative Contribution to Increased Cancer Risk in the Project Vicinity Are Unsupported **1-91**

The EIR must consider the Project's cumulative impacts on public health. In addition to the shortcomings of the health risk assessment discussed above, the

167 DEIR, Appendix D: Air Quality Assessment, Environmental Management Associates, Inc., East Brawley Geothermal Development Project, Air Quality Assessment, revised January 2011, p. 16.
168 Petra Pless Comments, pp. 36-37.
169 Petra Pless Comments, p. 38.
170 *Id.*
171 *Id.*

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DEIR also does not address the additive incremental risks from construction and operational emissions, or the cumulative health risks due to emissions from existing, planned, and future projects.[172] These include both the North Brawley facility and the ongoing expansion of the BWWTP. The DEIR must be revised accordingly.

1-91 cont.

L. The DEIR Fails to Address the Project's Cumulative Odor Impacts

1-92

The DEIR does not reflect any investigation of odor conditions in the Project vicinity and does not address the Project's cumulative contribution to existing nuisance conditions. These omissions violate CEQA.

The Project is located within screening distance of several feedlots as well as the BWWTP; both types of uses are listed as potential odor sources in the Air District's CEQA handbook.[173] A review of the District's files would have disclosed numerous complaints lodged by nearby residents regarding odors emanating from National Beef and nearby feedlots.[174] We have attached the results of the District's investigations to these comments. CEQA requires the County to address these issues in a revised DEIR, including an assessment of odors generated by the Project, an assessment of violations and complaints at other facilities, an analysis of the potential sources of odors and their frequencies, and proposed mitigation measures.[175]

1-93

VIII. THE DEIR'S CONCLUSIONS REGARDING PROJECT IMPACTS TO BIOLOGICAL RESOURCES ARE INVALID

1-94

The DEIR concludes that impacts to plant and wildlife species in and around the New River due to the Project's diversion of effluent from the BWWTP are insignificant and that the Project is unlikely to impact special status species other than the western burrowing owl (notably, the DEIR defers analysis of the Project's

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172 *Id.*

173 District CEQA Handbook, p. 14.

174 *See* copies of Imperial County Air Pollution Control District's complaint reports at Exhibit I.

175 *See, e.g.*, Environmental Impact Report for the Center for Compassion, September 2006, *available at* http://www.burlingame.org/Modules/ShowDocument.aspx?documentid=1309; Notice of Preparation and Scoping Document for an Environmental Impact Report (EIR) for the Whittier Main Oil Field Development Project, January 20, 2010, *available at* http://www.cityofwhittier.org/civica/filebank/blobdload.asp?BlobID=3160.

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impacts to the Southwestern willow flycatcher). As discussed in the following paragraphs, these conclusions are unsupported. **1-94 cont.**

A. The Conclusions in the DEIR Regarding Impacts to Biological Resources Are Unsupported

To comply with CEQA, a lead agency's determinations must be supported by credible analysis and substantial evidence. The County lacks substantial evidence to support a finding regarding the Project's impacts on biological resources. The DEIR relies on the Biological Resources Assessment ("BRA") prepared by the Applicant's consultants. However, the BRA encompassed only a fraction of the Project impact area, reporting only on the areas surrounding the Applicant's eight exploratory wells. Of the eight well pad sites surveyed, six have already been approved and two are no longer being proposed.[176] As a result, biological resource field surveys and assessments have not been conducted for the proposed: **1-95**

- 28 well pads;
- pipeline routes associated with the 28 well pads;
- water conveyance structures that will connect the Project to the Rockwood Canal, the BWWTP, and the North Brawley facility;
- utility line corridors and substation;
- New River crossings; and
- the wastewater retention basin adjacent to the power plant site.177

Surveys of the current Project area are essential and must be conducted ***before*** the Project's potentially significant impacts to biological resources can be assessed.[178] The Applicant should also be required to survey areas in buffer zones beyond the immediate Project footprint. Impacts to areas immediately adjacent to the Project components are reasonably foreseeable and include impacts from construction laydown areas, as well as from noise, fires, and increased nighttime **1-96**

176 Scott Cashen Comments, p. 4.
177 *Id.*
178 *Id.*

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lighting during Project operations.[179] Absent survey data for the entirety of the Project impact area, including areas where indirect effects are likely, the County cannot evaluate the Project's impacts on existing biological resources.

1-96 cont.

Moreover, the limited surveys that were conducted by the Applicant's consultants do not constitute substantial evidence. Substantial evidence is defined to include "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts."[180] The Applicant's technical documentation excludes vital information, such as the survey methods, a concrete description or map of the study area, a discussion of environmental factors such as temperature and precipitation, the total person-hours expended, and the qualifications of the surveyors.[181] This basic information is fundamental and necessary to ascertain the validity of the Applicant's documentation.[182] The Applicant's survey data also contains numerous errors and inconsistencies, and many of the surveys were conducted more than three years ago and are no longer considered valid.[183]

1-97

A comparison of the results of the BRA and the surveys conducted by Caltrans for the Brawley Bypass projects underscores the inadequacies of the Applicant's survey efforts. Surveys for the Brawley Bypass project, a project located in the same area and of a similar scale to the Project, document 79 species of animals and 42 species of plants.[184] However, the BRA documents only 27 species of animals and 21 species of plants. This significant divergence in results, casts substantial doubt on the scientific adequacy of the Applicant's survey efforts.[185]

1-98

B. Substantial Evidence Shows that the Project Will Result in Unmitigated, Potentially Significant Impacts to a Number of Special Status Species

1-99

The DEIR states that the Project has no potential to impact threatened, endangered, or sensitive plant or animal species other than the burrowing owl.[186] This assumption is contradicted by the DEIR. The DEIR acknowledges the

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179 *Id.*
180 CEQA Guidelines § 15384.
181 Scott Cashen Comments, pp. 4-5.
182 *Id.*
183 *Id.* at pp. 3-4.
184 *Id.* at p. 5.
185 *See, generally, id.* at pp. 3-5.
186 DEIR, p. 3.0-2.

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potential for Project impacts to the American badger, southwestern willow flycatcher, and several other special-status species. Moreover, the County has no affirmative evidence on which to make a significance finding with regard to the Project's impacts on special status wildlife. The Applicant's survey efforts do not constitute credible evidence of suitable habitat, and the Applicant does not claim to have established the presence or absence of special-status species on the Project site.[187] The BRA is unambiguous regarding the latter point, stating:

> [T]his survey was not intended to determine the presence/absence of threatened or endangered species except for the burrowing owl.[188]

1-99 cont.

The DEIR is also devoid of any evidence that the Applicant even consulted with the California Department of Fish and Game ("DFG") or the U.S. Fish and Wildlife Service ("FWS") concerning the need for focused surveys, and no focused surveys have been conducted.[189] As such, the DEIR fails to meet CEQA's evidentiary standard and its conclusions regarding Project impacts are invalid. As detailed in the following paragraphs, uncontroverted evidence shows that the Project will result in potentially significant, unmitigated impacts to the Yuma clapper rail, the mountain plover, the white-faced ibis, the ferruginous hawk, and the Desert pupfish.

1-100

1. <u>The Project Will Result in Unmitigated Potentially Significant Impacts to the Yuma Clapper Rail</u>

The Yuma clapper rail is a federally endangered and state-listed threatened species. The DEIR states that no occurrences of the Yuma clapper rail have been recorded within five miles of the Project site.[190] The DEIR further concludes that the Project site does not contain suitable habitat for the Yuma clapper rail due to the lack of dense cattails or phragmites.[191] The DEIR's conclusions regarding the Project's potential to impact the Yuma clapper rail have no credible scientific basis.

1-101

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187 Scott Cashen Comments, pp. 3-5, 10-11; *see also* DEIR, Appendix E, Biological Resources Assessment, p. 3.
188 DEIR, Appendix E, Biological Resources Assessment, p. 3.
189 Scott Cashen Comments, p. 10.
190 DEIR, Table 4.4-2.
191 DEIR, pp. 4.4-7-4.4-8.

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According to the DEIR, the Yuma clapper rail was detected within one mile of the Project. [192] Also, the density of the vegetation within the Project site is unknown because the Applicant did not survey the Project area.[193] Notably, and contrary to the Applicant's consultants, Yuma clapper rail is known to occur in vegetation of moderate foliage density.[194]

1-102

The Project has potential to impact the Yuma clapper rail because this species has been detected in the vicinity of the Project site on several occasions. Individuals were detected during prior surveys and a potential detection of the species occurred in the Brawley Bypass Wetland Mitigation, located within the Project footprint.[195] In the absence of focused surveys in all Project areas, the various sightings of the Yuma clapper rail provide substantial evidence that the species exists within the Project impact area.

1-103

The County must require the Applicant to conduct adequate habitat surveys for the entire Project impact area, or the County must conduct the surveys itself. The County must then include the results of these surveys and a revised assessment of impacts on Yuma clapper rail in a revised DEIR. Absent this preliminary investigation, the County lacks substantial evidence to support its conclusion of no impact, and the Project's impacts to the Yuma clapper rail cannot be ruled out.

1-104

2. The Project Will Result in Potentially Significant Unmitigated Impacts to the Mountain Plover

The mountain plover is proposed for listing as threatened under the federal Endangered Species Act. It is also a federal and State-listed species of special concern; this special-status listing applies to birds on their wintering grounds.[196] The DEIR indicates that there are no recorded occurrences of mountain plovers within five miles of the Project site and that the Project site contains only marginal habitat for this species. These conclusions are unsupported.

1-105

192 Compare DEIR, p. 4.4-7 and Fig. 4.4-1.
193 Scott Cashen Comments, p. 14-15.
194 *Id.*
195 *Id.*
196 Scott Cashen Comments, p. 15.

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The Imperial Valley provides very valuable wintering habitat, supporting about half of the global population of mountain plovers.[197] Mountain plovers were documented near Brawley and during surveys conducted for the Brawley Bypass Project, in the vicinity of the Project site.[198] The FWS also concluded that mountain plover may occur in the vicinity of the Project, near the North Brawley geothermal facility.[199] Contrary to the DEIR, Project impacts to the mountain plover are likely because the alfalfa, wheat, and Bermuda grass fields in the Project area provide excellent wintering habitat for mountain plovers.[200] **1-106**

The existence of suitable habitat within the Project site cannot be ruled out absent an adequate survey effort. The County should require the Applicant to conduct adequate habitat surveys for the entire Project impact area, or the County must conduct the surveys itself. The County must then include the results of these surveys and a revised assessment of impacts on mountain plovers in a revised DEIR. Absent this information, the County lacks substantial evidence to support its conclusion of no impact. **1-107**

3. The Project Will Result in Potentially Significant Unmitigated Impacts to the White-Faced Ibis

The white-faced ibis is a DFG Watch List species. The DEIR states this species was observed in "nearby areas" but concludes that the Project site provides no nesting habitat and only marginal habitat for this species. These conclusions are unsupported. Based on the information provided in the DEIR, habitat within the Project site should be considered *occupied* by the white-faced ibis.[201] White-faced ibises prefer to forage in irrigated or flooded pastures and croplands (among other wet habitat types).[202] Furthermore, individuals were observed in nearby areas, which are no different than the habitats occurring within the Project site.[203] **1-108**

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197 *Id.* at p. 15-16.
198 *Id.*
199 Letter from Therese O'Rourke, Assistant Field Supervisors U.S. FWS to Richard Cabanilla, Imperial County Planning and Development Services, regarding Comments on the Mitigated Negative Declaration regarding a Conditional Use Permit # 07-0017, Initial Study #07-00238 and Minor Subdivision PM #02428 for the Ormat North Brawley Geothermal Power Plant, Imperial County, California, November 14, 2007 (attached hereto as Exhibit J).
200 *See* Scott Cashen Comments, p.16 .
201 See *id.*
202 *Id.*
203 *Id.*

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The existence of suitable habitat within the Project site cannot be ruled out absent an adequate survey effort. The County should require the Applicant to conduct habitat surveys for the entire Project impact area, or the County must conduct the surveys itself. The County must then include the results of these surveys and a revised assessment of impacts on white-faced ibis in a revised DEIR. Absent this information, the County lacks substantial evidence to support its conclusion of no impact. **1-109**

4. The Project Will Result in Potentially Significant Unmitigated Impacts to the Ferruginous Hawk

The ferruginous hawk is a federal and State-listed species of special concern. The DEIR concludes that the Project will not impact this species on the ground that the Project site does not contain ferruginous hawk nesting habitat. This conclusion is not scientifically defensible. While it is known that the ferruginous hawk does not nest in California, the special-status listing of the species is applied to birds based upon their *wintering* grounds.[204] The ferruginous hawk is a fairly common winter resident of grasslands and agricultural areas in southwestern California, and it is known to use habitat in the Project region.[205] **1-110**

The existence of suitable habitat within the Project site cannot be ruled out absent an adequate survey effort. The County should require the Applicant to conduct adequate habitat surveys for the entire Project impact area, or the County must conduct the surveys itself. The County must then include the results of these surveys and a revised assessment of impacts on ferruginous hawk in a revised DEIR. Absent this preliminary investigation, the County lacks substantial evidence to support its conclusion of no impact. **1-111**

5. The Project Will Result in Potentially Significant Unmitigated Impacts to the Desert Pupfish

The DEIR did not provide an analysis of the Project's potential impacts on the desert pupfish, a federal and State-listed endangered species. However, according to the DEIR, the desert pupfish occurs in "a majority of the irrigation drains leading into the sea," and that it is dependent on these drains as habitat.[206] **1-112**

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204 *Id.* at p. 17.
205 *Id.*
206 *Id.* at p. 19.

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The DEIR readily admits that the Project site is traversed by numerous irrigation canals. Therefore, absent an adequate survey Project impacts to the desert pupfish cannot be ruled out. **1-113**

The County should require the Applicant to conduct adequate surveys for the entire Project impact area, or the County must conduct the surveys itself. The County must then include the results of these surveys and a revised assessment of impacts on the desert pupfish in a revised DEIR. Without this investigation, the County lacks substantial evidence to support its conclusion of no impact on biological resources. **1-114**

C. The DEIR Underestimates the Project's Significant Impacts on the Western Burrowing Owl

The burrowing owl is a federal and state listed species of special concern. Approximately 71 percent of the burrowing owls in California occur in Imperial Valley, primarily in agricultural areas.[207] As a result, Imperial Valley historically has been considered a "stronghold" for California's burrowing owl population.[208] However, preliminary data from the IID suggests the Imperial Valley population may now be declining.[209] **1-115**

According to the DEIR, the Project site contains "marginally suitable nesting habitat" along the canal/ditch banks and dirt roadways.[210] This is a gross mischaracterization of the Project site's value as burrowing owl habitat. In Imperial Valley, burrowing owls nest primarily along the edges of canals and ditches that border agricultural fields.[211] In these locations, owls occur at a density approximately ***eight times*** that of other locations within the State.[212] In addition, the burrowing owls associated with agricultural fields in Imperial Valley have some of the highest survival and reproductive rates.[213] The Project site is characterized by agricultural lands and is traversed by numerous irrigation ditches and canals. **1-116**

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207 *Id.* at p. 17.
208 *Id.*
209 *Id.*
210 DEIR, Table 4.4-2.
211 Scott Cashen Comments, p. 17.
212 *Id.*
213 *Id.* at pp. 17-18

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Letter 1 Continued

Recent survey efforts, including the pre-construction surveys conducted for the Applicant's North Brawley facility, confirm an abundant population of burrowing owls in and within the vicinity of the Project site. The surveys conducted for the Brawley Bypass project EIR found that ***all*** berms, drainages, and canals within the project area were either occupied or potential burrow habitat.[214] The DEIR's conclusion that no individuals will be impacted by the Project is inexplicable.[215] According to the Applicant's survey results, 11 owls and 13 active owl burrows were located within the fraction of the Project site that was surveyed.[216] These numbers likely vastly underestimate the total number of owls that will be impacted by Project construction.[217] Accordingly, the Project site should also be considered *occupied* burrowing owl habitat.[218] **1-117**

The County should require the Applicant to survey the entire Project impact area and to adhere to the DFG survey protocol for burrowing owls. The results of the Applicant's surveys should be the basis for a revised analysis and must be included in a revised DEIR. Without this investigation, the County underestimates the significance of impacts on burrowing owls and lacks substantial evidence to support its conclusion that impacts will be mitigated to a less than significant level. **1-118**

D. The Project May Result in Unmitigated Potentially Significant Impacts to New River Species and Habitat

The conclusion in the DEIR that the Project will not result in impacts to special status species and habitat in the New River is unsupported. [219] The Project Applicant proposes to divert approximately 4,400 AFY of wastewater, which previously flowed into the New River and the Salton Sea, for power plant cooling. The DEIR concludes, without ***any*** supporting documentation, that the proposed diversion will not significantly impact New River species. As such, the conclusion is invalid under CEQA. **1-119**

The Applicant must prepare a hydrological study to fully assess the Project's impacts on the New River.[220] Just last year, the FWS required the preparation of a **1-120**

214 *Id.*
215 *See* DEIR, p. 4.4-21.
216 Scott Cashen Comments, p. 17.
217 *Id.* at p. 15.
218 *Id.*
219 DEIR, p. 4.4-32
220 Scott Cashen Comments, pp. 13-14.

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hydrological study to evaluate the habitat impacts associated with the proposed diversion of wastewater which flows into the New River from the Seeley wastewater treatment plant.[221] The amount of water proposed to be diverted by the Applicant dwarfs the habitat impacts of the Seeley project; here, the Project will divert ***40 times*** more effluent from the New River than was proposed with respect to the Seeley wastewater treatment plant.[222]

1-120 cont.

The Applicant has failed to provide information essential to support a significance finding. As summed by the FWS with respect to the Seeley wastewater diversion:

> Providing the reduction in flows absent any information regarding either the total volume of current flows or that which is anticipated to remain in the channel (including any seasonality of such flows) following the proposed improvements does not allow for specific conclusions to be drawn relative to the resultant effects on the wetland vegetation in the effluent channel.[223]

1-121

Thus, the County may not conclude that Project impacts to New River habitat are insignificant.

Even in the absence of a hydrological study, however, substantial evidence shows that the Project's proposed diversion of water away from the New River will result in potentially significant, unmitigated impacts to New River habitat.[224]

1-122

The New River contains emergent and riparian vegetation that provides habitat for several special-status species. This habitat includes a patch of riparian/emergent vegetation immediately downstream from the BWWTP.[225] The proposed diversion of wastewater from the BWWTP will result in potentially

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221 *Id.*

222 *Id.*

223 Letter from Kennon Corey, Assistant Field Supervisor, U.S. FWS to Sandra Estigoy, Manager, Seeley County Water District, regarding Draft Mitigated Negative Declaration for the Seeley Wastewater Treatment Plant Improvements, Imperial County, California, February 22, 2010 (attached hereto as Exhibit W).

224 Scott Cashen Comments, pp. 13-14.

225 Scott Cashen Comments, pp. 9, 13-14.

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significant localized impacts to this habitat.[226] The vegetation immediately downstream from the BWWTP constitutes one of the largest patches of riparian habitat between the City of Brawley and the Salton Sea, and its functions and values are likely enhanced by the adjoining Brawley Bypass mitigation wetland.[227] Effluent from wastewater treatment facilities in Imperial Valley is integral to the continued viability of New River and Salton Sea habitat.[228] The BWWTP is the second largest source of effluent in Imperial Valley.[229] Thus, it can reasonably be inferred that the elimination of effluent flow from the BWWTP will result in potentially significant localized impacts to New River habitat in the vicinity of the Project site. Additionally, indirect impacts to the Yuma clapper rail, which is highly sensitive to hydrological modifications, cannot be ruled out.[230]

1-123 cont.

The DEIR fails to address the Project's impacts to New River habitat in the vicinity of the Project site, thereby failing to identify and mitigate the Project's potentially significant impacts to biological resources. The conclusion in the DEIR that the Project will not result in impacts to special status species and habitat in the New River is entirely unsupported and violates the intent and plain language of CEQA.

1-124

E. The Project May Result in Unmitigated Potentially Significant Impacts to Salton Sea Habitat

The DEIR concludes cumulative impacts to the Salton Sea as a result of the proposed diversion of wastewater flow from the BWWTP are insignificant. This conclusion is entirely unsupported and therefore invalid under CEQA. Based on the DEIR's analysis, the Project would contribute to a 3 percent reduction of the Sea's current total inflows, which would cause the surface elevation of the Salton Sea to drop by 1.2 inches.[231] The DEIR indicates a drop in surface elevation of 1.2 inches is negligible given the seasonal fluctuation in surface elevation.[232] However, the DEIR provides ***no analysis*** of the potential impacts to ***habitat*** as a result of changes to surface elevation.

1-125

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226 *Id.*
227 *Id.*
228 *Id.*
229 DEIR, Appendix K, Imperial Irrigation District Draft Integrated Water Resources Management Plan, September 2009, p. 29.
230 Scott Cashen Comments, pp. 13-15.
231 DEIR, p. 4.8-19.
232 Id.

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Substantial evidence shows that the Project will result in potentially significant, unmitigated impacts to Salton Sea habitat. A more rapidly declining Sea level has the potential to result in the loss of marsh and riparian vegetation, especially in the southern portion of the Sea where there are large concentrations of waterbirds.[233] ***Any loss*** of marsh and riparian habitat resulting from reduced flow could adversely impact fish and wildlife using that habitat.[234] For example, increased salinity and lower surface elevation threaten the connectivity of desert pupfish habitat and the viability of the species.[235] The declining Sea level could impact wetland and riparian vegetation along the drains, rivers and streams entering the Sea, as well as the confluence of the fresh waters with the Sea.[236] **1-126**

In addition, the Project's diversion of water will contribute to increased selenium concentrations in the New River and Salton Sea. Selenium accumulation in rail habitat has been identified as a potentially significant new threat to recovery of the Yuma clapper rail.[237] **1-127**

The DEIR fails to address these, or any of the numerous other changes that may occur to Salton Sea habitat as a result of the Project. Accordingly, the County cannot conclude that the Project's incremental contribution to the degradation of Salton Sea habitat is not cumulatively considerable. The conclusion in the DEIR that the Project will not result in significant impacts to the Salton Sea is entirely unsupported and violates the intent and plain language of CEQA. **1-128**

IX. THE DEIR'S CONCLUSIONS REGARDING GEOLOGY AND SOIL RESOURCES LACK SUBSTANTIAL EVIDENCE AS REQUIRED BY CEQA

The County does not have substantial evidence to support the conclusion that Project seismic impacts are insignificant. The Applicant has not evaluated the geology and soils characteristics for the majority of the Project site. As such, the DEIR's conclusions regarding Project impacts are not based on substantial evidence and are invalid for the purpose of CEQA. Specifically, the geotechnical report, used as the basis for the geology and soils section of the DEIR, addresses only the conditions at the site of the proposed geothermal plant, but does not address the **1-129**

[233] Scott Cashen Comments, pp. 19-20.
[234] *Id.*
[235] *Id.*
[236] *Id.*
[237] *Id.*

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geotechnical conditions in the areas underlying the proposed well field, water pipelines, transmission and river crossings. Ms. Gonzalez concludes that the areas ***not*** surveyed by the Applicant are characterized by significant subsidence, soil rupture, and liquefaction risks. Substantial evidence shows that the Project will result in potentially significant, unmitigated environmental impacts during seismic events.

1-129 cont.

A. The Project May Result in Potentially Significant Unmitigated Subsidence Impacts During Seismic Events

The DEIR indicates that subsidence impacts are insignificant. This conclusion is unsupported. The DEIR fails to analyze the impacts of subsidence at the proposed well field, and the Applicant's geotechnical report excludes analysis of this major Project component.[238] Further, regional subsidence *as a result of the Project* can definitely impact the flow and flow direction in the agricultural canals that are critical to the ecosystem and agricultural economy of the region.[239] These potentially significant impacts are nowhere disclosed or addressed in the DEIR. The County must prepare a revised DEIR which proposes all necessary and feasible measures to mitigate the Project's adverse environmental impacts during seismic events.[240]

1-130

B. The Project May Result in Potentially Significant Unmitigated Liquefaction Impacts During Seismic Events

The DEIR indicates that liquefaction is not a hazard. This conclusion is unsupported. As discussed in the preceding paragraphs, the geotechnical analyses prepared by the Applicant's consultants do not consider the geotechnical conditions of the entire Project area. According to Ms. Gonzalez's expert analysis, the soil characteristics underlying the power plant site are distinct from the soils underlying the proposed well field. Specifically, the clay-rich lake deposits underlying the near-surface in the geothermal plant site are considered not likely to liquefy.[241] However, the alluvial and deltaic deposits underlying other sections of

1-131

238 Gonzalez Comments, p.3.
239 *Id.*
240 *See, e.g., id.*
241 Gonzalez Comments, p. 3.

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the Project, including sections of the pipelines, and some of the well pads and wells, may be susceptible to liquefaction.[242]

1-131 cont.

Liquefaction-induced ground failure was reported just west of the geothermal plant site, along the New River, and within the Project area.[243] As explained, by Ms. Gonzalez, liquefaction can be manifested as sand blows, tilting and cracking of the ground surface, or lateral spreading. Lateral spreading is the most damaging of these phenomena, as it is essentially a shallow landslide that can result in substantial lateral movement, shearing pipes, breaking roads, and causing substantial structural damage.[244] Pipelines extending across the liquefiable zone could rupture, releasing brine (either production or injection fluid) onto the adjacent fields, irrigation canals, the rivers adjacent to these fields and canals, and ultimately into the Salton Sea.[245] The DEIR fails to mitigate the foreseeable and potentially significant environmental impacts of such a seismic event.

1-132

As fully explained in the comments submitted by Dr. Pless, if unmitigated, brine spills during catastrophic events have wide-ranging, adverse environmental effects. For example, spills on agricultural land could cause thermal stress, leading to destruction of crops and contamination of soil, removing agricultural lands from production.[246] Indirect effects on biological resources may include toxicity associated with the mineral-laden brine, *e.g.*, due to high concentrations of boron or arsenic.[247]

1-133

The DEIR fails to identify and address the reasonably foreseeable, adverse environmental impacts of brine spills during seismic events. These omissions violate CEQA. The County must prepare a revised DEIR which analyzes these impacts, and requires all necessary and feasible measures to reduce Project impacts to a less than significant level. Such measures could, for example, include engineering solutions, such as the strengthening of the sections of pipelines extending across areas where liquefaction-induced spreading or slumping can occur.[248]

1-134

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242 *Id.*
243 *Id.*
244 *Id.*
245 *Id.*
246 Petra Pless Comments, p. 51.
247 *Id.*
248 Tania Gonzalez Comments, p. 3.

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Letter 1 Continued

C. The DEIR Incorrectly Describes the Liquefaction Potential at the Power Plant Site

The liquefaction section of the DEIR indicates that liquefaction is not a hazard because groundwater is too deep at the site of the geothermal plant for this phenomenon to occur. This conclusion is unsupported. The geotechnical report prepared by the Applicant's consultant indicates that groundwater at the site is between about 10 and 17 feet below the ground surface. Significantly, sites underlain by young sediments with groundwater within 50 feet of the ground surface are considered potentially susceptible to liquefaction.[249] The County must correct the DEIR to accurately disclose and analyze the liquefaction potential at the proposed power plant site. **1-135**

X. THE DEIR'S CONCLUSIONS REGARDING HAZARDS TO PUBLIC HEALTH ARE INVALID

According to the DEIR, impacts to hazardous materials and risk of upset are significant if a project creates a significant hazard through reasonably foreseeable accident conditions involving the release of hazardous materials into the environment.[250] The DEIR concludes that the risk of accidental release of hazardous materials at the Project site is less than significant.[251] This conclusion is unsupported because the DEIR fails to identify soil contamination at the Project site, and to propose mitigation that can reduce hazards to workers. **1-136**

Before approving a project, a lead agency must assess the environmental impacts of all reasonably foreseeable phases of a project.[252] The hazards analysis in the DEIR is inadequate because it fails to consider all phases of the Project, including site grading and construction. According to the Applicant's technical documents, soil at the Project site contains chemical residues which may put workers at risk. The Phase I ESA prepared by the Applicant in 2008 provides, in relevant part: **1-137**

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249 *Id.* at p. 2-3.
250 DEIR, p. 4.7-15; *see also* CEQA Guidelines Appendix G.
251 DEIR, p. 4.7-21.
252 *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 396-397 (EIR held inadequate for failure to assess impacts of second phase of pharmacy school's occupancy of a new medical research facility).

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- Based on the nature of oil exploration activities and oil/gas production at the Site, it is possible that historical activities may have resulted in adverse impacts to the soil and/or groundwater underlying the Site, and the potential for such impact ***should be addressed prior to, or during Site redevelopment activities***. [253]

- Based on the historical and current of [sic] agricultural use at the Site, it is possible that residual agricultural chemicals, including pesticides, herbicides, and fertilizers, are present in the soil at the Site . . . . ***the actual presence of such chemicals can only be evaluated by using analytical methods to test for these chemicals***. [254]

- The possible presence of residual agricultural chemicals is ***a potential concern with respect to worker exposure during property development when grading and foundation excavation work is taking place***. Exposures to dust and soil can be generally be [sic] minimized by using appropriate dust control measures, personal protective equipment, and proper hygiene during construction activities.[255]

- ENVIRON observed surface features indicated of septic systems . . . . the septic tanks ***should either be relocated in accordance with local regulatory guidance prior to Site development and/or construction should be planned to avoid the system entirely***.[256]

1-137 cont.

Similar observations and recommendations are included in the 2009 Phase I ESA, prepared for the 190-acre area located east of the BWWTP.[257]

Substantial evidence submitted by the Applicant's technical consultants shows that the Project may have potentially significant, unmitigated impacts on public health, which must be addressed in the DEIR. The DEIR's conclusion that the risk of accidental release of hazardous materials at the Project site is less than significant is unsupported because the DEIR fails to identify soil contamination at the Project site, as recommended by the Applicant's consultants, and fails to

1-138

253 DEIR, Appendix J, 2008 Phase I ESA, p. 2 (emphasis added).
254 DEIR, Appendix J, 2008 Phase I ESA, p. 2 (emphasis added).
255 *Id.* at p. 3 (emphasis added).
256 *Id.* (emphasis added).
257 DEIR, Appendix J, 2009 Phase I ESA, pp. 1-2.

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evaluate mitigation required to reduce hazards to workers and other members of the public.

1-138 cont.

XI. THE DEIR'S ANALYSIS OF WATER SUPPLY IMPACTS IS INADEQUATE

The DEIR fails to include an adequate analysis of the environmental impacts associated with supplying water to the Project. The Supreme Court set forth the principles governing water supply analysis under CEQA in *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova ("Vineyard")*.[258] In *Vineyard*, the Court held that an EIR fails to meet CEQA's purpose and goals if it fails to address the following four issues. First, an EIR must identify a project's water supply with a sufficient degree of certainty to allow decision makers to "evaluate the pros and cons of supplying the amount of water that the project will need."[259] Second, an EIR evaluating a multi-phase or a planned land use project must assume that all phases of the project will be built, "and must analyze, to the extent reasonably possible, the impacts of providing water to the entire project."[260] Third, the water sources identified in the EIR "must bear a likelihood of actually proving available." As explained by the Court:

1-139

> An EIR for a land use project must address the impacts of *likely* future water sources, and the EIR's discussion must include a reasoned analysis of the circumstances affecting the likelihood of the water's availability.[261]

Fourth, where it is "impossible to confidently determine that anticipated future water sources will be available" the EIR must discuss possible replacement sources or alternatives and "the environmental consequences of those alternatives."[262] The *Vineyard* court acknowledged that "the burden of identifying likely water sources for a project varies with the stage of project approval involved."[263] However, the Court explained that to satisfy CEQA's information goals, an EIR must "adequately address the reasonably foreseeable *impacts* of supplying water to the project,"

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258 *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412.
259 *Id.* at 430-31 citing *Santiago County Water Dist. v. County of Orange* 118 Cal.App.3d at 829.
260 *Id.*
261 *Id.* at 432 (emphasis in original).
262 *Id.*
263 *Id.* at 434.

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including the impacts associated with reliance on alternative sources if the proposed water supply fails to materialize.[264] **1-139 cont.**

The DEIR's discussion of the Project's water supply does not meet the *Vineyard* standard. This defect renders the DEIR inadequate as an informational document. The County must withdraw the DEIR and prepare a revised DEIR which analyzes the potentially significant environmental impacts associated with delivering water to the Project and proposes measures capable of reducing Project impacts to a less than significant level. **1-140**

A. The DEIR Fails to Identify the Project's Water Supply with a Sufficient Degree of Certainty

An EIR must provide information regarding the plan, and the construction necessary, to supply water to a project.[265] This information is necessary to determine the environmental impacts of supplying the Project with its required amount of water.[266] The DEIR fails to accurately describe the infrastructure necessary to deliver water to the Project site and its associated environmental impacts. **1-141**

1. <u>The DEIR Fails to Identify and Analyze the Linear Features Necessary to Deliver Water from the BWWTP and the IID's Rockwood Canal to the Project</u>

The DEIR omits key information regarding the infrastructure that is required to deliver water to the Project. In particular, the DEIR fails to identify the length of pipeline necessary to interconnect the Project with the BWWTP and does not analyze the environmental impacts associated with its construction. Although the DEIR states that the potential environmental consequences of pipeline construction are discussed in other chapters of the EIR, this is not the case. As described in these comments, the Applicant failed to provide data regarding the biological resources underlying the proposed pipeline routes, or to include air quality emissions data associated with the construction of the proposed water **1-142**

264 *Id.* (emphasis in original).
265 *See Santiago County Water District v. County of Orange,* 118 Cal.App.3d 818, 829-830.
266 *Id.*

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conveyance system. This information is necessary if the DEIR is to serve its informational purpose and must be included in the revised DEIR.[267]

1-142 cont.

2. The DEIR Fails to Describe and Analyze the Impacts of the Proposed BWWTP Expansion

The DEIR states that the proposed BWWTP expansion will not result in any new impacts, and will not involve ground disturbance activities.[268] Elsewhere, the DEIR states that ground disturbance due to the BWWTP expansion may cause erosion and related water quality degradation but does not quantify these impacts.[269] According to the City of Brawley's specifications, most structures proposed as part of the BWWTP expansion will be built on fill.[270] In addition, the Applicant will be required to remove existing aeration basins to install the proposed tertiary treatment system, and to construct road access, drainage facilities, and effluent storage tanks on the BWWTP site.[271] The DEIR fails to identify these Project components and to consider their contribution to the Project's construction emissions, as well as the Project's construction water demand. Although the DEIR purports to analyze the air impacts associated with the BWWTP expansion project, the DEIR's conclusions appear to be unsupported and cannot be verified.[272]

1-143

B. The DEIR Fails to Identify Likely Water Supply Sources

An EIR for a land use project must address the impacts of ***likely*** future water sources, and the EIR's discussion must include a reasoned analysis of the circumstances affecting the likelihood of the water's availability.[273] According to the DEIR, the Project Applicant expects to receive 5,500 AFY of Colorado River water from IID until the BWWTP expansion project is completed and reclaimed water becomes available. Thereafter, the Applicant expects to receive 4,400 AFY of reclaimed water from BWWTP, with the balance (1,100 AFY of Colorado River

1-144

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267 *Id.*
268 *See, e. g.*, DEIR, pp. 3.0-23, 4.3-14, 4.5-9.
269 DEIR, p. 6.0-30.
270 Letter from Yazmin Arellano, City of Brawley to Bob Sullivan, Ormat Nevada, Inc. regarding Proposed Ormat Tertiary Treatment Plant Conceptual Design, March 2011 (attached hereto as Exhibit K).
271 *Id.*; *see also* DEIR Appendix D: Brawley Wastewater Treatment Plant, Tertiary Treatment Facility Conceptual Design Report.
272 Petra Pless Comments, pp. 39-40.
273 *Vineyard* , 40 Cal.4th at 432.

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water) to be supplied by IID. Based on our review of the Project files, the DEIR, and its supporting documentation, it cannot reasonably be concluded that the identified water sources are likely to materialize.

1-144 cont.

1. The DEIR Fails to Identify a Likely Water Source for the Project's First Phase

In 2008, the County terminated the CEQA process for this Project because the Applicant was unable to secure a water supply agreement with IID. In a letter to the Applicant the County stated its position as follows:

> As you are well aware, availability of water is critical to the proposed Ormat East Brawley Facility and that absent a water contract with the IID this project is not feasible. That said, unless you have an alternative source of water we cannot proceed.[274]

1-145

Accordingly, the County put its review on hold until such time that:

> [A]n executed water availability contract between the IID and Ormat is submitted to the Imperial County Planning & Development Services Department.[275]

This Project has been in development for three years. Yet, the Applicant is ***still*** unable to demonstrate an assured water supply.

The record is devoid of a water supply agreement or any other proof of IID's intent to serve the Project. The County has no evidence to support a finding that this Project will receive 5,500 AFY of Colorado River water from IID to meet the Project's cooling water demand for the first two or three years after Project approval. Similarly, no evidence supports a finding that approximately 1,100 AFY of water will be available thereafter for the remainder of the Project's operational life. Therefore, the DEIR was required, but failed, to provide information regarding likely sources of water and their associated environmental impacts.

1-146

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274 Letter from Jurg Heuberger, Planning & Development Services Director to Charlene L. Wardlow, Director of Planning, Ormat Nevada, Inc., October 30, 2008 (attached hereto as Exhibit L).

275 *Id.*

Letter 1 Continued

The DEIR states that IID has allocated "very little" of the 25,000 AFY of water set aside for nonagricultural projects and, therefore, water is available for the Project.[276] The County's assumption that IID will ***probably*** supply the Project is unsupported. In 2008, IID allocated 6,800 AFY of water to industrial uses.[277] IID recently approved an allocation of 800 AFY of water for the Hudson Ranch II geothermal facility. The recently approved McCabe Ranch II project, including the development of 2,300 new residential units on a 457 acre area in Imperial County, will receive 1,350 AFY of water from IID.[278] The Rancho Los Lagos project, proposing 3,830 new dwelling units as well as commercial and recreational development, is expected to have a water demand of 3,680 AFY of water at full build out. According to the DEIR prepared for the Rancho Los Lagos project, this amount is expected to be supplied by IID.[279] This is not an exhaustive list of projects; it does not include all of the County's projects, non-County projects, or projects proposed on federal land within Imperial County. However, even this small subset of existing and foreseeable County projects shows that IID has already dedicated more than 12,000 AFY of water to non-agricultural uses. **1-147**

The DEIR must be withdrawn and a revised DEIR prepared which identifies a likely Project water supply and analyzes the environmental impacts associated with delivering water to the Project, as required by CEQA. **1-148**

2. <u>The DEIR Fails to Include a Reasoned Discussion of the Circumstances Affecting the Availability of Reclaimed Water</u>

The DEIR states that beginning in 2014, the Project will obtain approximately 4,400 AFY of reclaimed water.[280] However, the DEIR fails to discuss the *likelihood* that reclaimed water from the BWWTP will be available in 2014 and thereby excludes facts crucial to informed decision making. These omissions violate CEQA. **1-149**

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276 DEIR, pp. 4.13-10-11.

277 *See* Imperial Irrigation District Board Agenda Memorandum from General Manager to Board of Directors regarding the Ormat Water Supply Agreement, October 7, 2008.

278 Final Environmental Impact Report for the McCabe Ranch II Specific Plan, June 2010, available at http://www.icpds.com/?pid=2324.

279 Draft Environmental Impact Report for the Rancho Los Lagos Project, October 2009, available at http://www.icpds.com/?pid=2161.

280 *See* DEIR, p. 4.13-10.

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The DEIR fails to disclose that the tertiary treatment system upgrades proposed by the Applicant ***cannot*** commence until ***after*** the City completes a secondary treatment system for the BWWTP. This information is critical because the completion of a secondary treatment system is a condition precedent to the commencement of the construction of the proposed BWWTP expansion project.[281] The City was also unable to meet the regulatory deadline for the BWWTP upgrades, which expired in 2009. The City's timely completion of the secondary treatment system has also been hampered by funding delays. **1-150**

The DEIR also fails to disclose that the Applicant's proposed diversion of 100% of the City's effluent must be approved by the State Water Resources Control Board ("Board"). In granting or denying the Applicant's change of use application, the Board will have to consider the flows needed to preserve instream uses, such as recreation and fish and wildlife habitat. [282] **1-151**

Finally, as discussed in these comments, the Applicant's proposed diversion may result in potentially significant impacts on New River species and the Salton Sea habitat. Unless this DEIR is revised to adequately evaluate the BWWTP, the City will be required to conduct environmental review pursuant to CEQA before the BWWTP can be approved and constructed. **1-152**

The DEIR fails to include a reasoned discussion of the circumstances affecting the availability of reclaimed water in order to adequately inform the public and decision makers and, therefore, fails to comply with the basic requirements of CEQA.[283] **1-153**

C. The DEIR Omits a Discussion of Credible Alternative Water Sources and Their Environmental Impacts

"The burden of identifying likely water sources for a project varies with the stage of project approval involved."[284] However, the *Vineyard* court acknowledged that at the project level, anything less than an assurance of a water supply requires **1-154**

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281 *See* Exhibit K.

282 State Water Resources Control Board website, http://www.waterboards.ca.gov/waterrights/board_info/water_rights_process.shtml (last visited April 26, 2011).

283 *Vineyard*, 40 Cal.4th at 430; *see also* CEQA Guidelines § 15124 subd. (d) (requiring a description of all necessary permits to be included in the EIR).

284 *Vineyard*, 40 Cal.4th at 434.

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the lead agency to discuss alternative water sources and their impacts to satisfy CEQA's information goals.[285]

1-154 cont.

The record is devoid of any assurances of water supply, as neither IID nor the City of Brawley have issued a letter of intent or entered into binding agreements with the Applicant for the supply of water to the Project. However, even if such documentation were not required, the DEIR reflects general uncertainty regarding key aspects of the Project's water supply including: when reclaimed water will be made available; whether IID will be able to meet the Project water demand until reclaimed water will be made available; and any information regarding whether either IID or the City of Brawley have demonstrated an intent to sell water to the Project Applicant. In light of these outstanding questions regarding the proposed sources of Project water supply, CEQA's mandate of informed decision making requires the County to disclose alternative sources of water for the Project and to analyze their environmental impacts in a revised DEIR.

1-155

XII. THE DEIR'S CONCLUSIONS REGARDING THE PROJECT'S GROWTH INDUCING EFFECTS ARE UNSUPPORTED

CEQA requires a separate and distinct analysis of growth-inducing impacts. The requirement to assess "growth-inducing impacts" must include the following:

> [T]he ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a waste water treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any

1-156

[285] *Id.*

Letter 1 Continued

> area is necessarily beneficial, detrimental, or of little significance to the environment.[286]

In *City of Davis v. Coleman*, the court set aside a Negative Declaration and required preparation of an EIR where evidence supported the finding that the construction of a highway interchange would cause urban growth.[287] However, the court reached its holding in reliance on the common sense conclusion that a project that is intended to support future growth ***will*** also cause potentially significant urban growth impacts which must be analyzed in an EIR.[288] As articulated by the court:

> The growth-inducing effects of the Kidwell Interchange project are its raison d'être, and with growth will come growth's problems: increased population, increased traffic, increased pollution, and increased demand for services such as utilities, education, police and fire protection, and recreational facilities.[289]

1-156

The DEIR states that the BWWTP expansion project would not increase the BWWTP's capacity or otherwise indirectly induce growth.[290] This claim is unsupported and is contradicted by the County's own documents. Contrary to the information provided in the DEIR, the BWWTP ***does not and cannot*** currently operate at a maximum capacity of 5.9 million gallons per day ("mgd").[291] The current average plant flow is only 3.9 mgd.[292] The Applicant's proposed expansion of the BWWTP will enable the plant to operate at its maximum capacity. Additionally, according to the City's technical consultants, the Applicant's proposed tertiary treatment system will ***increase*** the maximum capacity of the BWWTP to a daily peak flow of 5.9 mgd, with a daily peak of 7.7 mgd.[293] Failure to accurately describe the BWWTP expansion is fatal to the DEIR because the County was

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286 CEQA Guidelines § 15126.2(4) (emphasis added).
287 *City of Davis v. Coleman* (1975) 521 F.2d 661, 674-76.
288 *Id.* at p. 675.
289 *Id.*
290 DEIR, p. 7.0-2.
291 Email from Gary Burroughs to Jurg Heuberger re: ORMAT, May 18, 2010 (attached hereto as Exhibit M).
292 *Id.*
293 Comments on the Brawley WWTP Tertiary Treatment Facility Conceptual Design Report, April 21, 2011 (attached hereto as Exhibit N).

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Letter 1 Continued

required, but failed, to analyze the growth inducing effects of the BWWTP expansion. **1-156 cont.**

As in *City of Davis v. Coleman*, the very reason for the proposed BWWTP expansion is to support additional growth in the County. The Applicant intends to rely on the BWWTP to meet the Project's water demand, ***as well as*** the demand of the North Brawley facility.[294] Consequently, the BWWTP expansion frees up water resources for additional development in Imperial County, including but not limited to the Rancho Los Lagos community development south of the Project site. The DEIR acknowledges this fact.[295] The Applicant's proposal implements the County's principle strategy for growth in the face of finite water resources. According to the IID's Draft Integrated Water Resources Management Plan, the County expects to gain 6,000 to 14,000 AFY from recycling municipal wastewater in order to support future industrial, commercial and municipal development.[296] Thus, and due to the BWWTP expansion, Imperial County will be host to the expansion of the City of Brawley, the development of a new power plant, as well as other non-agricultural projects. To comply with CEQA, the County must revise the DEIR to include a revised analysis of the Project's growth inducing effects. **1-157**

XIII. THE CUMULATIVE IMPACTS DISCUSSION IN THE DEIR IS INADEQUATE

CEQA requires consideration of the incremental impacts caused by a project, together with other past, present, and reasonably probable future projects, including projects outside of the lead agency's jurisdiction.[297] As the CEQA Guidelines instruct, a cumulative impact is one "which is created as a result of the combination of the project evaluated in the EIR together with other projects causing **1-158**

294 *See* Brawley Tertiary Treatment System, Conceptual Design, p. 1, February 14, 2011 (attached hereto as Exhibit O).

295 *See* DEIR, p. 3.0-18, 4.2-17.

296 DEIR, Appendix K, Draft Integrated Water Resources Management Plan, p. 5.

297 CEQA Guidelines, § 15064(h)(1); *see also* 15355, subd. (b) ["The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."]; see *also Los Angeles Unified School Dist. v. City of Los Angeles* (1997) 58 Cal.App.4th 1019, 1024-1025.

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Letter 1 Continued

related impacts."[298] The potentially significant impacts of the proposed Project must be considered in conjunction with the impacts from these other projects.

> [T]he statutory injunction to assess "the incremental effects of an individual project ... in connection with the effects of *past projects*, the effects of other current projects, and the effects of probable future projects" (Pub. Resources Code, § 21083, subd. (b)(2), italics added) signifies an obligation to consider the present project in the context of a realistic historical account of relevant prior activities that have had significant environmental impacts.[299]

1-158 cont.

Thus, a legally adequate "cumulative impacts analysis" views a particular project over time and in conjunction with other related past, present, and reasonably foreseeable probable future projects whose impacts might compound or interrelate with those of the project at hand.[300] A lead agency's cumulative impact analysis is invalid under CEQA if it fails to adequately reflect the severity and significance of a project's cumulative impacts.[301]

> The primary determination is whether it was reasonable and practical to include the projects and whether, without their inclusion, the severity and significance of the cumulative impacts were adequately reflected.[302]

"The disparity between what was considered and what was known is the basis upon which . . . [a court] will find abuse of discretion."[303]

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298 CEQA Guidelines § 15130 subd. (a)(1) (emphasis added).
299 *Environmental Protection Information Center v. California Dept. of Forestry and Fire Protection* (2008) 44 Cal.4th 459, 524 (emphasis in original).
300 *See* CEQA Guidelines, § 15355 subd. (b) ("Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time"); *see also Communities for a Better Environment v. Cal. Resources Agency* (2002) 103 Cal.App.4th 98, 117.
301 *See* CEQA Guidelines § 15130 subd. (b); *see also San Franciscans for Reasonable Growth v. City and County of San Francisco* (1984) 151 Cal.App.3d 61, 72-73.
302 *Kings County,* 221 Cal.App.3d at 723.
303 *Id.*

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Letter 1 Continued

A. The Analysis of Cumulative Impacts to Salton Sea Habitat in the DEIR is Impermissibly Narrow

Lead agencies should consider a project's location when determining the geographic scope of the cumulative impact analysis.[304] For example, when water quality impacts are at issue, projects within the same watershed should be identified and discussed.[305] In this case, the Initial Study prepared by the County concluded that the Project's impacts to the Salton Sea as a critical habitat base for migrating birds of the Pacific Flyway were potentially significant.[306] In particular, the County concluded that the Project's impacts on the Salton Sea ecosystem had to be examined and that:

> [R]erouting of water may have a cumulative impact to the drains and Sea, resulting in the reduction of the Salton Sea's water level and may contribute to the exposure of previously submerged shoreline.[307]

As such, the County was required to consider the Project's cumulative impacts on the Salton Sea and the New River in the DEIR. A discussion of past, present, and reasonably probable future projects impacting the New River and the Salton Sea is critically important to this analysis.

1-159 cont.

The DEIR's scope of analysis is impermissibly narrow because the County's list of projects excludes past, existing and reasonably foreseeable large scale projects in the Salton Sea watershed which divert effluent from, or otherwise impact, the Salton Sea. A prime example of such a project is the Quantification and Settlement Agreement ("QSA"). The QSA was executed in 2003 and addresses water allocation among water rights holders in the lower Colorado River. Pursuant to the terms of the QSA, water that was previously delivered for agricultural use within Imperial Valley will be transferred to urban water users in San Diego and Los Angeles, eventually curtailing the agricultural inflows that currently sustain the Salton Sea. Pursuant to the mitigation plan adopted as part of the QSA Programmatic EIR, IID will curtail compensatory water deliveries to the Salton Sea in 2018.

1-160

304 CEQA Guidelines § 15130 subd. (b)(2).
305 *See* CEQA Guidelines § 15130 subd. (b)(2).
306 DEIR, Appendix A, Initial Study, p. 19.
307 *Id.*

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Letter 1 Continued

The DEIR acknowledges the significance of the QSA in assessing the Project's cumulative impacts to the Salon Sea ecosystem, stating:

> [D]ue to increased demand for water supplies in the region and recent IID water transfer agreements; increasing amounts of water are being consumed in Imperial Valley as well as transferred out of the valley . . . thus reducing inflows to the Salton Sea.[308]

However, the DEIR inexplicably excludes the QSA from its cumulative impact analysis, thus ignoring information vital to the County's assessment of the Project's impacts. This omission is a fatal error in the County's analysis. "In formulating the list of projects to be considered in each cumulative analysis" the County as lead agency is required to interpret the CEQA Guidelines "so as to afford the fullest possible protection to the environment within the reasonable scope of their language."[309] The County was also required to "use its best efforts to find out and disclose all that it reasonably" could.[310] The DEIR fails to reflect the requisite level of investigation.

1-161

Inclusion of the QSA in the DEIR's cumulative impact analysis for this Project was, without a doubt, reasonable and practical.[311] The County is well aware that the water transfers that will and are occurring, pursuant to the QSA represent a major threat to the continued viability of the Salton Sea ecosystem.[312] In fact, the County brought a CEQA challenge to the QSA Programmatic EIR on the ground that the EIR fails to adequately mitigate impacts to the Salton Sea.[313] Exclusion of the QSA from the DEIR's cumulative impacts analysis significantly understates the severity and significance of the Project's cumulative impacts. The County must

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308 DEIR, p. 4.8-19.

309 *San Franciscans for Reasonable Growth v. City and County of San Francisco* (1984) 151 Cal.App.3d 61, 74 (citing *Friends of Mammoth v. Board of Supervisors* 8 Cal.3d 247, 259).

310 *Id.*

311 See *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1215.

312 *See id.* (holding that no practical or reasonable barrier to including a project in a cumulative project list exists where information regarding the same project can be found in the lead agency's own records).

313 *See, e.g.*, Imperial County, QSA Litigation Bulleting: Environmental Impact, April 2009 (attached hereto as Exhibit P).

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Letter 1 Continued

withdraw the DEIR and prepare a revised DEIR which adequately analyzes the Project's cumulative impacts on the Salton Sea ecosystem. **1-161 cont.**

B. The Discussion of Cumulative Impacts in the DEIR is Inadequate Because it Omits Past Projects

CEQA's requirement for a cumulative impact analysis is particularly relevant when considering new power plant projects in the County, as a large number of power plant projects have recently been built, approved, or proposed within the County's jurisdiction. This list includes projects built and operated ***by the Applicant*** in the vicinity of the Project site, but which have been omitted from the DEIR, including the North Brawley Geothermal project, a 49.9 MW plant located approximately 1.75 miles west of the Project site. Omission of this project from the cumulative impacts analysis is a grave error and demonstrates the County's failure to "use its best efforts to find out and disclose all that it reasonably can" in the DEIR.[314] **1-162**

The following are examples of past, present, and reasonably probable future power projects in the vicinity, which are excluded from the County's analysis of the Project's contribution to cumulative impacts.[315]

Project	Description	Relevance/Notes
Past Projects (Approved and Either Built or Under Construction)		
North Brawley Geothermal	50 MW geothermal project approximately 1.25 miles west of the Project site.	This past project's impacts must be considered together with Project's impacts to air quality, biological resources, traffic agricultural resources, and water quality among others.

[314] *See San Franciscans for Reasonable Growth v. City and County of San Francisco* (1984) 151 Cal.App.3d 61, 74 (*citing Friends of Mammoth v. Board of Supervisors* 8 Cal.3d 247, 259).

[315] This list is not comprehensive, but instead provides a brief summary of past, pending and probable future energy projects in the vicinity of the proposed Project. The County must consider these energy projects, and all other relevant projects in the area, in the DEIR's cumulative impacts analysis.

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Letter 1 Continued

Project	Description	Relevance/Notes
Niland Gas Turbine Plant	93 MW simple-cycle power plant on a 160-acre parcel, approved by the CEC in 2006	This past project's impacts must be considered together with Project's impacts to air quality, biological resources, traffic and agricultural resources, among others.
Black Rock 1, 2 & 3 Geothermal (formerly Salton Sea Unit 6)[316]	Approved 215 MW geothermal project. Now proposing to amend license to allow for the construction of three smaller geothermal plants totaling 159 MW net of generating capacity.[317]	This past project's impacts must be considered together with Project's impacts to air quality, biological resources, traffic agricultural resources, seismic activity, among others.
CHAR Hudson Ranch Geothermal Development Project	49 MW geothermal project	This past project's impacts must be considered together with Project's impacts to air quality, biological resources, traffic agricultural resources, seismic activity, among others.
LADWP Niland Solar Energy Project	68 MW PV project on 970 acres.	This past project's impacts must be considered together with Project's impacts to biological resources, traffic agricultural resources, among others.

1-162 cont.

316 Table 4.0-1 in the DEIR inaccurately describes the Black Rock facility as a 159 MW plant.
317 *See* CEC webpage re project, available at: http://www.energy.ca.gov/sitingcases/saltonsea_amendment/index.html (as of October 7, 2010).

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Letter 1 Continued

Project	Description	Relevance/Notes
SunEco Biofuel Project	Algal Biofuel Project on a 350 acre parcel.	This past project's impacts must be considered together with Project's impacts to air quality, biological resources, traffic and agricultural resources, among others.
Present Projects (Environmental Review Underway)		
West Chocolate Mountains Renewable Energy Project (CA-670-2010-069)	Program of intensive energy development projects on public lands in the area	NOI to prepare EIS issued in February 2010.[318] According to the EPA: "The focus of the EIS is to assess whether 21,300 acres within the West Chocolate Mountains REEA should be made available for geothermal, solar, and wind development."[319]
Energy Source Solar II	A solar energy project that will produce approximately 80 megawatts of electricity on approximately 480 acres of land, located near Niland	This project's impacts must be considered together with the Project's impacts to air quality, biological resources, traffic, water resources, and agricultural resources, among others.

1-162 cont.

318 *See* BLM News Release, February 10, 2010, available at: http://www.blm.gov/ca/st/en/info/newsroom/2010/february/CDD1033_chocolatemtns_NOI.html (as of October 7, 2010).

319 *See* EPA comments re NOI, March 12, 2010, available at: http://www.epa.gov/region9/nepa/letters/WestChocolateMtsRenewableEnergyEvaluationArea.pdf (as of October 7, 2010).

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Letter 1 Continued

Project	Description	Relevance/Notes
Calipatria Solar Farm I	A solar energy project that will produce 50 MW on approximately 280 acres of land	This project's impacts must be considered together with the Project's impacts to air quality, biological resources, traffic, water resources, and agricultural resources, among others.
Calipatria Solar Farm II	A solar energy project that will produce 100 MW on approximately 623 acres of land	This project's impacts must be considered together with the Project's impacts to air quality, biological resources, traffic, water resources, and agricultural resources, among others.
Midway Solar Farm I	A solar photovoltaic project located that will produce 50 MW on 326 acres, located near Calipatria	This project's impacts must be considered together with the Project's impacts to air quality, biological resources, traffic, water resources, and agricultural resources, among others.
Midway Solar Farm II	A photovoltaic project that will produce 155 MW on 803 acres of land, near Calipatria	This project's impacts must be considered together with the Project's impacts to air quality, biological resources, traffic, water resources, and agricultural resources, among others.

1-162 cont.

Letter 1 Continued

Project	Description	Relevance/Notes
IV Solar Company	A 23 MW photovoltaic plant proposed on approximately 123 acres near Niland	This project's impacts must be considered together with the Project's impacts to air quality, biological resources, traffic, water resources, and agricultural resources, among others.
Ram Power/Overlay	A 50 MW geothermal facility proposed on approximately 28,000 acres near Brawley	This project's impacts must be considered together with the Project's impacts to air quality, biological resources, traffic, water resources, and agricultural resources, among others.
Future Projects (In Early Planning Stage)		
Calipatria Solar Farm I & II	Two 50 MW utility-scale solar PV farm	Located on 600 acres.
Power Partners Southwest, LLC	300 MW utility-scale solar PV farm	Located on 540 acres of public lands.

1-162 cont.

The County must consider each of the projects listed above, along with any and all other past, present and future projects that would cause related or similar impacts as the proposed Project in a revised DEIR.

XIV. THE MITIGATION MEASURES PROPOSED IN THE DEIR ARE INADEQUATE

1-163

An EIR must propose and describe mitigation measures sufficient to minimize the significant adverse environmental impacts identified in the EIR.[320] Under CEQA, mitigation measures must be designed to minimize, reduce or avoid an identified environmental impact, or to rectify or compensate for that impact.[321] A valid mitigation measures is one that is feasible and fully enforceable, and which

[320] Pub. Resources Code, §§ 21002.1(a), 21100(b)(3).
[321] CEQA Guidelines, § 15370.

Letter 1 Continued

reduces the project's significant impacts by a degree that is "roughly proportional" to the degree of the projects' impacts.[322] The EIR's discussion of mitigation measures must be supported by substantial evidence.[323] The DEIR fails to propose measures capable of reducing the Project's potentially significant impacts on air quality and biological resources.

1-163 cont.

A. The DEIR Fails to Propose Measures Capable of Reducing the Project's Construction Emissions

For fugitive dust emissions during Project construction, the DEIR requires implementation of Mitigation Measure MM 4.3.2a in addition to the requirements of District's Regulation VIII. For construction equipment exhaust, the DEIR requires Mitigation Measure MM 4.3.2b. The proposed mitigation measures as written are unenforceable because they fail to specify performance goals.

1-164

Mitigation Measure MM 4.3.2a requires implementation "where feasible" and Mitigation Measure MM4.3.2b requires implementation "when feasible" without specifying how feasibility would be determined and how these measures would be enforced. As such, these mitigation measures as written are not enforceable as a practical matter. Further, the mitigation measures proposed in the DEIR do not include monitoring and enforcement mechanisms in case the construction contractor should fail to implement, or adequately execute the control measures, thereby rendering the proposed mitigation measures essentially meaningless.

1-165

Mitigation measures must be enforceable to assure that they are actually implemented. To enforce these provisions, an on-site construction manager is required. Additionally, to ensure that all mitigation measures are implemented effectively, the DEIR should be revised to:

1-166

- include a construction mitigation monitoring plan;
- require the presence of a construction mitigation monitor on site; and
- require oversight by the Imperial County Planning and Development Services Department.

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322 *Napa Citizens for Honest Government v. Napa County Board of Supervisors* (2001) 91 Cal.App.4th 342, 360.

323 *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 663-664.

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Letter 1 Continued

B. The Proposed Construction Emissions Mitigation Measures Fail to Reduce the Project's Air Quality Impacts to Less Than Significant

According to the Air Pollution Control District's CEQA Handbook, Regulation VII, promulgated to minimize fugitive dust at construction sites, is "not intended to be an all inclusive comprehensive list of all mitigation measures."[324] The mitigation measures proposed in the DEIR fail to reduce the Project's construction emissions to a less than significant level because they fail to address the significant emissions of hazardous air pollutants, criteria pollutants and odor impacts during Project construction.[325] 1-167

To reduce the potential for violations of ambient air quality standards, as well as acute health hazards and odor impacts associated with hydrogen sulfide emissions, the DEIR should require that wells are not simultaneously constructed and flow-tested. Other feasible fugitive dust mitigation measures should be required, consistent with the best management practices guidelines published by several air pollution control agencies through the State.

The South Coast Air Quality Management District ("SCAQMD") promulgated regulations and published guidelines that identify best management practices for controlling fugitive dusts at construction sites.[326] We provide the following list of mitigation measures for incorporation into the revised DEIR. These measures should be required to ensure that the Project's fugitive dust emissions are reduced to the extent feasible: 1-168

- For backfilling during earthmoving operations, water backfill material or apply dust palliative to maintain material moisture or to form crust when not actively handling; cover or enclose backfill material when not actively handling; mix backfill soil with water prior to moving; dedicate water truck or large hose to backfilling equipment and apply water as needed; water to form crust on soil immediately following backfilling; and empty loader bucket slowly; minimize drop height from loader bucket;

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324 District CEQA Handbook, p. 11.
325 Petra Pless Comments, pp. 42-48.
326 *Id.*

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Letter 1 Continued

- During clearing and grubbing, prewet surface soils where equipment will be operated; for areas without continuing construction, maintain live perennial vegetation and desert pavement; stabilize surface soil with dust palliative unless immediate construction is to continue; and use water or dust palliative to form crust on soil immediately following clearing/grubbing;

- While clearing forms, use single stage pours where allowed; use water spray to clear forms; use sweeping and water spray to clear forms; use industrial shop vacuum to clear forms; and avoid use of high pressure air to blow soil and debris from the form;

- During cut and fill activities, prewater with sprinklers or wobblers to allow time for penetration; prewater with water trucks or water pulls to allow time for penetration; dig a test hole to depth of cut to determine if soils are moist at depth and continue to prewater if not moist to depth of cut; use water truck/pull to water soils to depth of cut prior to subsequent cuts; and apply water or dust palliative to form crust on soil following fill and compaction;

- For large tracts of disturbed land, prevent access by fencing, ditches, vegetation, berms, or other barriers; install perimeter wind barriers 3 to 5 feet high with low porosity; plant perimeter vegetation early; and for long-term stabilization, stabilize disturbed soil with dust palliative or vegetation or pave or apply surface rock;

- In staging areas, limit size of area; apply water to surface soils where support equipment and vehicles are operated; limit vehicle speeds to 15 mph; and limit ingress and egress points;

- For stockpiles, maintain at optimum moisture content; remove material from downwind side; avoid steep sides or faces; and stabilize material following stockpile-related activity;

- To prevent trackout, pave construction roadways as early as possible; install gravel pads; install wheel shakers or wheel washers, and limit site access;

1-168 cont.

Letter 1 Continued

- When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least six inches of freeboard space from the top of the container shall be maintained;
- Where feasible, use bedliners in bottom-dumping haul vehicles;
- Grade each phase separately, timed to coincide with construction phase or grade entire project, but apply chemical stabilizers or ground cover to graded areas where construction phase begins more than 60 days after grading phase ends;
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring, the use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions;
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant;
- During initial grading, earth moving, or site preparation, projects 5 acres or greater may be required to construct a paved (or dust palliative treated) apron, at least 100 ft in length, onto the project site from the adjacent site if applicable;
- Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 24 hrs;
- Prior to final occupancy, the Applicant demonstrates that all ground surfaces are covered or treated sufficiently to minimize fugitive dust emissions;
- Gravel pads must be installed at all access points to prevent tracking of mud on to public roads;

1-168 cont.

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Letter 1 Continued

- The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite;
- Prior to land use clearance, the Applicant shall include, as a note on a separate informational sheet to be recorded with map, these dust control requirements. All requirements shall be shown on grading and building plans;
- All roadways, driveways, sidewalks, etc., to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used;
- Barriers with 50% or less porosity located adjacent to roadways to reduce windblown material leaving a site;
- Limit fugitive dust sources to 20% opacity; and
- Require a dust control plan for earthmoving operations.

1-168 cont.

All of the above measures are feasible and various combinations of them are routinely required elsewhere in the State to reduce fugitive PM10 emissions.[327] The CEC also frequently requires more stringent and still feasible mitigation than required by the DEIR, for example:

- Areas of excavated or disturbed soils where construction activities have ceased for more than 15 days will be covered, or treated with a dust suppressant compound (such as magnesium chloride);
- The beds of trucks will be covered when hauling excavated soils which have the potential to generate fugitive dust;
- A maximum speed limit of 15 miles per hour will be posted on site; and
- Construction activities that create significant amounts of fugitive dust will be discontinued when wind speeds are greater than 20 mph.328

1-169

[327] *Id.*
[328] *Id.*

Letter 1 Continued

As drafted, the DEIR fails to propose and describe mitigation measures sufficient to minimize the significant adverse environmental impacts as required by CEQA.[329] 1-169 cont.

C. The DEIR Fails to Mitigate Significant Public Health Impacts Due to Emissions of Diesel Particulates

As discussed in these comments, the Project will result in significant and unmitigated emissions of hazardous air pollutants, including diesel particulate matter emissions, during Project construction. Economically feasible and effective measures for reducing emissions of hazardous air pollutants during Project construction include the use of best practices in construction management and the use of new or newer equipment. Emissions from existing older construction equipment can be dramatically reduced following the five "Rs" of emissions reduction, i.e refuel, replace, rebuild, repower, and retrofit. Both CARB and the U.S. EPA maintain lists of recommended diesel retrofit alternatives and alternative fuels.[330] Alternative fuels in combination with retrofit technologies or in new construction equipment can achieve emission reductions of up to 89 percent PM10, 90 percent CO, 93 percent ROG, and 40 percent NOx depending on the engine type of on-road or off-road equipment.[331] A combination of these options provides the greatest benefit and is frequently required as CEQA mitigation. 1-170

We propose the following feasible measures to mitigate the Project's significant emissions of hazardous air pollutants during Project construction.

- Require the contractor to use only newer construction equipment or equipment that is retrofitted to meet Tier 2 or higher emission standards set by the U.S. EPA.

- Require the contractor to submit a comprehensive inventory (i.e. make, model, year, emission rating) of all heavy-duty off-road equipment (50 horsepower or greater) that will be used an aggregate of 40 hours or more for the construction project. Require the contractor to provide a plan for approval demonstrating that the heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project-wide fleet 1-171

329 *See* Pub. Resources Code, §§ 21002.1 subd. (a), 21100 subd. (b)(3).
330 Petra Pless Comments, pp. 47-48.
331 *Id.*

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Letter 1 Continued

average 40 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB fleet average.

- Require the use of construction equipment meeting the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, § 2423(b)(1) unless such engine is not available for a particular item of equipment. Require construction equipment engines to meet Tier 1 California standards if equipment with engines that meet Tier 2 standards are not available, unless such engine is not available for a particular item of equipment. Require that the construction company keep documentation if the required Tier 2 or Tier 1 equipment is not available within the area or within a reasonable timeframe.

- Require that construction equipment that does not meet, at a minimum, Tier 1 standards, be retrofitted with one or a combination of the following post-combustion controls:

  - Diesel particulate filters
  - Diesel oxidation catalysts
  - Selective catalytic reduction
  - Lean NOx catalysts
  - Exhaust gas recirculation

1-171 cont.

If retrofitting pre-Tier 1 equipment is not feasible, require that the contractor document why retrofitting is not feasible.

- For pre-Tier 1 equipment which cannot be reasonably retrofitted, use alternative power, alternative fuels, and/or fuel additives instead, such as:

  - Emulsified (aqueous) diesel fuel
  - Fuel borne-catalysts
  - Compressed natural gas or liquefied natural gas

Letter 1 Continued

- Propane, ethanol, and methanol
- Electric power

- Instead of a diesel-powered generator, provide for on-site electrical service for hand tools such as saws, drills, and compressors.
- Limit idling time to 3 minutes for all construction equipment and haul trucks.
- Provide for on-site meals for construction workers by arranging a lunch wagon to visit the construction site.
- Suspend use of all construction equipment operations during second stage smog alerts.
- Prohibit open burning of removed vegetation. Vegetative material shall be chipped or delivered to waste or energy facilities.
- Require that the engine size of construction equipment shall be the minimum practical size to support the required scope of work for the equipment.
- Require the construction company to document that at least 50 percent of workers will carpool.
- Locate construction equipment away from sensitive receptors such as fresh air intakes to buildings, air conditioners and operable windows.
- Require the contractor to document that all construction equipment has been properly maintained with all maintenance repairs completed at an off-site location, including proper tuning and timing of internal combustion engines.
- Ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 20 percent opacity for more than three minutes in any one hour.

1-171 cont.

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Letter 1 Continued

As drafted, the DEIR fails to propose and describe mitigation measures sufficient to minimize the significant adverse environmental impacts, as required by CEQA.[332] 1-171 cont.

D. The DEIR Fails to Propose Feasible Measures Capable of Eliminating the Project's Significant Emissions of PM10

The Applicant proposes to operate two wet cooling towers which have the potential to emit more than 25 lbs/day of PM10. The DEIR requires mitigation in the form of high-efficiency drift eliminators which would limit the drift rate to 0.0005% of the circulating water rate. Based on the use of high-efficiency drift eliminators in the North and South Cooling Tower, the DEIR estimates that the Project would emit 11.32 tons/year of PM10 from each cooling tower and a total of 22.63 tons/year of PM10 from the Project, just below the District's offset threshold for PM10 of 25 tons/year. However, if all Project components are considered, substantial evidence shows that the Project's total operational emissions of PM10 will exceed the District's 25 tons/year significance threshold even with the proposed mitigation. As such, the County cannot find that the proposed high-efficiency drift eliminator will reduce Project emissions of PM10 to a less than significant level. The DEIR fails to propose measures capable of reducing the Project's total PM10 emissions to a less than significant level. 1-172

Several feasible measures, which have proven to be cost-effective elsewhere, could be employed here to reduce the Project's total PM10 emissions to a less than significant level.[333] Dry cooling is not only technologically feasible for binary geothermal power plants but is the standard design where water is scarce.[334] Air cooling is installed at many binary geothermal plants all over the world including several of the Applicant's facilities, e.g., a 20-MW facility in Nevada (part of the Steamboat Geothermal Complex), a 30-MW facility in Momotombo, Nicaragua, and a 20-MW facility in Amatitlan, Guatemala.[335] Dry cooling would not only eliminate emissions of particulate matter but would also reduce the Project's considerable water demand. Additionally, the County should consider hybrid systems including evaporative pre-cooling of the inlet air using sprays and the introduction of a wet-assist heat exchanger/surface condenser. These feasible mitigation measures should be fully evaluated to address unmitigated significant impacts in a revised 1-173

[332] *See* Pub. Resources Code, §§ 21002.1 subd. (a), 21100 subd. (b)(3).
[333] Petra Pless Comments, pp. 28-30.
[334] *Id.*
[335] *Id.*

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Letter 1 Continued

DEIR. As drafted, the DEIR fails to propose and describe mitigation measures sufficient to minimize the significant adverse environmental impacts from PM10 emissions, as required by CEQA.[336]

1-173 cont.

E. The DEIR Fails to Propose Adequate Measures to Offset the Project's Impacts to the Western Burrowing Owl

The DEIR concludes the Project would have a potentially significant impact on burrowing owls because it "could result in the loss of populations or essential habitat." However, the measures proposed by the DEIR do not mitigate the loss of populations or essential habitat.[337] Specifically, the DEIR requires the preservation of foraging habitat when the destruction of occupied burrows is unavoidable. This mitigation measure is unenforceable because the DEIR does not include specific performance standards for locating burrows and for determining occupancy and does not identify the variables needed to evaluate the efficacy of the proposed measure. The proposed measure also fails to mitigate impacts to owls that abandon their territories due to Project disturbance, or habitat degradation.

1-174

The mitigation measures in the DEIR should be revised to identify the location of off-site mitigation; the ratio of compensation; the legal mechanism that will ensure will ensure preservation in perpetuity; success criteria; and a monitoring program. As drafted, the DEIR fails to propose and describe mitigation measures sufficient to minimize the significant adverse impacts to burrowing owl and its habitat, as required by CEQA.[338]

1-175

F. The Mitigation Measures Proposed to Offset the Project's Impacts to the Southwestern Willow Flycatcher are Inadequate

The DEIR acknowledges that protocol-level surveys for the federally and state-listed endangered Southwestern willow flycatcher have not been conducted, and that the species may be significantly impacted by the Project.[339] Accordingly, the DEIR proposes to require pre-construction surveys and avoidance measures during the Project construction phase to offset the Project's impacts to the species.[340] The County's proposed mitigation for impacts to the Southwestern

1-176

336 *See* Pub. Resources Code, §§ 21002.1 subd. (a), 21100 subd. (b)(3).
337 *See* Scott Cashen Comments, pp. 23-24.
338 *See* Pub. Resources Code, §§ 21002.1 subd. (a), 21100 subd. (b)(3).
339 DEIR, p. 4.4-32.
340 DEIR, p. 4.4-32-33.

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Letter 1 Continued

willow flycatcher violates CEQA because it impermissibly defers environmental analysis and the formulation of performance standards. **1-176 cont.**

Deferral of the formulation of mitigation measures to post-approval studies is generally impermissible.[341] An agency may only defer the formulation of mitigation measures when it "recognizes the significance of the potential environmental effect, commits itself to mitigating its impact, and articulates *specific performance criteria* for the future mitigation."[342] **1-177**

Here, the County cannot claim that it "recognizes the significance of the potential environmental effect" on the Southwestern willow flycatcher because it has conducted absolutely no investigation to assess the nature and magnitude of Project's impacts to this species. The want of an adequate impact analysis precludes a finding that the Project's impacts to the Southwestern willow flycatcher have been reduced to a less than significant level. The County may not rely on mitigation measures as "a devise to avoid disclosing project impacts."[343] Moreover, the proposed mitigation measures fail to incorporate specific performance criteria. **1-178**

The County must first identify where protocol-level surveys should be conducted.[344] The County must then prepare a revised DEIR, which includes an adequate impact analysis and identifies mitigation capable of reducing the Project's impacts to the Southwestern willow flycatcher to a less than significant level. As drafted, the DEIR fails to comply with CEQA. **1-179**

G. The DEIR Fails to Propose Adequate Measures to Offset the Project's Impacts to Riparian Habitat

A valid mitigation measure is one that is feasible and fully enforceable, and which reduces the project's significant impacts by a degree that is "roughly proportional" to the degree of the projects' impacts.[345] The DEIR's discussion of mitigation measures must be supported by substantial evidence.[346] Finally "[a] **1-180**

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341 *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 308-309.

342 *Gentry*, 36 Cal.App.4th at 1411 (emphasis provided) (*citing Sacramento Old City Assn. v. City Council* (1991) 229 Cal.App.3d 1011, 1028-1029).

343 *San Joaquin Raptor Rescue Center v. County of Merced*, 149 Cal.App.4th 645, 663-664.

344 Scott Cashen Comments, pp. 23.

345 *Napa Citizens for Honest Government v. Napa County Board of Supervisors* (2001) 91 Cal.App.4th 342, 360.

346 *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 663-664.

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Letter 1 Continued

mitigation measure cannot be used as a devise to avoid disclosing project impacts."[347]

1-180 cont.

No effort is made in the DEIR to identify or quantify the riparian resources that will be impacted by the Project. However, concluding that impacts to riparian resources are potentially significant, the DEIR proposes that mitigation will be developed and accomplished pursuant to a Clean Water Act section 404 permit, once that permit is issued by the U.S. Army Corps of Engineers, and/or a Streambed Alteration Agreement with California Department of Fish and Game, if one is required for the Project.[348] The DEIR also proposes habitat compensation at a 1:1 impact ratio to mitigate for the loss of riparian habitat. The proposed measures are inadequate under CEQA.

1-181

The County cannot claim that it "recognizes the significance of the potential environmental effect" on riparian habitat because it has conducted absolutely no investigation to assess the nature and magnitude of Project impacts to riparian resources. Accordingly, the County may not defer formulation of measures capable of reducing the Project's impacts to riparian resources until after Project approval. The absence of such an analysis precludes a finding that the Project's impacts to riparian resources have been reduced to a less than significant level. This pervasive flaw in the County's analysis is fatal to the DEIR. Furthermore, preservation at a 1:1 ratio results in a net loss of habitat.[349] To prevent a net loss, the County must require a higher compensation ratio and/or comparable habitat restoration or creation.[350]

1-182

H. The DEIR Fails to Propose Adequate Measures to Offset the Project's Impacts to Wetlands

"A mitigation measure cannot be used as a devise to avoid disclosing project impacts."[351] The EIR's discussion of mitigation measures must be supported by substantial evidence.[352] The DEIR acknowledges that a jurisdictional delineation of waters of the U.S. has not been prepared. However, concluding that impacts to wetlands and waters of the U.S. are potentially significant, the DEIR proposes that

1-183

347 *Id.*
348 DEIR, 4.4-37.
349 Scott Cashen Comments, p. 21.
350 *Id.*
351 *San Joaquin Raptor Rescue Center v. County of Merced,* 149 Cal.App.4th 645, 663-664.
352 *Id.*

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Letter 1 Continued

mitigation will be developed and accomplished pursuant to a Clean Water Act section 404 permit, if and when that permit is issued by the U.S. Army Corps of Engineers.[353] Mitigation measure 4.4.5 is invalid under CEQA.

1-183 cont.

The County cannot claim that it "recognizes the significance of the potential environmental effect" on wetlands and waters of the U.S. because it has conducted absolutely no investigation to assess the nature and magnitude of Project impacts to these resources. The absence of such an analysis precludes a finding that the Project's impacts to wetlands have been reduced to a less than significant level. This omission is fatal to the DEIR. The County's proposed mitigation measure is also unenforceable; the County has no basis to assume that mitigation will be required by the U.S. Army Corps of Engineers ("Corps") pursuant to a Clean Water Section 404 permit; a jurisdictional determination has not been prepared and, at this time, the Corps has no files regarding this Project.[354]

1-184

XV. THE COUNTY IMPERMISSIBLY SEGMENTED ITS ENVIRONMENTAL REVIEW OF THE PROJECT

The DEIR is inadequate because it violates CEQA's prohibition on piecemealed environmental review. A public agency may not segment a large project into two or more smaller projects in order to mask serious environmental consequences. CEQA prohibits such a "piecemeal" approach and requires review of a Project's impacts as a whole.[355] CEQA mandates "that environmental considerations do not become submerged by chopping a large project into many little ones – each with a minimal potential impact on the environment – which cumulatively may have disastrous consequences."[356] Before approving a project, a lead agency must therefore assess the environmental impacts of all reasonably foreseeable phases of a project.[357]

1-185

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353 DEIR, 4.4-37.

354 *See* Letter from Burke S. Large, Assistant District Counsel, U.S. Army Corps of Engineers to Janet Laurain, Adams Broadwell Joseph & Cardozo regarding East Brawley Geothermal Power Plant Project; Imperial County, April 18, 2010 (attached hereto as Exhibit Y).

355 CEQA Guidelines, § 15378, subd. (a); *Burbank- Glendale-Pasadena Airport Authority v. Hensler* (1991) 233 Cal.App.3d 577, 592.

356 *Bozung v. Local Agency Formation Commission* (1975) 13 Cal.3d 263, 283-84; *City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438, 1452.

357 *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 396-397 (EIR held inadequate for failure to assess impacts of second phase of pharmacy school's occupancy of a new medical research facility).

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Letter 1 Continued

For example, in the case *Arviv Enterprises v. South Valley Area Planning Commission*, the Court rejected an attempt of a housing developer to divide a 21-home development into several smaller pieces – first 5 homes, then 2 homes, then 14 homes, each with successive mitigated negative declarations. The Court held that the applicant had improperly described the project and that a single EIR was required to analyze and mitigate the effects of the entire 21-home development. The Court stated:

> The significance of an accurate project description is manifest, where, as here, cumulative environmental impacts may be disguised or minimized by filing numerous, serial applications.[358]

1-185 cont.

The DEIR violates CEQA's prohibition on piecemealed review by failing to evaluate the proposed and past well-drilling and construction activities, as well as the recent expansion of the North Brawley facility, together with this Project in one EIR.

A. The County Impermissibly Segmented Well Drilling and Testing Activities

It is undisputed that the proposed well drilling and testing is part of the Project.[359] Moreover, under CEQA, the County is required to consider construction emissions from the wells which have already been constructed under exploratory well permits as part of this Project.[360] The DEIR fails to include emissions associated with well drilling and testing activities in its evaluation of Project impacts. However, the fact that the drill rig engines will be operated pursuant to distinct operating permits does not extinguish CEQA's requirement that an EIR evaluate the whole of a project.[361] To the contrary; CEQA defines "project" broadly as "an activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change. . ."[362] Most importantly here, "[t]he term "project" refers to the activity which is being approved and which may

1-186

358 *Arviv Enterprises v. South Valley Area Planning Commission* (2002) 101 Cal.App.4th 1333, 1346.
359 *See, e. g.,* DEIR, p. 4.3-16.
360 *See Natural Resources Defense Council v. City of Los Angeles* (2002) 103 Cal.App.4th 268, 284.
361 *See* DEIR, p. 4.3-16.
362 Pub. Resources Code § 21065.

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Letter 1 Continued

be subject to several discretionary approvals by governmental agencies."[363] "The term "project" does not mean each separate governmental approval."[364]

1-186 cont.

CEQA requires the County to prepare a revised DEIR which evaluates past and proposed (as well as any future) well drilling and testing. Substantial evidence shows that failure to consider these activities as part of the Project results in unmitigated, significant air quality impacts. As shown by Dr. Pless, emissions from the drill rigs alone exceed the District's CEQA significance thresholds, contributing to existing and new violations of ambient air quality standards for ozone in Imperial County.[365] The DEIR must be revised to quantify and properly mitigate total Project emissions.

1-187

B. The County Impermissibly Segmented Environmental Review of the Applicant's North Brawley Geothermal Complex

The Project and the existing North Brawley facility were conceived as one geothermal project and must be evaluated as such in the revised DEIR.[366] Instead of evaluating the whole power plant complex, review of these projects has been divided up into three environmental review documents, making each piece appear less significant and masking the serious environmental consequences of development of the energy production complex as a whole. Specifically, in 2007, the County adopted a Mitigated Negative Declaration for the North Brawley facility; in June 2010 the County adopted a Negative Declaration for an expansion of the North Brawley well field across the New River and toward the Project site;[367] environmental review of the East Brawley facility commenced in December 2010.

1-188

The fact that the North Brawley geothermal project and its expansion have already been approved does not negate the requirement for preparing an EIR on the entire power plant complex. The requirement to evaluate the whole of a project

363 CEQA Guidelines § 15378 subd. (c).

364 *Id.*

365 Petra Pless Comments, pp 38-39.

366 *See* Imperial Irrigation District, North Brawley System Impact Study, January 8, 2009, p. 1 (analyzing "the proposed North Brawley 150 MW generation project") (an excerpt of the study is attached hereto as Exhibit Q); *see also* Facility Study Agreement between Imperial Irrigation District and Ormat Nevada Inc., North Brawley Geothermal Project (attached hereto as Exhibit R).

367 Imperial County, Public Notice Regarding Negative Declaration Assessment #07-0028 (attached hereto as Exhibit S).

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Letter 1 Continued

applies even where one of the phases has already undergone prior environmental review. It was precisely such piecemealing that was rejected by the Second District in the *Natural Resources Defense Council v. City of Los Angeles* case.[368] In that case, the Port of Los Angeles analyzed Phase 2 of a three-phase project in a negative declaration. The Court held that an EIR was required to analyze the entire three-phase project as a whole, even though earlier CEQA review had been completed on Phase I of the project.[369] Similarly here, the County must prepare an EIR to analyze the impacts of the entire power plant complex as a whole, rather than analyzing each individual phase as an unrelated project. **1-188 cont.**

The North Brawley facility and the Project will function as interdependent components of one geothermal complex, sharing transmission and water supply infrastructure, as well as the same operator and owner. Their environmental impacts must be considered as that of one project under CEQA. Even where these impacts would be less than significant when each phase of the complex is looked at separately – which they are not – those same impacts may be significant when looked at as one whole project. **1-189**

XVI. THE PROJECT DOES NOT COMPLY WITH REQUIREMENTS SET FORTH IN THE CALIFORNIA WATER CODE

The County may not approve the Project until compliance with the California Water Code is demonstrated by the Applicant. Pursuant to section 10912 of the California Water Code, a Water Supply Assessment ("WSA") is required for the Project and must be included in the CEQA document that is circulated for public review and comment. If the County approves the Project without an adequate WSA, the County's decision will not only violate the Water Code, but it will also preclude the informed decision making regarding the Project's impacts that CEQA. **1-190**

A. The County Failed to Ensure that Sufficient Water Supplies Exists to Meet the Project's Demand

The purpose of a WSA is to ensure that water supplies are sufficient to meet water demands. To make this determination, either the County or the designated public water system must identify the Project's water demand and water supply **1-191**

[368] *Natural Resources Defense Council v. City of Los Angeles* (2002) 103 Cal.App.4th 268, 284.
[369] *Id.*

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Letter 1 Continued

before concluding that water supplies are sufficient to meet water demands.[370] The County failed to do that here. The DEIR states that the Project will require 5,500 AFY of water. However, neither the WSA, nor the DEIR, identifies the Project's water demand for construction activities, landscape irrigation and fire suppression. The County is required to identify the Project's water demand for construction, landscape irrigation and fire suppression, and include that demand in the total water requirement estimate for the Project.

1-191 cont.

The DEIR and the WSA also do not state how much water would be used in conjunction with reducing emissions associated with the Project construction activities. During construction the Applicant would be required to comply with the Imperial County Air Pollution Control District dust suppression requirements.[371] Several of those requirements are listed in the DEIR and include the following:[372]

- All disturbed areas, including bulk material storage which is not being actively utilized, shall be effectively stabilized and emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water . . .

1-192

- All on-site and off-site unpaved roads will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.

- All unpaved traffic areas of 1 acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emission shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.

- The transport of bulk materials shall be completely covered unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks is to be cleaned and/or washed at delivery site after removal of bulk material.

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370 Either the County or an identified public water system has responsibility for preparing the WSA. Wat. Code, § 10910, subd. (b).

371 *Id.* at p. 3-9.

372 DEIR, pp. 4.3-15 (emphasis added).

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Letter 1 Continued

- All track-out or carry-out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area.

- Bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line.

- The construction of any new unpaved road is prohibited within any area with a population of 500 or more unless the road meets the definition of a temporary unpaved road. Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emission by paving, chemical stabilizers, dust suppressants and/or watering.

1-192 cont.

Further, Mitigation Measures 4.3.2a, proposed in the DEIR, provides:

> The following fugitive PM10 control measures shall be implemented where feasible, in addition to the requirements of ICAPCD Regulation VIII, at the project site during all construction activities:
>
> ***Water*** exposed soil with adequate frequency for continued moist soil . . . . Install automatic ***sprinkler system*** on all soil piles.[373]

The amount of water necessary for these construction activities can be substantial. Here, the County provided no information about the proposed Project's water demand to reduce emissions associated with construction activities.

The County must specify the entire Project's water demand, including Project construction activities, mitigation for such activities, landscape irrigation and fire suppression. An accurate identification of the Project's water demand is necessary to compare the Project's water use and the goals set forth in any relevant urban water management plan. Most importantly, however, the County must identify the Project's water demand to ensure that water supply will be sufficient to meet water demand in normal, single-dry and multiple-dry years for the next 20 years.

1-193

[373] *See* DEIR, p. 4.3-17 (emphasis added).

Letter 1 Continued

B. The Project WSA Excludes the Necessary Verifications

A WSA shall identify existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project.[374] Such entitlements shall be demonstrated by providing information regarding: written contracts or other proof of entitlement to an identified water supply; federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply; and any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.[375] **1-194**

The WSA prepared for this Project is inadequate because it excludes the verifications required by the Water Code. Namely, the record is devoid of information regarding a written contract or other proof of entitlement to IID water or to reclaimed water from the BWWTP. This deficiency in the Applicant's CUP application was previously recognized by the County but has not been addressed.[376] The County may not approve this Project until adequate assurances of a Project water supply have been made, and incorporated in a revised DEIR. **1-195**

XVII. THE PROJECT CONFLICTS WITH STATE AND LOCAL POLICIES REGARDING POWER PLANT COOLING

The Applicant proposes to obtain 5,500 AFY of canal water from IID until reclaimed water from the BWWTP becomes available. Canal water is Colorado River water. According to the DEIR, the vast majority of this amount will be used for power plant cooling.[377] When and if reclaimed water becomes available, the Project Applicant proposes to use approximately 1,100 AFY of Colorado River water and 4,400 AFY of reclaimed water, supplied by BWWTP, for power plant cooling for the remainder of the Project's operational life. The Project's proposed reliance on inland water for power plant cooling violates State and local policies. **1-196**

This Project proposes to use more than 100 times the amount of water per MW than the ***maximum*** per MW water demand assumed by for a concentrated **1-197**

374 Wat. Code § 10910 subd. (d)(1).
375 Wat. Code § 10910 subd. (d)(2).
376 *See* Department of Public Works, Imperial County Planning & Development Services Department Environmental Evaluation Committee, Determination Form, December 10, 2009 (attached hereto as Exhibit T).
377 DEIR, pp. 4.13-19, 4.8-17.

Letter 1 Continued

solar development project.[378] This staggering statistic alone is grounds to seriously question the feasibility and wisdom of approving the Project as proposed. However, the Project is also inconsistent with State and local policies. **1-197 cont.**

Pursuant to Resolution 75-58, the State Water Resources Control Board has deemed the loss of inland waters through evaporation in powerplant cooling facilities an unreasonable use when general shortages occur.[379] Consistent with this policy, the CEC has required air-cooling for several large, concentrated solar projects, including the Solar Millennium Blythe and Palen and Rice Solar Energy projects in Riverside County, the Solar Millennium Ridgecrest project in Kern County, and the Ivanpah Solar Project in San Bernardino County. **1-198**

Resolution 75-58 prohibits the use of "fresh inland waters" for power plant cooling unless other sources or other methods of cooling are environmentally undesirable or economically unsound.[380] "Fresh inland waters" are defined as "those inland waters which are suitable for use as a source of domestic, municipal, or agricultural water supply and which provide habitat for fish and wildlife."[381] Under this definition, canal water is considered "fresh inland water" and its use for power plant cooling is not allowed by the State unless other sources of water or methods of cooling are shown to be infeasible.[382] **1-199**

The Applicant's proposed use of canal water is also inconsistent with the Geothermal and Alternative Energy Element of the Imperial County General Plan. **1-200**

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378 Draft Programmatic Environmental Impact Statement for Solar Development in the Six Southwestern States, Vol. 3 Part 1, Chapter 9, p. 9.1-8, *available at* http://solareis.anl.gov/documents/dpeis/Solar_DPEIS_California_SEZs.pdf. (for parabolic trough technologies, a 916 MW capacity plant would consume a maximum of 1,387 AFY.)

379 *Id.*

380 State Water Resources Control Board, Resolution No. 75-58, Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling (attached hereto as Exhibit U.)

381 *Id.*

382 Colorado River water quality at the Imperial Dam varies from a high of 982 mg/L to a minimum of 568 mg/L, with an average of 768 mg/L. Final Environmental Impact Report/Environmental Impact Statement for the Water Conservation and Transfer Project, October 2002, pp. 3.1-15-3.1-16. *See* Letter from Dorothy Rice, Executive Director, State Water Resources Control Board to Melissa Jones, Executive Director, California Energy Commission regarding State policies for water quality control and their applicability to power plant licensing, January 20, 2010 (attached hereto Exhibit V).

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Letter 1 Continued

According to Objective 3.3 of the Geothermal/Energy and Transmission Element of the Imperial County General Plan Update, the County shall:

> Encourage the efficient utilization of water in geothermal/alternative energy operations, and foster the use of non-irrigation water by these industries.[383]

1-200 cont.

CURE commends staff's selection of a Project alternative which does not rely on canal water for cooling purposes. However, the record reflects that dry cooling is feasible mitigation and should be required to eliminate many of the Project's significant environmental impacts, including impacts to air quality and biological resources. As described in these comments, the Applicant's proposed reliance on reclaimed water for industrial use, while generally encouraged in the State, raises serious concerns regarding adverse impacts to biological resources, including New River habitat, special status species, and the continued viability of the Salton Sea ecosystem. As such, we urge the County to adopt dry cooling technology as a feasible mitigation measure and condition of Project approval, thus eliminating many of the Project's significant impacts to air quality and biological resources, among others.

1-201

XVIII. THE COUNTY FAILED TO DEMONSTRATE THAT ITS JURISDICTION IS NOT PREEMPTED BY THE CALIFORNIA ENERGY COMMISSION

The County is barred from approving the DEIR for this Project because it has not demonstrated that it is the appropriate lead agency for this Project. Pursuant to the Warren-Alquist State Energy Resources Conservation and Development Act, Public Resources Code section 25000, *et seq.*, the CEC has siting and licensing jurisdiction over all thermal power plants and related facilities with a generating capacity of 50 MW or more.[384] The CEC's jurisdiction over such facilities is exclusive, and preempts any local land use authority.[385] The Act provides, in pertinent part:

1-202

> In accordance with the provisions of this division, the commission shall have the exclusive power to certify all

[383] Imperial County General Plan Update 1993, Geothermal Alternative Energy & Transmission Element

[384] Pub. Resources Code §§ 25120, 25500.

[385] Pub. Resources Code § 25500.

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> sites and related facilities in the state, whether a new site and related facility or a change or addition to an existing facility. The issuance of a certificate by the commission shall be in lieu of any permit, certificate, or similar document required by any state, local or regional agency . . . for such use of the site and related facilities, and shall supersede any applicable statute, ordinance, or regulation of any state, local, or regional agency . . . .[386]

Section 2003 of the CEC's siting regulations defines "generating capacity" of an electric generating facility as the maximum gross rating of the plant's turbine generator(s), in megawatts, minus the minimum auxiliary load. Section 2003 further provides that:

1-202 cont.

> For geothermal projects, the minimum auxiliary load includes the minimum electrical operating requirements for the associated geothermal field, which are necessary for and supplied directly by the power plant. Discretionary loads, i.e., those which can be curtailed without precluding power generation, are not included in minimum auxiliary loads.

Although the DEIR describe the Project as a 49.9 MW net geothermal power plant, this conclusion is unsupported and cannot be verified based upon the information provided in the DEIR and supporting documents.

The DEIR states that the Project will consist of "up to six" Ormat Energy Converter ("OEC") binary generating units, each with a gross generating capacity of 16 MW. However, according to the air quality assessment in Appendix D, as well as the Applicant's authority to construct permit applications to the Imperial County Air Pollution Control District, the Project would use six OEC units, each with a gross generating capacity of 12.5 MW.[387] Based on a gross generating capacity of 16 MW for each of six OEC units, the Project would have a gross generating capacity of 96 MW; based on a gross generating capacity of 12.5 MW for each of six OEC units, the Project would have a gross generating capacity of 75 MW.[388] In either case, the

1-203

386 *Id.*
387 Petra Pless Comments, p. 6.
388 *Id.*

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Letter 1 Continued

Applicant has not demonstrated that the auxiliary plant load is greater than 25 MW. **1-203 cont.**

The net generating capacity of a power plant is determined as the sum of the maximum gross ratings of each of its generating units minus the facility's auxiliary load. The auxiliary load, is the electric demand required to run a facility's on-site components such as pumps, fans, blowers, controls, heating, ventilation and air-conditioning ("HVAC") equipment, lighting, etc.[389] Because the Project is described as having a net generating capacity of 49.9 MW, just below the 50 MW threshold that would subject the Project to CEC review, it is imperative that the Applicant clearly demonstrate the auxiliary load and source(s) of electricity for the Project. **1-204**

As discussed above, the net generating capacity of the facility cannot be derived with certainty from the information provided by the DEIR. However, Dr. Pless estimates that the demand for the Project's geothermal fluid extraction can be roughly estimated at 12.2 MW, based upon the reported auxiliary plant load of the Applicant's Ormesa facility.[390] Further, according to the DEIR, IID Energy currently provides the Project site with electric service and distribution infrastructure is available on the Project site.[391] Information provided in the DEIR suggests that the Project includes the installation of additional cabling or distribution facilities to establish service at the proposed structures and that such installation would be coordinated with Imperial County and IID Energy.[392] **1-205**

Given an estimated well field load of only 12.2 MW and the possibility that a portion of the Project's electricity demand may be met by IID Energy, it can reasonably be concluded that the Project meets and exceeds the CEC's 50 MW jurisdictional threshold if its gross generating capacity is 75 MW or greater. Therefore, the County's jurisdiction over this Project is preempted by the State unless the Applicant demonstrates that the CEC lacks siting jurisdiction. The County cannot adopt the DEIR until and unless the Applicant demonstrates that the Project's net generating capacity is less than 50 MW. **1-206**

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389 Petra Pless Comments, p. 7.
390 Petra Pless Comments, p. 10.
391 *Id.*
392 *See* DEIR, pp. 3.0-24 and 4.13-18.

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Letter 1 Continued

XIX. CONCLUSION

The DEIR does not satisfy CEQA's evidentiary standards, and as a result fails to inform the public and decision makers regarding the Project settings, environmental impacts, and feasible measures capable of reducing and avoiding the Project's significant impacts on agricultural resources, air quality, biological resources, public health in the event of accidental and catastrophic releases of hazardous substances, seismic safety, and utilities, including inland water supplies. For these reasons, the DEIR must be withdrawn and a revised DEIR prepared that adequately analyzes and mitigates the Project's potentially significant environmental impacts. Further, the County should require all feasible mitigation, including dry cooling technology, to reduce and eliminate the Project's adverse impacts on air quality, public health, special status wildlife, the New River habitat and the Salton Sea ecosystem. Failure to require dry cooling technology cannot be justified under CEQA and will result in a colossal misallocation of the State's water resources, offsetting the potential benefits of this renewable energy Project. Finally, the County may not approve this Project until the Applicant prepares an adequate Water Supply Assessment and demonstrates that the County has jurisdiction over this Project.

1-207

Sincerely,

/s/

Elizabeth Klebaner

EK:vs
Attach.

2328-021v

EXHIBIT A

Letter 1 Continued

Pless Environmental, Inc.
440 Nova Albion Way, Suite 2
San Rafael, CA 94903
(415) 492-2131 voice
(815) 572-8600 fax

May 4, 2011

Via email (eklebaner@adamsbroadwell.com)

Elizabeth Klebaner
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080-7037

Re: Review of Draft Environmental Impact Report for the East Brawley Geothermal Development Project

Dear Ms. Klebaner,

Per your request, I have reviewed the Draft Environmental Impact Report ("Draft EIR") prepared by the County of Imperial ("County") as the lead agency under the California Environmental Quality Act ("CEQA") for a Conditional Use Permit ("CUP") application for the East Brawley Geothermal Development ("Project"), a geothermal power plant, a wastewater treatment facility upgrade, and associated well field area, proposed by Ormat Nevada Inc. ("Applicant").[1] My comments do not address the Project transmission components, as these Project elements and their associated environmental impacts, were not described in the Draft EIR and the Applicant's supporting documentation.

My qualifications as an environmental expert include a doctorate in Environmental Science and Engineering ("D. Env.") from the University of California Los Angeles. In my professional practice, I have reviewed and commented on hundreds of environmental documents including for geothermal facilities. My résumé is attached to this letter.

Background

The Project site is located in the unincorporated area of Imperial County north of the City of Brawley and is bounded to the west by the New River, to the south by Shank Road, to the east by Dietrich Road, and to the north by Rutherford Road. The site consists of agricultural and undeveloped land, several residential dwelling units associated with agricultural activities, a golf course, a radio tower, and a cattle feedlot.

[1] County of Imperial, Draft Environmental Impact Report, East Brawley Geothermal, March 2011 ("Draft EIR").

Letter 1 Continued

The geothermal plant site consists of one 33.7 acre-parcel, owned by the Applicant, and the Applicant leases 39 parcels encompassing approximately 3,033 acres that will contain proposed wells and pipelines. According to the Draft EIR, the total disturbed area associated with the power plant and well field is approximately 189 acres.[2]

According to the Draft EIR, the major Project components include:

- A 49.9 net megawatt ("MW") geothermal power plant consisting of up to six Ormat Energy Converter ("OEC") binary generating units (16 MW gross each) with vaporizers, turbines, generators, condensers, preheaters, pumps and piping, motive fluid (isopentane) storage, a motive fluid vapor recovery system, a gas scrubber, and a regenerative thermal oxidizer ("RTO") and related ancillary equipment.
- Two cooling tower batteries with a total of 14 to 20 cell counter flow, induced draft with drift eliminators of 0.0005% efficiency.
- A control room, office maintenance shop, parking, and other facilities located at the power plant site.
- Approximately 36 total wells, half for production and half for injection, with an average 4,500 feet in depth. Production wells will have a gas separator and corrosion and scale inhibitor and geothermal fluid booster pump to pump the fluid to the power plant. The production and injection wells may also have a sand separator. Six of these wells were already approved by the County under the East Brawley exploration permit (CUP 07-0029). Five wells were already drilled on three well pads.
- Piping from production wells to the power plant and from the power plant to the individual injection wells. Gas pipelines will take gas contained in the brine from the gas separators to either the injection wells or to the gas scrubber at the power plant.
- Blowdown wells (2–4) at the power plant site to provide for injection of the cooling tower blowdown.
- Pumps, tanks, valves, controls, flow monitoring, and other necessary equipment to the wells and pipelines.
- Maintenance of the production and injection wells cited above.
- Piping, canals or ditches, and pumps to bring water from Imperial Irrigation District ("IID") Rockwood Canal to the power plant.
- A substation with a 2-mile-long double circuit 13.8 and 92 kilovolt ("kV") transmission line with 66-foot-high poles to interconnect to the IID at the

[2] Draft EIR, pp. 2.0-1 – 2.0-2 and 3.0-13 – 3.0-14.

Letter 1 Continued

North Brawley 1 substation at Hovley and Andre roads. The transmission line will span the New River.

- Improvements to the existing Brawley Wastewater Treatment Plant ("BWWTP") to include a tertiary treatment system in order to provide reclaimed water to the proposed power plant as well as the construction of a pipeline to convey the water from the BWWTP.[3]

Comments

As discussed in my comments below, the Draft EIR is deficient and fails to adequately assess and mitigate the Project's significant impacts in the areas of air quality, public health and safety, hazardous materials, and water quality resulting from Project construction and operation. The following table of contents summarizes the organization of my comments:

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[3] Draft EIR, pp. 2.0-1 – 2.0-2 and 3.0-13 – 3.0-14.

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I. GENERAL COMMENTS

An environmental impact report must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues associated with implementation of the proposed project. As discussed in the following comments, the Draft EIR fails to provide an accurate, finite and stable project description; fails to adequately document the existing environmental conditions; and fails to adequately document its analyses and conclusions. 1-208

I.A The Draft EIR Fails to Provide an Accurate, Finite and Stable Project Description

An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR under CEQA. Here, the Draft EIR's project description is inconsistent and deficient.

I.A.1 Description of Project's Gross Generating Capacity Is Inconsistent with Supporting Documentation and Application for an Authority to Construct by the San Joaquin Valley Air Pollution Control District

1-209

The Draft EIR and the Applicant's January 28, 2010 application for a conditional use permit ("CUP Application") to the County describe the Project as a 49.9 MW net geothermal power plant consisting of "up to six" Ormat Energy Converter ("OEC") binary generating units, each with a gross generating capacity of 16 MW.[4] This description is inconsistent with the air quality assessment contained in the Draft EIR's Appendix D[5] and the Applicant's 2008 and 2010 applications for an authority to construct ("ATC") to the Imperial County Air Pollution Control District ("ICAPCD"), which specify that the Project would use six OEC units, each with a gross generating capacity of 12.5 MW.[6] The Draft EIR fails to specify the total gross generating capacity for the "up to six" or "six" OEC units. Based on a gross generating capacity of 16 MW for each of six OEC units, the Project would have a gross generating capacity of 96 MW; based on a gross generating capacity of 12.5 MW for each of six OEC units, the Project would have a gross generating capacity of 75 MW.

[4] Draft EIR, pp. 3.0-13 and 2.0-1, and Draft EIR, Appendix B: CUP Application, p. 2.

[5] Appendix B to Draft EIR, Appendix D, p. 11 of 14.

[6] Bob Sullivan, Ormat Nevada, Inc., Letter to Brad Poiriez, Imperial County Air Pollution Control District, Re: Application for Authority to Construct for the East Brawley Geothermal Development Project, October 31, 2008 (hereinafter "2008 ATC Application") and Ron Leiken, Ormat Nevada, Letter to Brad Poiriez, Imperial County Air Pollution Control District, Re: Revised Application for Authority to Construct for the East Brawley Geothermal Development Project, September 14, 2010 (hereinafter "2010 Revised ATC Application").

Letter 1 Continued

The Draft EIR should be revised to specify the total gross generating capacity, the exact number of OEC units that would be built at the power plant site, and their individual gross generating capacities. **1-210**

I.A.2 Project Auxiliary Load Is Not Adequately Defined

The net generating capacity of a power plant is determined as the sum of the maximum gross ratings of each of its generating units minus the facility's auxiliary load. The auxiliary load, also called parasitic load, is the electric demand required to run a facility's on-site components such as pumps, fans, blowers, controls, heating, ventilation and air-conditioning ("HVAC") equipment, lighting, etc. **1-211**

Here, Project operations would require a large amount of electricity for operating the numerous components for various on- and off-site activities including pumps for brine extraction and transport to the facility, in-facility activities such as moving the hot brine through a vaporizer to vaporize the "working fluid, pumps to reinject brine and cooling water blowdown into the geothermal reservoir, pumps for the sand filtration system, fans, on-site employee and control center facilities, etc. **1-212**

The Draft EIR explains that the Project site is currently provided electric service by IID Energy and distribution infrastructure is available on the Project site. The Draft EIR states that anticipated power demands for the Project would not require improvements to the power utilities distribution system and that the Project would supply its internal electricity demands. However, the Draft EIR leaves open the possibility that additional cabling or distribution facilities may be required to establish service at the proposed structures and asserts that any such installation would be coordinated with Imperial County and IID Energy.[7] The Draft EIR does not state which portion of the above discussed electric demand for on- and off-site activities is included in the Project's "internal demand" nor does it quantify the auxiliary load for the Project or the amount of electricity that would be provided to the site by IID Energy. It is therefore unclear whether the Project would satisfy its entire electric demand with power generated on site or whether some demand would be satisfied with IID power through existing or future additional cabling and/or distribution facilities. **1-213**

I.A.3 Project's Net Generating Capacity Is Not Adequately Supported

The Draft EIR describes the Project as a 49.9MW net geothermal power plant. As explained above, the net generating capacity of a power plant is determined as the sum of the maximum gross ratings of each of its generating units minus the facility's auxiliary load. However, for geothermal power plants, the definition of "auxiliary load," and, thus, "net generating capacity," is not unambiguously defined. **1-214**

[7] Draft EIR, pp. 3.0-24 and 4.13-18.

Letter 1 Continued

The California Energy Commission ("CEC") specifies for geothermal projects that the minimum auxiliary load includes the minimum electrical operating requirements for the associated geothermal field which are necessary for *and supplied directly by the power plant*. Discretionary loads, *i.e.*, those which can be curtailed without precluding power generation, are not included in minimum auxiliary loads.[8] Thus, depending on the source of electricity used for geothermal fluid extraction, *i.e.*, supplied by the facility itself or purchased from the grid or another facility, it is either included or excluded from the calculation of auxiliary load. Thus, the Project must itemize the individual contributions to auxiliary load to support its assumptions of net generating capacity. Because the Project is described as having a net generating capacity of 49.9 MW, just below the 50 MW threshold that would subject the Project to CEC review[9], it is imperative that the Applicant clearly demonstrate the auxiliary load components (including geothermal fluid extraction, transportation and handling of geothermal fluid within the facility, and geothermal fluid reinjection) and source(s) of electricity for the Project.

1-214

I.B The Draft EIR Is Internally Inconsistent and Fails to Adequately Support Its Analyses and Conclusions

1-215

The Draft EIR does not fulfill the requirements for an adequate informational document under CEQA because it fails to adequately document and support its assumptions, analyses, and conclusions.

I.B.1 Percentage Separation of Noncondensible Gases from Geothermal Fluid Is Not Supported

1-216

The Draft EIR states that under assumed operating conditions almost all of the noncondensible gases ("NCGs") in the geothermal fluid would be separated from the produced geothermal fluid at the respective production well sites and transported via the NCG pipeline system to the injection wells. There, the separated NCGs would be "intermingled" with the geothermal injection fluid and injected back into the subsurface geothermal reservoir with no air emissions. However, if very high concentrations of NCGs are encountered in the new geothermal production wells, up to 25% of the NCGs produced from the geothermal fluid would be routed to the power plant site for abatement of certain air pollutants. The NCGs would be separated from the geothermal

[8] California Energy Commission, California Code of Regulations, Title 20. Public Utilities and Energy, Division 2. State Energy Resources Conservation and Development Commission, CEC-140-2008-001-REV1, August 2008.

[9] In California, power plants with a net generating capacity of 50 MW or more are subject to review by the CEC, which conducts a CEQA-equivalent review process. Smaller plants are reviewed by the applicable lead agency under CEQA.

Letter 1 Continued

fluid in the well pad high-pressure separators and directed to the emission abatement equipment on the power plant site.[10] **1-216 cont.**

The Draft EIR's air quality analysis and health risk assessment rely on this assumption, *i.e.*, that no more than 25% of the NCGs produced from the geothermal fluid would be routed via dedicated pipelines to the power plant site for abatement by the regenerative thermal oxidizer ("RTO")/caustic scrubber or, in case the RTO/scrubber system is not operating, routed to the North cooling tower bypassing the abatement system.[11] **1-217**

The Draft EIR fails to provide any engineering calculations, tests results for pollutant concentrations in brine, or other support to arrive at the "up to 25%" of NCGs that would be diverted to the facility's abatement equipment. The actual quantity of NCGs that will be routed for abatement is therefore unclear, as is the quantity that will be emitted into the atmosphere. Because the health risks associated with this "diverted" NCG stream were estimated to be very close to the applicable significance threshold (*see* Comment II.C.1), the proportion of separated NCGs must be adequately documented. **1-218**

To support its assumptions, the Applicant could rely on experience gathered at its nearby geothermal facility, the North Brawley Geothermal Development Project ("North Brawley") which is virtually identical to this Project; the North Brawley facility is a 49.9 MW facility using the same binary technology and geothermal resources as the Project. **1-219**

I.B.2 RTO Operating Hours Are Not Supported

The Draft EIR states that scheduled maintenance for the RTO unit/caustic scrubber system would be coordinated with the maintenance schedule for the East Brawley power plant, such that the East Brawley power plant would operate no more than 276 hours per year without operation of the RTO unit/caustic scrubber system. The Draft EIR provides no support for the assumed maximum 276 hours/year the NCG stream would bypass the abatement system and would be vented through the North Cooling Tower. When the RTO unit/caustic scrubber system is undergoing unscheduled maintenance or otherwise not operating, the NCG stream, which includes hazardous air pollutants (*e.g.*, benzene) and odorous emissions (hydrogen sulfide), would bypass the RTO unit/caustic scrubber system and be delivered to the North Cooling Tower for release to the atmosphere unabated.[12] Therefore, the number of **1-220**

[10] Draft EIR, p. 4.3-18 and Figure 7; Draft EIR, Appendix B, pp. 9-11; and Appendix D, p. 7.

[11] Draft EIR, Appendix D, p. 7, and Appendix C to Draft EIR, Appendix D, p. 1-2.

[12] Appendix C to Draft EIR, Appendix D, p. 2.

Letter 1 Continued

hours the RTO is not operating is critical as emissions from the bypass to the cooling tower contribute a large portion of the Project's emissions of hazardous air pollutants. **1-220 cont.**

I.B.3 Emission Factors for Operational Emissions Are Internally Inconsistent and Not Supported

1-221

The Draft EIR purports to provide detailed calculations for the Project's operational emissions in Appendix D.[13] A review of Appendix D, however, shows that this is not the case.

First, the Draft EIR provides no support whatsoever for any of the dozens of emission factors used to quantify unabated and abated operational emissions from the Project's stationary sources. The emission factors are simply presented and there is no reference or supporting documentation to how they were derived.[14] **1-222**

Second, for some sources, *e.g.*, isopentane emissions from the OEC units, the presented emission factors do not support the abated emissions estimates provided in Table 4.3-7 of the Draft EIR. **1-223**

It appears that the emission calculations presented in Appendix D were initially prepared for the Applicant's ATC Application to the ICAPCD and have since undergone revisions. The Draft EIR must provide adequate step-by-step documentation of the emission estimates it presents, documenting all assumptions. Most of the emission factors for the Project are unique to the geothermal resource and the Applicant's equipment and cannot be readily derived from published materials; thus, the County must revise Appendix D to provide adequate documentation for public review, including well test results and/or relevant information from the nearby North Brawley facility. **1-224**

I.B.4 URBEMIS Output Files for Construction Emissions Are Not Provided

1-225

The Draft EIR presents emission estimates for air pollutant emissions from site construction and well pad construction allegedly prepared with the URBEMIS computer model.[15] The Draft EIR fails to provide all input assumptions and fails to provide the URBEMIS files for review, requiring to reviewer to accept the presented results on blind faith alone. The Draft EIR must be revised to provide the URBEMIS files

[13] Appendix B 'Detailed Calculation for the Facility and Emission Unit Potential to Emit' to Draft EIR, Appendix D.

[14] *See* Appendix B to Draft EIR, Appendix D, spreadsheet "East Brawley Emission Calculations V37 AVE.XLS", pp. 1-2 of 4.

[15] Draft EIR, Appendix D, Table 2, p. 6.

Letter 1 Continued

including all assumptions and inputs. As discussed in Comment II.E, I was unable to reproduce the URBEMIS results because the Draft EIR fails to provide all assumptions and fails to provide a detailed construction schedule. **1-225 cont.**

I.C The Draft EIR Fails to Adequately Define the Project's Environmental Setting

CEQA Section 15125(a) requires that an EIR include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. Here, the Draft EIR fails to adequately define the Project's environmental setting. **1-226**

I.C.1 Background Concentrations of Pollutants in Ambient Air Are Not Provided

The Draft EIR discusses the health effects and sources of air pollutants including ozone ("O_3") and its precursors reactive organic gases ("ROG")[16] and nitrogen oxides ("NOx"), particulate matter equal to or smaller than 10 micrometers ("PM10") and equal to or smaller than 2.5 micrometers ("PM2.5"), carbon monoxide ("CO"), sulfur dioxide ("SO_2"), lead, and hydrogen sulfide ("H_2S"); discusses the regulatory framework; presents state and federal ambient air quality standards; and summarizes the attainment status of the Salton Sea Air Basin ("SSAB") with state and federal ambient air quality standards.[17] Yet, the Draft EIR does not, as is customary for CEQA documents, provide a table with ambient air background concentrations of pollutants for the area.[18] Such a table would illustrate more clearly just how polluted the air in Imperial County actually is. **1-227**

For example, as the Draft EIR discloses, the SSAB is in nonattainment of the state ambient air quality standards and in serious nonattainment of the federal PM10 ambient air quality standard. Review of the ambient air quality database maintained by the California Air Resources Board ("CARB") shows that in the years 2007 through **1-228**

[16] Elsewhere, the Draft EIR uses the term reactive organic compounds ("ROC").

[17] Draft EIR, Sections 4.3.1 and 4.32.

[18] *See*, for example, Imperial County, Draft Environmental Impact Report, Imperial Landfill Plan, December 2009, p. 4.2-11; ftp://ftp.co.imperial.ca.us/icpds/eir/imperial-landfill/07air-quality.pdf, County of Imperial, Draft Environmental Impact Report, Rancho Los Lagos, October 2009, p. 4.3-21; ftp://ftp.co.imperial.ca.us/icpds/eir/rancho-los-lagos/07air-quality.pdf, Imperial County, Draft Environmental Impact Report, McCabe Ranch II Special Plan, February 2010, p. 4.3-8, ftp://ftp.co.imperial.ca.us/icpds/eir/mccabe-ranch-ii/17air-quality.pdf.

Letter 1 Continued

2009, concentrations of PM10 in air were estimated to exceed the state 24-hour PM10 ambient air quality standard on an average of 204 days per year[19] or 56% of the year.[20] The highest measured concentration during the 2007-2009 time period was 296.0 micrograms per cubic meter (µg/m^3)[21], nearly six times higher than the state ambient air quality standard of 50 µg/m^3, the concentration of PM2.5 in air considered by the State of California to be injurious to health. Similarly, ozone concentrations in the years 2007-2009 exceeded the state 8-hour ozone ambient air quality standard on an estimated average of 87 days per year[22] or more than 24% of the year.[23] These statistics illustrate the existing abysmal air quality in the region much more clearly than simply citing to the region's attainment status.

1-228 cont.

The Draft EIR should be revised to contain a table with the existing background concentrations of regulated pollutants including H_2S compared to the respective ambient air quality standards.

1-229

I.C.2 Environmental Settings for Cumulative Impacts Analyses Are Not Adequately Defined

Section 15355 of the CEQA Guidelines explains that "cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts and specifies that:

1-230

a) The individual effects may be changes resulting from a single project or a number of separate projects.

b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related *past, present, and reasonably foreseeable probable future projects*. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. (*Emphasis* added.)

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[19] California Air Resources Board, iADAM Air Quality Data Statistics, Salton Sea Air Basin, Highest 4 Daily 24-hour PM10 Averages, 2007-2009; http://www.arb.ca.gov/adam/topfour/topfour2.php: estimated days above state ambient air quality standard: [(2007: 219.1 days/year) + (2008: 186.8 days/year) + (2009: 207.4 days/year)]/(3) = 204.4 days/year.

[20] (204.4 days/year)/(365 days/year) = 0.560.

[21] California Air Resources Board, iADAM Air Quality Data Statistics, Salton Sea Air Basin, Highest 4 Daily 24-hour PM10 Averages, 2007-2009; http://www.arb.ca.gov/adam/topfour/topfour2.php.

[22] California Air Resources Board, iADAM Air Quality Data Statistics, Salton Sea Air Basin, Highest 4 Daily 8-hour Ozone Averages, 2007-2009; http://www.arb.ca.gov/adam/topfour/topfour2.php. [(2007: 99 days/year)+(2008: 85 days/year)+(2009: 82 days/year)]/(3) = 88.7 days per year.

[23] (88.7 days/year)/(365 days/year) = 0.243.

Letter 1 Continued

Pless Comments on Draft EIR for East Brawley Geothermal Development
May 4, 2011

Here, the Draft EIR lists 13 pending and approved projects within its so-called cumulative study area, and only 12 of which were allegedly included in the cumulative impacts analyses. (*See* also Comments II.D.5 and II.F.) The 13 listed projects include four geothermal facilities, eight solar facilities, and one water well.[24] The Draft EIR fails to identify any existing facilities, as is required by CEQA, that would contribute to similar impacts on the environment. Past and present projects that should have been considered include the Applicant's nearby North Brawley geothermal facility, located only about 1.5 miles to the west of the Project along North Western Avenue/Hovley Road and Andre Road, and the ongoing secondary treatment system improvements to the BWWTP, which is located about 750 feet west of the Project site on the New River. (*See* Figures 1 and 2.)

1-231

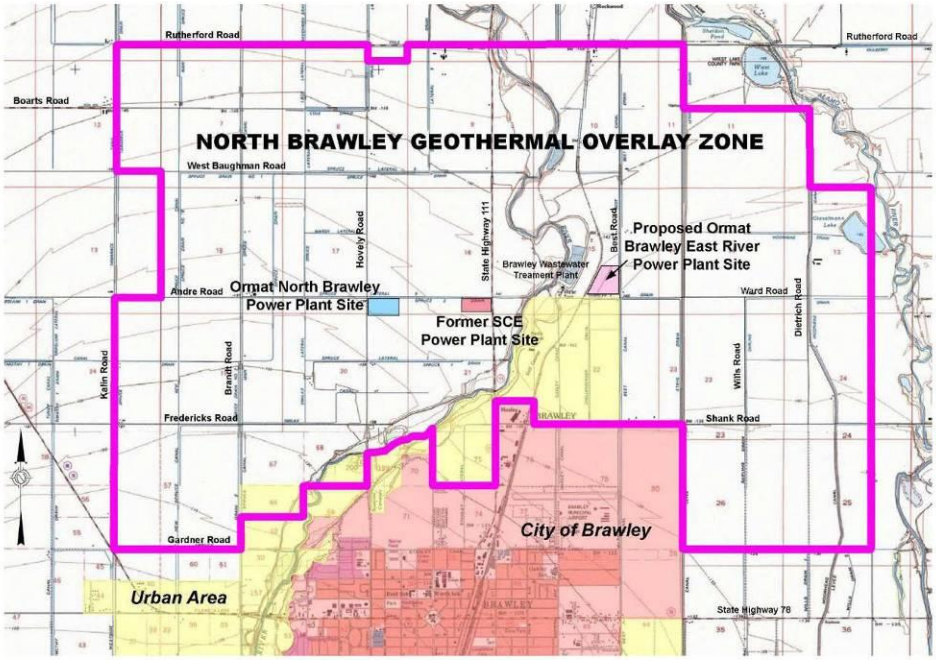

Figure 1: Ormat North Brawley (blue) and East Brawley (pink) power plant sites and Brawley Wastewater Treatment Plant (light blue, west of East Brawley)
(from Draft EIR, Appendix B, Figure 2)

[24] Draft EIR, Table 4.0-1 and p. 4.0-2.

13

Letter 1 Continued

Pless Comments on Draft EIR for East Brawley Geothermal Development
May 4, 2011

Figure 2: Ormat North Brawley and East Brawley power plant sites and Brawley Wastewater Treatment Plant
(from Google Earth)

1-231 cont.

Therefore, the Draft EIR fails to provide critical information regarding the Project's environmental context for its cumulative impacts analyses by omitting information regarding the uses that surround the Project site. This information is necessary to determine the Project's cumulative impacts on air quality, public health, hazardous materials, and water quality, among others.

II. AIR QUALITY

1-232

The Draft EIR finds that with implementation of mitigation measures, the Project's construction and operational emissions would result in less than significant impacts on air quality. As discussed in the following sections, the Draft EIR's analysis is flawed and its conclusions regarding the significance of the Project's impacts on air quality are erroneous.

II.A The Draft EIR Fails to Quantify PM2.5 Emissions and Fails to Identify Significant Impacts on Air Quality

1-233

Any project that emits air pollutants at a level that causes a violation or contributes substantially an existing or projected violation of an ambient air quality standard results in a significant air quality impact.[25] The Draft EIR presents state and

[25] CEQA Guidelines, Appendix G, and Draft EIR, p. 4.3-11.

Letter 1 Continued

federal ambient air quality standards for particulate matter equal to or smaller than 2.5 micrometers ("PM2.5") but neither quantifies PM2.5 emissions nor determines whether Project construction and operational emissions of PM2.5 would result in or contribute to a violation of a federal or state ambient air quality standard. Thus, the Draft EIR failed to determine whether Project emissions of PM2.5 would cause or contribute substantially to a violation of an ambient air quality standard as required by CEQA.

1-233 cont.

II.A.1 Determination of Significance for PM2.5 Emissions

As discussed further in Comment II.E.3, the Draft EIR fails to properly determine the significance of Project construction emissions; specifically, the Draft EIR fails to compare construction emissions to any thresholds of significance and fails to model PM2.5 concentrations in ambient air to determine whether ambient air quality standards for PM2.5 would be exceeded. For its determination of the significance of Project operational emissions the Draft EIR relies on the ICAPCD's Rule 207 thresholds for offset requirements, which do not include a significance threshold for PM2.5. However, the lack of a significance threshold does not excuse the County from preparing a site-specific analysis of air quality impacts. There are several approaches available to the lead agency which could have been used to evaluate the significance of PM2.5 emissions from Project construction and operation.

1-234

First, the lead agency can use emissions estimates for PM2.5 to conduct ambient air quality modeling to determine whether Project construction or operational emissions would result in or contribute to an existing violation of PM2.5 ambient air quality standards. Imperial County is a designated federal non-attainment area for PM2.5 and designated unclassified for the state ambient air quality standard for PM2.5.[26] PM2.5 emissions from construction and operation of the Project may cause or contribute to existing violations of PM2.5 ambient air quality standards and further worsen the region's already impaired air quality.

1-235

As a second approach, since the ICAPCD has not yet developed a CEQA threshold of significance for PM2.5, the lead agency could either develop its own threshold or rely on screening thresholds for significance developed by other air districts for purposes of CEQA review. The South Coast Air Quality Management District ("SCAQMD"), for example, has established a significance threshold for PM2.5 emissions of 55 lbs/day for both the construction and operational phase of a project.[27,28]

1-236

[26] Draft EIR, p. 4.3-5.

[27] South Coast Air Quality Management District, SCAQMD Air Quality Significance Thresholds; http://www.aqmd.gov/ceqa/handbook/signthres.pdf.

[28] South Coast Air Quality Management District, Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds, Final, October 2006, p. 75-8; http://www.aqmd.gov/CEQA/handbook/PM2_5/finalmeth.doc.

Letter 1 Continued

This threshold was developed based on the significant emission rate for PM2.5 of 10 tons per year established by the U.S. Environmental Protection ("U.S. EPA") for purposes of the federal Clean Air Act, converted to a daily emissions rate.[29]

1-236 cont.

The Draft EIR estimates abated emissions of 11.32 tons/year of PM10 for each of the Project's two cooling towers and a total of 24.76 tons/year of PM10 from the Project's stationary sources.[30] Based on speciation factors from the California Emission Inventory Development and Reporting System ("CEIDARS")[31] developed by the California Air Resources Board ("CARB"), emissions of PM2.5 from the Project's two cooling towers can be estimated at 13.2 tons/year[32] and 74.4 lbs/day.[33] Thus, emissions of PM2.5 from the cooling towers alone would exceed the 55 lbs/day threshold for PM2.5 emissions established by the SCAQMD and would therefore be considered a significant impact on air quality.

1-237

II.A.2 Health Impacts of PM2.5

To understand the Project's individual and cumulative adverse impacts on public health and welfare, it is important to understand the severity of health impacts caused by elevated concentrations of PM2.5 in the ambient air. Since 1996, more than 2,000 peer-reviewed studies have been published validating earlier epidemiologic studies that link both acute and chronic fine particle pollution with serious morbidity and mortality. This research has also expanded the list of health effects associated with fine particle pollution and has identified health effects at considerably lower exposure levels than previously reported.

1-238

Overwhelming scientific evidence shows that long-term exposure to fine particulate air pollution contributes to pulmonary and systemic oxidative stress, inflammation, progression of atherosclerosis, and risk of ischemic heart disease and death. A recent study found that a decrease in the concentration of PM2.5 of 10 $\mu g/m^3$ in ambient air is associated with an increase in life expectancy of 0.6 years.[34] Another recent study found that each 10-$\mu g/m^3$ increase in PM2.5 air pollution was associated with an approximately six percent increase in cardiopulmonary mortality and an eight

1-239

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[29] (10 tons/year) x (2,000 lbs/ton) / (365 days/year) = 54.8 lbs/day.

[30] Draft EIR, Table 4.3-7, p 4.3-21.

[31] South Coast Air Quality Management District, Updated CEIDARS Table with PM2.5 Fractions; www.aqmd.gov/ceqa/handbook/PM2_5/finalAppA.doc.

[32] (11.32 tons/year-cooling tower)(2 cooling towers)(0.6 PM2.5/PM10) = 13.6 tons/year PM2.5.

[33] (13.2 tons/year PM2.5)(2000 lbs/ton)/(365 days/year) = 74.4 lbs/day.

[34] Pope C. A. III, Ezzati M., and Dockery D. W., Fine-Particulate Air Pollution and Life Expectancy in the United States, The New England Journal of Medicine, January 22, 2009, vol. 360, pp. 376-386.

Letter 1 Continued

percent increase in lung cancer mortality.[35] Short-term exposure is equally damaging and contributes to complications of atherosclerosis, such as plaque vulnerability, thrombosis, and acute ischemic events. The U.S. EPA concluded with respect to short-term exposure studies that "epidemiological evidence was found to support likely causal associations between PM2.5 and both mortality and morbidity from cardiovascular and respiratory diseases."[36] In response to this new information, the U.S. EPA tightened the federal 24-hour PM2.5 ambient air quality standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$, effective December 17, 2006.[37,38]

1-239 cont.

A study of 12,865 patients evaluated the role of fine particulate matter exposure in triggering acute ischemic heart disease event. The study found a sharply elevated risk of heart attacks for people with clogged arteries after just a day or two of short-term exposure to fine particulate matter. This study was published in the American Heart Association's peer-reviewed journal *Circulation*.[39] One coauthor of the study stated that the results should prompt heart doctors to advise those with coronary heart disease to stay indoors as much as possible on particularly sooty days and that he was already changing his advice to patients based on the results – even advising in severe cases to move to a less polluted environment.[40]

1-240

The Draft EIR must be revised to adequately determine the Project's potential impacts on air quality and analyze its contribution to impeding the air basin's future achievement of ambient air quality standards for PM2.5. The Draft EIR should be revised to include ambient air quality modeling to determine the Project's contribution to future predicted concentrations of PM2.5 in the air (Project emissions plus existing background concentrations). The revised Draft EIR should require implementation of all feasible mitigation to reduce significant PM2.5 emissions.

1-241

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[35] Pope C.A. III, Burnett R.T., Thun M.J., Calle E.E., Krewski D., Ito K., and Thurston G.D., Lung Cancer, Cardiopulmonary Mortality, and Long-term Exposure to Fine Particulate Air Pollution, Journal of the American Medical Association, v. 287, no. 9, pp. 1132-1141, 2002.

[36] U.S. Environmental Protection Agency, National Center for Environmental Assessment, Office of Research and Development, Provisional Assessment of Recent Studies on Health Effects of Particulate Matter Exposure, EPA/600/R-06/063, July 2006; http://www.epa.gov/oar/particlepollution/pdfs/ord_report_20060720.pdf, accessed March 4, 2009.

[37] U.S. Environmental Protection Agency, Office of Air Quality Standards and Planning, September 2006 Revisions to the National Ambient Air Quality Standards for Particle Pollution, September 2006.

[38] U.S. Environmental Protection Agency, National Ambient Air Quality Standards for Particulate Matter, Final Rule, Federal Register, 40 CFR Part 50, Vol. 71, No. 200, pp. 61144-61233, October 17, 2006.

[39] Pope C.A. III, Muhlestein J.B., May H.T., Renlund D.G., Anderson J.L., and Horne B.D., Ischemic Heart Disease Events Triggered by Short-Term Exposure to Fine Particulate Air Pollution, Circulation, No. 114, pp. 2443–2448; abstract available at http://circ.ahajournals.org/cgi/content/abstract/114/23/2443, accessed July 5, 2007.

[40] Los Angeles Times, Dire Health Effects of Pollution Reported, Diesel Soot from Construction Equipment Is Blamed for Illnesses and Premature Deaths, December 6, 2006.

Letter 1 Continued

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May 4, 2011

II.B The Draft EIR Fails to Identify and Adequately Mitigate Significant Impacts on Air Quality from Project Operational Emissions

1-242

The Draft EIR presents operational emissions of criteria air pollutants and concludes that with implementation of Mitigation Measures MM 4.3.3a, 4.3.3b and 4.3.5, emissions would be below applicable thresholds and therefore less than significant. The Draft EIR's analysis is seriously flawed and its conclusion regarding the significance of Project operational emissions after mitigation is erroneous, as demonstrated below.

II.B.1 Black-Start Generator Emissions Are Not Included

1-243

The North Brawley facility operates a diesel-powered 286-horsepower generator, which is used to "black-start" the facility.[41] Emissions from this source are estimated at 4.36 lbs/day of PM10.[42] Since both facilities are practically identical from an engineering standpoint, it can be assumed that the Project would also require a black-start generator, yet the Draft EIR makes no mention of this equipment. Emissions of criteria pollutants from this source must be quantified and included in the Project's estimates of total emissions; diesel particulate matter emissions from this source must be quantified and included in the health risk assessment for the Project.

II.B.2 Mobile Source Combustion Exhaust Emissions Are Not Included

1-244

The Draft EIR provides operational emission estimates *only* for stationary sources[43] and fails to quantify emissions from any of the mobile sources required for Project operations including on-site equipment such as forklifts, telescoping manlifts, or other maintenance equipment and on- and off-site emissions from employee commuter vehicles (25 employees), vehicles for maintenance and monitoring of well pads and pipelines, trucks for delivery and waste management, etc. Combustion exhaust emissions from these sources must be quantified and included in the Project's CEQA analysis.

II.B.3 Particulate Matter Emissions from Entrained Road Dust and Wind Erosion Are Not Included

1-245

Fugitive dust particulate matter emissions from both paved and unpaved areas and roads due to wind erosion and entrainment and re-suspension into the air by

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[41] Imperial County Air Pollution Control District, Authority to Construct and Permit to Operate Review, September 21, 2010, p. 13.

[42] Alex Smith, Ormat, Letter to Jesus Ramirez, Imperial County Air Pollution Control District, Re: Amendment of Source Testing Requirements, North Brawley Geothermal Project, Brawley California, June 21, 2010, p. 2.

[43] *See* Draft EIR, Tables 4.3-6 and 4.3-7.

Letter 1 Continued

vehicle tires can be substantial, particularly from unpaved roads. (Most roads in the Project vicinity leading to the well pads are unpaved.) These emissions must be included in the emissions estimates for the Project. One need only observe the dust clouds that trail even slow moving vehicles traveling the area's many unpaved roads to realize that erodible, friable soils are pervasive. Thus, dust generation will be a major problem for this Project during both construction and operation. Here, the Draft EIR fails to quantify and include fugitive dust emissions from paved and unpaved areas and roads during Project operations (and construction).

1-245 cont.

The Project would require grading of 10 acres on the project site.[44] At North Brawley large portions of the graded areas on site appear to have been left unpaved after Project construction. (*See* Figure 3 below.)

Figure 3: Aerial view of North Brawley Geothermal Power Plant Project
(from: http://indservices.pcl.com/projects/Active/6210069/photo_gallery.aspx)

1-246

Presumably, the Project would be constructed analogously raft and its unpaved areas would be susceptible to wind erosion and generation of entrained dust through vehicle movement on site such as maintenance, delivery, and worker traffic. Movement of these vehicles on the surrounding unpaved roads would result in additional entrained fugitive dust emissions.

Emission factors for entrained road dust from truck traffic on unpaved areas on site can be estimated using an equation from EPA's *Compilation of Air Pollutant Emission Factors* ("AP-42") for *Unpaved Roads*.[45] For PM10, this equation is as follows:

1-247

[44] Draft EIR, p. 4.3-14.

[45] U.S. Environmental Protection Agency, Emissions Factors & AP 42, Compilation of Air Pollutant Emission Factors, 13.2.2 Unpaved Roads, November 2006.

Letter 1 Continued

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Equation 1 (on-site traffic areas): $E = k\left(\frac{s}{12}\right)^{0.9}\left(\frac{W}{3}\right)^{0.45}$

For vehicles traveling on publicly accessible unpaved roads dominated by light-duty vehicles, fugitive dust PM10 emissions can be estimated from the following equation:

Equation 2 (off-site unpaved roads): $E = k\frac{\left(\frac{s}{12}\right)^{1.0}\left(\frac{S}{30}\right)^{0.5}}{\left(\frac{M}{0.5}\right)^{0.2}} - 0.00047$

where

E = size-specific emission factor for PM10 (lb/VMT)
s = surface material silt content (%)
W = mean vehicle weight (tons)
M = surface material moisture content (%)
S = mean vehicle speed (mph)

1-247 cont.

The source characteristics s, W and M are referred to as correction parameters for adjusting emission estimates to local conditions. The silt content (s) on unpaved land and roads in Imperial County is very high. For a nearby project, the Imperial Valley Solar Project (formerly known as SES Solar Two), the ICAPCD used a conservatively low silt content of 8.5% for unpaved roads and traffic areas.[46] The same silt content will be used here. Moisture content (M), on the other hand, is typically very low owing to the area's lack of precipitation during much of the year. For the following calculation, a conservatively high moisture content of 0.3% was used. The mean weight (W) of the vehicles traveling the roads to the well pads was assumed conservatively low at 5 tons and mean vehicle speed on unpaved roads was assumed conservatively low at 15 miles per hour ("mph").

Based on the above assumptions, emission factors for on-site traffic (Equation 1) can be calculated accordingly at 1.4 pounds per vehicle mile traveled ("lb/VMT") and for off-site traffic on unpaved roads (Equation 2) at 1.0 lb/VMT. Assuming total vehicle movements on site of one mile per day and total maintenance and inspection travel to each of the well pads on unpaved roads twice per day for a total of 50 miles per day, emissions of fugitive dust can be estimated at 1.4 lbs/day[47] and 0.25 tons/year[48] of

[46] Imperial County Air Pollution Control District, Determination of Compliance and Conditions, SES Solar Two LLC, October 14, 2009; http://www.energy.ca.gov/sitingcases/solartwo/documents/others/2009-10-20_Imperial_County_APCD_Determination_of_Compliance_TN-53710.PDF.

[47] (1.384 lbs/VMT)(1 mile/day) = 1.38 lbs/day.

[48] (1.38 lbs/day)(365 days/year/(2,000 lbs/ton) = 0.25 tons/year.

Letter 1 Continued

PM10 on-site and 49.9 lbs/day[49] or 9.1 tons/year[50] of PM10 from offsite travel on unpaved roads. These are conservative estimates because all parameters were assumed conservatively and they do not include wind erosion of the graded unpaved surfaces on site.

1-247 cont.

Adding these emission estimates to the Draft EIR's emission estimates for stationary sources of 24.76 tons/year, the Project operational emissions would amount to 34.1 tons/year[51], 9.1 tons in excess of the 25 tons/year threshold set in ICAPCD Rule 207 -- and this figure excludes emissions from wind erosion. This is a significant impact on air quality that the Draft EIR failed to identify and failed to mitigate.

In order to properly determine emissions from vehicle/equipment traffic on unpaved roads and traffic areas, the County should require determination of the area's silt content according to the ICAPCD's Rule 800, General Requirements for Control of Fine Particulate Matter, which specifies that the silt content for unpaved roads and unpaved vehicle/equipment traffic areas shall be determined by the test methods laid out in Section C of Rule 800, Appendix B, or equivalent test methods approved by the U.S. EPA, the CARB or the Air Pollution Control Officer ("APCO").[52]

1-248

Imperial County's air quality is consistently ranked as one of the nation's worst[53] and all efforts undertaken to reduce particulate matter have so far not achieved attainment status for particulate matter. Thus, the County should require all feasible mitigation to reduce the Project's contribution to this serious health issue. Effective mitigation may include paving of roads leading to the well pads and frequent cleaning.

1-249

II.B.4 Emissions from Well Redrilling and Construction of New Production and Injection Wells Are Not Included

During the Project's projected lifespan, redrilling and/or new construction of wells would be required for its continued operation. The Applicant explains:

1-250

> As geothermal production and injection wells age they typically produce less and/or cooler geothermal fluid, or inject less fluid, and may be redrilled or worked over. Redrilling or reworking a well requires many of the same activities

[49] (0.998 lbs/VMT)(50 miles/day) = 49.90 lbs/day.

[50] (49.90 lbs/day)(365 days/year)/(2,000 lbs/ton) = 9.11 tons/year.

[51] (24.76 tons/year)+(0.25 tons/year)+(9.11 tons/year) = 34.12 tons/year.

[52] Imperial County Air Pollution Control District, Rule 800 - General Requirements for Control of Fine Particulate Matter (PM-10), Section G.1.e.

[53] *See*, for example, Imperial Valley Press, Imperial County Air Quality Ranked; http://www.ivpressonline.com/news/ivp-news-imperial-county-air-quality-ranked-20110428,0,4551917.story.

Letter 1 Continued

> required to drill a new well. These activities would periodically over the life of the project. Any of the geothermal production wells which do not demonstrate sufficient commercial productivity may be converted to an injection well. Any of the wells could also be converted to a monitoring well, or could be abandoned in conformance with the requirements of the CDOGGR [California Division of Oil, Gas, and Geothermal Resources].[54]

1-250 cont.

The Draft EIR does not quantify emissions associated with the redrilling or new construction of wells that would be required for continued operation of the Project over its projected lifespan. The Draft EIR should be revised to include these activities, and the associated worst case scenario criteria pollutant emission estimates, in the calculation of total Project operational emissions and these emissions must be accounted for in a revised health risk assessment.

II.B.5 Particulate Matter Emissions from Sand Separators Are Not Included

1-251

The geothermal resource underlying the Project has high levels of sand in the geothermal fluid. The unanticipated high levels of these 'undissolved solids' encountered at the nearby North Brawley facility and the necessity to install custom sand separators has hampered operation and slowed the facility's progress towards meeting its installed net capacity.[55] According to the ICAPCD permit file for the North Brawley facility, the sand separators are vented for a period of 20 to 30 seconds every four hours, each releasing up to 300 gallons of geothermal fluid.[56] During each of these events, sand particles, along with some geothermal brine and NCGs are discharged into a large, open topped holding tank located adjacent to the well pad. During each vent, a steam plume extends up to approximately eight feet high and two to three feet wide.[57] During these events, H_2S, benzene, ammonia ("NH_3") and undissolved solid particles are released into the atmosphere.

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[54] Draft EIR, Appendix B, p. 23.

[55] Think Geoenergy, Ormat's North Brawley Plant with 17MW Short of Its 50MW Potential, February 10, 2010; http://thinkgeoenergy.com/archives/3654.

[56] Ormat Nevada, Inc., ORNI 18, LLC, Authority to Construct Application, Attachment 1, North Brawley Geothermal Development Project, p. 7; H_2S content taken from the analysis of a geothermal fluid sample with the highest H_2S concentration with a 1.5 safety factor; H_2S emission factor for four sand separators: Conservatively assuming that all four of the separators would discharge during the same hour, the hourly H_2S potential to emit is 1.01 lbs/hour; (1.01 lbs/hour)/(4 separators) = 0.2525 lbs/hour-separator.

[57] Alex Smith, Ormat, Letter to Jesus Ramirez, Imperial County Air Pollution Control District, Re: Amendment of Source Testing Requirements, North Brawley Geothermal Project, Brawley, California, June 21, 2010.

Letter 1 Continued

The Project is also expected to require sand separators at the production wells and the injection wells.[58] The Draft EIR does not contain an adequate description of the sand separators and potential associated emissions nor does it provide any support for the emission factors used to estimate emissions from these sources. The Draft EIR estimates emissions of H_2S, ROG, benzene, and ammonia but fails to quantify emissions of particulate matter from venting of the Project's sand separators.[59] **1-252**

Based on review of the ICAPCD permit files for North Brawley, it appears that a test method for determining particulate matter emissions from these sand separator venting events has not yet been developed and specific emission factors for this source have not been developed.[60,61] In this case, the Draft EIR must make a worst-case assumption based on the amount of particulates suspended in the geothermal fluid. These worst-case emissions must be included in the estimate of total operational emissions of PM10 in a revised Draft EIR. **1-253**

II.B.6 Emissions of Particulate Matter Precursors Are Not Adequately Quantified and Are Not Offset

District Rule 207 A.1.b requires no net increase in emissions from any new source which emits or has the potential to emit 137 lb/day or more of any nonattainment pollutant *or its precursors*. As defined by ICAPCD Rule 101, a precursor is "a directly emitted air pollutant that, when released into the atmosphere, forms or causes to be formed or contributes to the formation of a secondary pollutant for which a State or National Ambient Air Quality Standard has been adopted, or whose presence in the Atmosphere will contribute to the violation of one or more State or National Ambient Air Quality Standards." **1-254**

Ammonia emitted by the Project can react with sulfur trioxide ("SO_3") and nitrogen dioxide ("NO_2") downwind in the atmosphere to form secondary particulates in the form of ammonium sulfate ("$(NH_4)_2SO_4$"), ammonium bisulfate ("$(NH_4)HSO_4$"), and ammonium nitrate ("NH_4NO_3").[62,63,64] In June 2002, the EPA determined that **1-255**

[58] Draft EIR, p. 3.0-13, and Appendix B 'CUP Application,' Ormat Nevada Inc., East Brawley Geothermal Development Project, Updated Project Description, January 29, 2010, p. 24

[59] Draft EIR, Table 4.3-7, p. 4.3-21, and Appendix B to Draft EIR, Appendix D.

[60] *See*: Jesus Ramirez, Imperial County Air Pollution Control District, Email to Raul Alvarez, Ormat, Re: North Brawley Source Test, June 11, 2010; W. Charles Lawrence, Lawrence Environmental Group, LLC, Letter to Jesus Ramirez, Imperial County Air Pollution Control District, Re: Opacity Testing of Sand Separator Exhaust System, North Brawley Geothermal Project, Brawley, California, June 13, 2010.

[61] Alexander Smith, Ormat, Letter to Jesus Ramirez, Imperial County Air Pollution Control District, Re: Revision to Final Control Plan for the North Brawley Geothermal Facility, Regular Variance #14-09REG, December 7, 2010.

[62] John H. Seinfeld and Spyros N. Pandis, Atmospheric Chemistry and Physics, John Wiley & Sons, Inc., New York, 1998, pp. 529-534.

Letter 1 Continued

ammonia is a precursor for PM2.5.[65] Hydrogen sulfide, as a secondary sulfate, is also a precursor for particulate matter formation. **1-255 cont.**

The Draft EIR quantifies NH_3 and H_2S emissions for both Project construction and operation but fails to discuss their contribution to formation of particulate matter. The Draft EIR estimates that Project operations would emit 58.60 tons/year of ammonia ("NH_3"), mostly from the Project's two wet cooling towers and 1.11 tons/year of H_2S.[66] These precursors would contribute the Project's PM10 emissions and would further impede the SSAB's attainment of PM10 and PM2.5 ambient air quality standards. Thus, the Draft EIR must be revised to include estimates for secondary particulate formation from NH_3 and H_2S and must require offsets or other mitigation, for PM10 emissions in excess of 25 tons/year (137 lbs/day). **1-256**

II.B.7 Fugitive Emissions from Valves, Flanges, Controls, and Tanks Are Not Included

The Draft EIR fails to estimate fugitive emissions from isopentane storage tanks and from the Project's hundreds of components including valves, flanges, pumps, compressors, and expansion tanks that are involved in geothermal fluid handling. Emissions from these Project components must be quantified and mitigation proposed, as appropriate, in a revised Draft EIR. **1-257**

II.B.8 Accidental Releases Are Not Included

The Draft EIR fails to address accidental releases of the working fluid isopentane as a release of ROG, which are ozone precursors. These releases are frequent, as review of the permit file for the North Brawley facility reveals: **1-258**

- May 19, 2009, **4,675 gallons**:
  During normal operational check rounds, an isopentane release from a failed solenoid valve at the base of OEC-1, Level 1, was detected by the operator on shift. Solenoid valve in the open position allowed a large amount of isopentane to be vented to the atmosphere. During this mechanical failure of SV-9214 it allowed OEC-1 Level-1 Vaporizer and Pre-heater to drain to the

[63] S. Matsuda, T. Kamo, A. Kato, and F. Nakajima, Deposition of Ammonium Bisulfate in the Selective Catalytic Reduction of Nitrogen Oxides with Ammonia, Ind. Eng. Chem. Prod. Res. Dev., v. 21, 1982, pp. 48-52.

[64] J.M. Burke and K.L. Johnson, Ammonium Sulfate and Bisulfate Formation in Air Preheaters, Report EPA-600/7-82-025a, April 1982.

[65] 67 Fed. Reg. 39602, June 10, 2002; 40 C.F.R. § 51.30.

[66] Draft EIR, Table 4.3-7, p.

Letter 1 Continued

atmosphere.[67,68] The ICAPCD required offsets of 14.57 tons for the release of 12.14 tons of isopentane.[69]

- March 25, 2010, **200 gallons**:
  While performing scheduled maintenance on OEC-2 unit, maintenance personnel were in the process of removing the last bolts of the expansion flange on the Level 1 side of the OEC when isopentane began to spill from around the flange. Personnel were unaware that the expansion joint had isopentane in it due to a plugged drain valve; the plug in the valve has been removed. The expansion flange bolts were immediately retightened, stopping the release. An estimated 200 gallons of isopentane were released to atmosphere during this incident.[70,71]

- June 4, 2010, **30 gallons**:
  The OEC-3 feed pump was started and isopentane began to leak from the pump stuffing box (packing seal). Personnel were at the location when the pump was started and immediately notified the supervisor when the leak was discovered. The feed pump at OEC-3 was immediately shut-down, the section of pipe was mechanically isolated, and the isopentane in the affected section was pumped down to a storage tank. An estimated 30-gallons of isopentane was released to atmosphere during this incident.[72]

- July 12, 2010, **100 gallons**:
  After turbine work was completed, personnel smelled isopentane fumes while making its rounds. Small valve that feeds isopentane to cool the turbine

1-258 cont.

[67] Manuel Perez, Ormat, Letter to Brad Poiriez, Imperial County Air Pollution Control District, Re: Non-Normal Release of lso-pentane, May 19, 2009.

[68] Mario Martinez, Ormat, Letter to Imperial County Air Pollution Control District, Re: Second Quarter 2009, Isopentane Usage Reports for the North Brawley Geothermal Project (ORNI 18), Brawley, California, Ref: (a) ATC 3731A (ORN1 18- Condition H.1), July 30, 2009.

[69] Mario Martinez, Ormat, Letter to Chemical Emergency Planning and Response Commission (CEPRC), Re: Follow-up Report of an Estimated 4,675-gallon Isopentane Release that Occurred at the Ormat North Brawley Electrical Generating Facility, Brawley, California (OES Control Number 09-3777), June 26, 2009.

[70] Mario Martinez, Ormat, Letter to Jesus Ramirez, Imperial County Air Pollution Control District, Re: Follow-Up Report of an Estimated 200-Gallon Isopentane Release that Ocurred at Ormat North Brawley Geothermal Facility, Brawley, California (ATC 3731A), April 2, 2010.

[71] Ormat Nevada, Inc., Compliance Notification Form, North Brawley Geothermal Project, March 26, 2010.

[72] Alexander Smith, Ormat, Letter to Jesus Ramirez, Imperial County Air Pollution Control District, Re: Follow-Up Report of an Estimated 30-Gallon Isopentane Release that Occurred at the Ormat North Brawley Geothermal Facility, Brawley, California (ATC 3731A), June 8, 2010.

Letter 1 Continued

seal was leaking around the stainless steel valve packing nut. Nut was tightened and leak was secured.[73,74]

- July 16, 2010, **400 gallons**:
  The OEC-4 unit had isopentane alarm from Level-1 vaporizer from the 2" brine side piping that was left open for draining. The alarm triggered further investigation due to the possibility of a leak in the vaporizer. The isopentane in OEC-4, Level-1, was transferred to the maintenance storage tank and evacuated. The heads on the vaporizer were removed and pressurized with nitrogen for further investigation of the extent of the tube leak. Leaks were found on two vaporizer tubes and fixed.[75]

1-258 cont.

Since startup in 2008, the North Brawley facility has experienced losses of more than 8,000 gallons isopentane. The Draft EIR should be revised to address the potential for spills and associated emissions of isopentane as ozone precursor.

II.B.9 Thresholds of Significance Are Improperly Used

The Draft EIR, Table 4.3-7, presents total annual operational emissions from the Project and compares them to the thresholds for emission offset requirements established in ICAPCD's Rule 207.C.2.a in tons per year ("tons/year). The Draft EIR finds that abated Project operational emissions of ROC (also referred to as "ROG" in the Draft EIR) of 29.64 tons/day (161 lbs/day) would exceed the Rule 207 threshold of 25 tons/year (137 lbs/day) and requires purchase of ROC offsets in excess of the Rule 207 threshold in Mitigation Measure MM 4.3.3b. With implementation of this mitigation measure, the Draft EIR finds that the Project impacts on air quality would be less than significant under CEQA.[76] This conclusion is unsupported.

1-259

The ICAPCD has published guidelines for CEQA review and established CEQA significance thresholds to determine whether emissions from a project would be deemed to have a potentially significant impact on air quality. The applicable CEQA significance threshold establishes that any project "with a potential to meet or exceed the 55 lbs/day of NOx or ROG; 150 lb/day of PM10 or SOx; or 550 lbs/day of CO"

1-260

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[73] Ormat Nevada, Inc., Compliance Notification Form, North Brawley Geothermal Project, July 12, 2010.

[74] Alexander Smith, Ormat, Letter to Jesus Ramirez, Imperial County Air Pollution Control District, Re: Follow-Up Report of an Estimated 100-Gallon Isopentane Release that Occurred at the Ormat North Brawley Geothermal Facility, Brawley, California (ATC 3731A), July 20, 2010

[75] Alexander Smith, Ormat, Letter to Jesus Ramirez, Imperial County Air Pollution Control District, Re: Follow-Up Report of an Estimated 400-Gallon Isopentane Release that Occurred at the Ormat North Brawley Geothermal Facility, Brawley, California (ATC 3731A), July 22, 2010.

[76] Draft EIR, pp. 4.3-21 - 4 .3-23.

Letter 1 Continued

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thresholds is considered to have a significant impact on regional and local air quality.[77] These thresholds are similar to CEQA significance thresholds established by other air districts.

1-260 cont.

The ICAPCD's threshold of 55 lbs/day for ROC is considerably lower than the significance threshold of 137 lbs/day established in Rule 207 for offset requirements and must be applied here.

Table 1: Comparison of Project emissions to ICAPCD Rule 207 offset requirements and ICAPCD CEQA Guidelines

Pollutant[a]	Project Emissions (lbs/day)	ICAPCD Rule 207 Threshold (lbs/day)	Offsets Required[b] (lbs/day)	Project Emissions incl. Offsets (lbs/day)	ICAPCD CEQA Guidelines Threshold (lbs/day)	Significant?
PM10	135.7	137	0	135.7	150	no
SO_2	3.1	137	0	3.1	150	no
CO	0.6	137	0	0.6	550	no
NOx	23.0	137	0	23.0	55	no
ROC	162.4	137	25.4	137.0	55	**YES**

a Calculated from Draft EIR, Table 4.3-6, pp. 4.3-19 – 4.3-20: (annual emissions in tons/year) / (365 days/year) x (2,000 lbs/ton)

b Calculated from Draft EIR, p. Table 4.3-6, p. 4.3-20: (annual offset emissions requirements in tons/year) / (365 days/year) x (2,000 lbs/ton)

1-261

As shown in Table 1, Project ROC emissions of 162.4 lbs/day would by far exceed the 55 lbs/day threshold (by 107.4 lbs/day). Accounting for the offsets that will be required pursuant to the Project ATC, ROC emissions will be reduced to 137 lbs/day. As such, the Draft EIR fails to demonstrate that ROC emissions have been reduced below the ICAPCD's CEQA threshold of significance of 55 lbs/day. The Draft EIR does not propose to rely on a different CEQA significance threshold, nor does it explain why ROC emissions in the amount of 137 lbs/day should be deemed insignificant. Thus, under CEQA, the County must prepare a revised Draft EIR which proposes all feasible mitigation to reduce the Project's significant, unmitigated impacts on air quality.

Alternatively, rather than relying on quantitative thresholds, the Draft EIR should be revised to provide ambient air quality modeling to demonstrate that the Project would not result in or contribute significantly to violations of ambient air quality standards when added to background (or "baseline," for the purpose of CEQA) concentrations. Modeling should provide concentrations in ambient air at the fenceline of the Project site as well as existing residential receptors.

1-262

[77] CEQA Air Quality Handbook, Guidelines for the Implementation of the California Environmental Quality Act of 1970, as amended by Imperial County Air Pollution Control District, November 2007, p. 9.

Letter 1 Continued

II.B.10 The Draft EIR Fails to Propose Mitigation to Reduce Significant Emissions of PM10

The Draft EIR estimates that the Project would emit 11.32 tons/year of PM10 from each cooling tower and a total of 22.63 tons/year of PM10 from the Project, just below the ICAPCD's offset threshold for PM10 of 25 tons/year. On a daily basis, the cooling towers would emit 135.7 lbs/day. (*See* Table 1.) As discussed in Comments II.B.1 through II.B.6, the Draft EIR underestimates emissions of PM10 and its precursors and has failed to determine that PM10 emissions exceed the ICAPCD's significance threshold of 150 lbs/day of PM10. Thus, the Draft EIR has failed to determine significant impacts on air quality and has failed to require mitigation. **1-263**

In addition to the mitigation measures discussed above, the Project could considerably reduce its PM10 emissions by eliminating the wet cooling towers. The Draft EIR fails to discuss any other alternative emission control device, emission control technique, basic equipment, fuel, or process. There are several approaches that are technologically feasible and have proven cost-effective elsewhere that could be employed here. These include a) air-cooling and b) reducing the total dissolved solids ("TDS") content in the cooling water by reverse osmosis ("RO"). The Draft EIR should be revised to present a proper analysis for these technologies. **1-264**

a) Air-Cooling or Hybrid Cooling Was Not Considered

The Project proposes to use standard wet cooling tower technology consisting of two induced draft cooling tower batteries with 7 to 10 cells each, a total average cooling water circulating rate of 195,000 gallons per minute ("gpm"") for the two batteries[78] and a maximum cooling water circulating rate of 110,000 gpm for each cooling tower.[79] The Draft EIR does not discuss any other type of cooling technology. **1-265**

Air-cooling (also commonly referred to as "dry cooling") is not only technologically feasible for binary geothermal power plants but is the standard design where water is scarce. Air-cooling is installed at many binary geothermal plants all over the world, including several of the Applicant's facilities, *e.g.*, a 20-MW facility in Nevada (part of the Steamboat Geothermal Complex), a 30-MW facility in Momotombo, Nicaragua, and a 20-MW facility in Amatitlan, Guatemala.[80] Air-cooling is similarly feasible for this Project. Air-cooling would not only eliminate emissions of particulate matter from the cooling towers but would also significantly reduce the Project's considerable water demand. **1-266**

[78] Draft EIR, p. 3.0-16.

[79] 2010 Revised ATC Application.

[80] Ormat, Selected Projects; http://www.ormat.com/Selected-projects.

Letter 1 Continued

Due to concerns about water usage in the dry areas of California, the CEC has recently recommended air-cooling for several solar projects including the Solar Millennium Blythe and Palen and Rice Solar Energy projects in Riverside County, the Solar Millennium Ridgecrest project in Kern County, and the Ivanpah Solar Project in San Bernardino County.[81]

The drawback of air-cooling is that the power plants experience a decline in the net power production during hot periods of the day. Various forms of hybrid cooling options, *i.e.*, systems that use both water and air for plant heat load rejection, can be employed to reduce the demand of the air-cooled system. Feasible hybrid systems include a) evaporative pre-cooling of the inlet air using sprays and b) the introduction of a wet-assist heat exchanger/surface condenser.[82,83] **1-267**

Air-cooling, as well as hybrid technologies, should be evaluated in a revised Draft EIR.

b) Lower TDS Content for Circulating Water Was Not Considered

The Draft EIR's emission calculations rely on a TDS content in circulating water of 9,400 parts per million ("ppm"). This TDS content is very high and has obviously been chosen to keep emissions to just below the ICAPCD's offset threshold. Emissions from the cooling towers are calculated at 62.0 lbs/day each.[84] The nearby North Brawley facility which operates identical 110,000 gallon per minute ("gpm") cooling towers has been permitted at 26.4 lbs/day,[85] which is equivalent to a TDS content of 4,000 ppm, less than half that for the Project. **1-268**

Lower TDS content in the circulating water, and thus lower emissions, can be achieved by treating the water with reverse osmosis or nanofiltration membranes. The Applicant considers reverse osmosis or treatment with nanofiltration feasible for additional water that would be supplied from shallow groundwater wells during summer heat conditions.[86] Accordingly, this technology should also be considered for **1-269**

[81] The Trade-Off Between Water and Energy: CSP Cooling Systems Dry Out; http://blogs.worldwatch.org/revolt/the-trade-off-between-water-and-energy-csp-cooling-systems-dry-out-in-california/.

[82] Andrea Ashwood and Desikan Bharatan, National Renewable Energy Laboratory, Hybrid Cooling Systems for Low-Temperature Geothermal Power Production, NREL/TP-5500-48765, March 2011.

[83] Barbara C. Farhar, National Renewable Energy Laboratory, Evaluation of the Geothermal Public Power Utility Workshops in California, NREL/TP-550-36637, October 2004.

[84] *See* Appendix B to Draft EIR, Appendix D.

[85] Imperial County Air Pollution Control District, Conditions for Amended Authority to Construct and Permit to Operate #3731A, ORNI 18, LLC – Ormat Nevada, Inc., 6225 Neil Road, Reno, NV 89511, p. 2.

[86] Draft EIR, Appendix B, p. 16.

Letter 1 Continued

water obtained from the IID irrigation canals or the BWTTP tertiary water for cooling purposes in a revised Draft EIR.

1-269 cont.

II.B.11 Significant Impacts on Air Quality due to Emissions of H_2S Are Not Identified

The Draft EIR's provides air quality modeling for short-term concentrations of H_2S based on hourly emissions of H_2S for the RTO unit/scrubber system and cooling tower bypass of 0.0584 lbs/hour.[87] Based on this emission rate, the Draft EIR modeled maximum ambient concentrations of H_2S on a 1-hour basis at 25.8 µg/m³ at Residence 2 and 12.0 µg/m³ at Residence 4. Emissions from the RTO unit/scrubber system account for 34.6% of total short-term H_2S emissions from all Project sources as shown in Table 2 (shaded cells).

Table 2: Abated Project emissions of H_2S[a]

Emission source	H_2S (lbs/hour)	
High pressure separator	0.0000	0.0%
RTO unit/scrubber	0.0584	34.6%
Sand separators NCG	0.1029	61.0%
Injection filters NCG	0.0072	4.3%
NCG pipeline condensate drains	0.0002	0.1%
Cooling towers	0.0000	0.0%
Total	**0.1687**	

a Emissions in lbs/hour and tons/year from Appendix B to Draft EIR, Appendix D; percentages calculated

1-270

Thus, modeled concentrations from the RTO unit/scrubber system are considerably lower than will result from total Project H_2S emissions. If one simplistically assumes that all H_2S emissions occur at the same location, ambient concentrations of H_2S can be estimated at 74.6 µg/m³.[88] Of course, H_2S emissions and resulting ambient air concentrations cannot be directly scaled because the various emission sources are not same location (on-site RTO unit/scrubber, off-site sand separator, etc.). Modeling the various H_2S sources would likely result in lower ambient concentrations. However, the result of 74.8 µg/m³ indicates that the state ambient air quality standard of 42 µg/m³ will most likely be exceeded if all emissions are considered. Therefore, emissions of H_2S result in a potentially significant, unmitigated impact on air quality. The Draft EIR should be revised to provide H_2S modeling from all sources.

[87] *See* Appendix C to Draft EIR, Appendix D: "Short-term (hourly and six-hour) concentrations were modeled using the benzene and hydrogen sulfide emission rates presented in the application to the ICAPCD for the Authority to Construct for the Project for both the RTO unit/caustic scrubber and the north cooling tower bypass." Hourly emission rate of 0.0584 lbs/hour from Appendix B ('Detailed Calculation for the Facility and Emission Unit Potential to Emit') to Draft EIR, Appendix D.

[88] (25.8 µg/m³)(100%)(34.6%) = 74.6 µg/m³.

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II.C The Draft EIR Fails to Adequately Assess and Identify Significant Odor Impacts

1-271

The Project has the potential to release H_2S and NH_3, which are both known irritants and odorous compounds. The Draft EIR fails to adequately assess the potential odor impacts due to emissions of these compounds.

II.C.1 Hydrogen Sulfide Emissions

1-272

The Draft EIR states that minimal H_2S emissions would be released during operation of the Project and claims that air quality modeling conducted for the Project shows that power plant emissions of H_2S from the scrubber stack would not produce H_2S concentrations in excess of the state ambient air quality standard (odor). The Draft EIR admits that H_2S would also be emitted during well drilling and testing but states that H_2S concentrations measured in the geothermal brine in the North Brawley geothermal area are low, that emissions during drilling and well flow testing would be short and temporary and that only one well is typically flow-tested at a time. The Draft EIR concludes that while receptors in the vicinity of the Project may be exposed to small amount of emissions, impacts due to odors are considered less than significant.[89] This discussion is deceptive and inaccurate and fails to identify significant odor impacts:

1-273

First, the Draft EIR's assumption that only one well would be flow-tested at a time is unsupported. The Draft EIR also fails to require this condition as a mitigating measure. Therefore, the conclusion that odor impacts during construction will be less than significant is invalid. The Draft EIR should be revised to explicitly require that only one of the 36 wells can be flow-tested at a time.

1-274

Second, the Draft EIR fails entirely to address background concentrations of H_2S in ambient air. The question is not whether Project emissions by themselves exceed the ambient air quality standard but whether Project emissions in addition to existing background concentrations would result in or contribute significantly to a violation of the ambient air quality standard. (As discussed in Comment I.C.1, the Draft EIR fails to provide background concentrations of H_2S for the area.)

1-275

Third, the Draft EIR's statement that the state ambient air quality standard for H_2S would not be exceeded is deceptive and incorrect. The air quality modeling conducted for the Project (as part of the health risk assessment) included only emissions routed through the RTO unit/scrubber stack and the potential bypass to the North Cooling Tower. As discussed in detail in Comment II.D.2, these emissions are only a

[89] Draft EIR, p. 4.3-26.

Letter 1 Continued

fraction of the total emissions from the Project even without considering emissions from well-flow testing. **1-275 cont.**

Fourth, the Draft EIR's air quality modeling for short-term concentrations of H_2S relied on hourly emissions of H_2S for the RTO unit/scrubber system and cooling tower bypass of 0.0584 lbs/hour.[90] Based on this emission rate, the highest ambient concentrations of H_2S on a 1-hour basis were modeled at 25.8 µg/m^3 at Residence 2 and 12.0 µg/m^3 at Residence 4. As discussed in Comment II.D.2, emissions from the RTO unit/scrubber system amount only to 34.6% of total H_2S emissions from all Project sources; thus, modeled concentrations are considerably lower than will result from total Project H_2S emissions. H_2S emissions and resulting ambient air concentrations cannot be directly scaled because H_2S emissions occur at various locations (on-site RTO unit/scrubber, off-site sand separator, etc.). However, comparison of the H_2S emission rate for RTO unit/scrubber system of 0.0584 lbs/hour (representing only 34.6% of total emissions) and the resulting highest 1-hour ambient concentration 25.8 µg/m^3 to the state ambient air quality standard of 42 µg/m^3 illustrates that the state ambient air quality standard will most likely be exceeded if all emissions are considered. Therefore, emissions of H_2S would result in a potentially significant, unmitigated impact on air quality. **1-276**

Fifth, well flow-testing would occur over a period of two years during construction of the Project (36 wells at 20 days of testing each) and occasionally during the lifespan of the Project. (*See* Comment II.B.4.) During this time, the Draft EIR estimates emissions of 35 lbs/hour of H_2S. To put this number in perspective: emissions from the RTO unit/scrubber were estimated at 0.0584 lbs/hour. Thus, well testing emissions would be almost 600 times higher than estimated emissions from the RTO unit/scrubber used for ambient air quality modeling. It is not only likely, but virtually certain that the state ambient air quality standard would be exceeded during the two years of well flow testing and also whenever maintenance of wells requires flow testing over the life of the Project. **1-277**

The County should quantify total H_2S emissions in a revised Draft EIR and propose mitigation accordingly. Feasible mitigation measures for well flow testing emissions include curtailing flow at the well or using a standby in-well H_2S abatement system similar to that used for the vent tanks.[91] Additionally, hydrogen peroxide **1-278**

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[90] *See* Appendix C to Draft EIR, Appendix D: "Short-term (hourly and six-hour) concentrations were modeled using the benzene and hydrogen sulfide emission rates presented in the application to the ICAPCD for the Authority to Construct for the Project for both the RTO unit/caustic scrubber and the north cooling tower bypass." Hourly emission rate of 0.0584 lbs/hour from Appendix B ('Detailed Calculation for the Facility and Emission Unit Potential to Emit') to Draft EIR, Appendix D.

[91] G. Culivicchi, A. Lenzi., R. Perini and B. Tarquini, 2000. H_2S Abatement in The Cold Gas Cap of Geothermal Wells Before Kick-Off Tests; Proceedings World Geothermal Congress 2000, Kyushu–Tohoku, Japan, May 28–June 10, 2000.

Letter 1 Continued

(20% aqueous solution) injected into the well before and during well flow testing substantially reduces H_2S emissions. **1-278 cont.**

Sixth, the state ambient air quality standard for H_2S is not an odor threshold below which odors are less than significant; rather, it has been established "to protect public health and to significantly reduce odor annoyance."[92] A significantly reduced odor annoyance may still be annoying to a considerable number of people; the primary intent of the standard is to protect public health. Nuisance thresholds are set at considerably lower levels. **1-279**

The CARB investigated the ability of H_2S to cause annoyance to the general population and concluded that "an unpleasant odor is at or above the threshold of annoyance for half the people, when its concentration reaches 5 times the average threshold of detection."[93] Recent work using reliable test methods indicates that the detectable threshold for H_2S ranges from 0.4 $\mu g/m^3$ (in studies in The Netherlands using a dynamic flow method) to 0.7 $\mu g/m^3$ (in studies in Japan using a static test method in an odor-free test room).[94] Thus the concentration that would annoy 50% of the exposed population ranges from 2 $\mu g/m^3$ to 3.5 $\mu g/m^3$. This is consistent with nuisance thresholds set by various agencies. For example, the CEC uses a nuisance threshold of 10 $\mu g/m^3$;[95] the World Health Organization ("WHO") uses a nuisance threshold 7 $\mu g/m^3$ for ambient concentrations of H_2S.[96] **1-280**

Thus, even based on the deficient air quality modeling relied upon by the Draft EIR (25.8 $\mu g/m^3$ at Residence 2 and 12.0 $\mu g/m^3$ at Residence 4), odors associated with H_2S would be considered significant. If considering all sources emitting H_2S, particularly during well flow testing (*see* Comment II.D.3), it can be expected that odor impacts will be significant. **1-281**

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[92] California Air Resources Board, History of Hydrogen Sulfide Ambient Air Quality Standard, reviewed November 24, 2009; http://www.arb.ca.gov/research/aaqs/caaqs/h2s/h2s.htm.

[93] California Air Resources Board, The Perception of Hydrogen Sulfide Odor in Relation to Setting an Ambient Air Quality Standard, ARB Contract A-4-046-33, April 10, 1986.

[94] Y. Hoshika et al., International Comparison of Odor Threshold Values of Several Odorants in Japan and in The Netherlands, Environmental Research, v. 61, 1993, pp. 78-83.

[95] *See*, for example, California Energy Commission, Preliminary Staff Assessment, Salton Sea Unit 6 Geothermal Project, p. 4.1-44; http://energy.ca.gov/sitingcases/saltonsea/documents/2003-04-14_SALTON_SEA_PSA.PDF?

[96] Gheorghe, A.V. and Nicolet-Monnier, M., Integrated Regional Risk Assessment, Vol. 1, Continuous and Non-Point Source Emissions: Air, Water, Soil, Kluwer Academic Publishers, AA Dordrecht, The Netherlands, 1995, p. 247.

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II.C.2 Ammonia Emissions

The Project would emit 58.6 tons/year of NH_3, for the most part from the sand separators. Ammonia is a nasal and respiratory irritant and has an extremely sharp, irritating odor. The Draft EIR fails entirely to address potential odor impacts associated with this pollutant. To put the Project's emissions into perspective: a typical feedlot with 1,500 heads of cattle emits approximately 124 tons/year of NH_3.[97] Thus, the Project would contribute to existing odor problems in the area, primarily from cattle feedlots. At a minimum, the Draft EIR must evaluate the Project's contribution to cumulative odor impacts including the Applicant's North Brawley facility, the BWTTP, and surrounding cattle feedlots.

1-282

II.D The Draft EIR Underestimates Health Risks and Fails to Identify Significant Health Risks due to Emissions of Hazardous Air Pollutants

The Draft EIR discusses exposure of the public to potential health risks due to Project operational emissions of hazardous air pollutants and finds that use of the proposed RTO/scrubber system would reduce this risk to below the generally accepted *de minimus* threshold for project cancer risk of one in one million (1×10^{-6} or 1.0E-07).[98] As discussed in the following comments, the Draft EIR has considerably underestimated the risk associated with Project operational emissions and, as a result, has failed to identify and mitigate significant health risks.

1-283

II.D.1 Emission Estimates for RTO/Scrubber Are Not Supported

The *Assessment of Potential Health Risks from Benzene and Hydrogen Sulfide Emissions* conducted for the Project assumes that "approximately 25%" of the separated geothermal non-condensible gases would flow through the dedicated pipelines to the RTO (and assumes that the RTO would oxidize and abate at least 98% of the H_2S and benzene contained in these gases).[99] As discussed in Comment I.B.2, this assumption is entirely unsupported and the Draft EIR fails to demonstrate that it is sufficiently conservative.

1-284

[97] National Pollutant Inventory, Emission Estimation Technique Manual for Intensive Livestock - Beef Cattle, 1999; http://www2.unitar.org/cwm/publications/cbl/prtr/pdf/cat5/fbeef.pdf.

[98] Draft EIR, p. 4.3-25.

[99] Appendix C to Draft EIR, Appendix D, pp. 1-2.

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II.D.2 Hydrogen Sulfide and Benzene Emissions from Sand Separators, Injection Filters, and NCG Pipeline Condensate Drains Emissions Are Not Included

The health risk assessment estimates potential health risks due to emissions of H_2S and benzene from the RTO unit/scrubber abatement system and from the potential bypass to the North Cooling Tower (in case the abatement system is not operating).[100] The Draft EIR's health risk assessment fails to include emissions associated with sand separators, injection filters, and NCG pipeline condensate drains. It appears that the health risk assessment also fails to account for emissions of H_2S and benzene from the high pressure separators on an annual basis. Emissions from these sources are substantial and considerably higher than those from the RTO unit/scrubber abatement system as shown in Table 3.

Table 3: Abated Project emissions of H_2S and benzene[a]

Emission source	H_2S (lbs/hour)		H_2S (tons/year)		Benzene (lbs/hour)		Benzene (tons/year)	
High pressure separator	0.0000	0.0%	0.4030	36.0%	0.0000	0.0%	1.5399	32.0%
RTO unit/scrubber	0.0584	34.6%	0.2478	22.1%	0.2232	28.6%	0.9467	19.7%
Sand separators NCG	0.1029	61.0%	0.4508	40.3%	0.5191	66.6%	2.2739	47.2%
Injection filters NCG	0.0072	4.3%	0.0105	0.9%	0.0361	4.6%	0.0527	1.1%
NCG pipeline condensate drains	0.0002	0.1%	0.007	0.6%	0.0008	0.1%	0.0036	0.1%
Cooling towers	0.0000	0.0%	0.000	0.0%	0.0000	0.0%	0.0000	0.0%
Total	**0.1687**		**1.1191**		**0.7792**		**4.8168**	

a Emissions in lbs/hour and tons/year from Appendix B to Draft EIR, Appendix D; percentages calculated

1-285

As Table 3 shows, based on the Draft EIR's emission calculations, H_2S emissions from the RTO unit/scrubber abatement system (shaded cells) amount to less than 35% of total Project H_2S emissions on an hourly basis and to about 22% on an annual basis; benzene emissions from these sources amount to less than 29% of total Project benzene emissions on an hourly basis and less than 20% on an annual basis. Therefore, the Draft EIR has substantially underestimated health risks from H_2S and benzene emissions.

While emissions and resulting health risks cannot be directly scaled because the Project's emission sources are located both on- and off-site (*e.g.*, sand separators), the magnitude of resulting health risks can be approximated as shown in Table 4.

[100] *See* Appendix C to Draft EIR, Appendix D.

Letter 1 Continued

Table 4: Revised maximum acute health hazards and maximum incremental cancer risk due to emissions of H_2S and benzene

Health Risk	Draft EIR (based on % emissions considered)[a]		Revised (based on 100% emissions)[b]	Significance threshold	Likely significant?
Acute hazard index					
– Benzene	0.00966	(28.6%)	0.034	1.0	no
– H_2S	0.28592	(34.6%)	0.826	1.0	no
Chronic hazard index					
– Benzene	0.00043	(19.7%)	0.002	1.0	no
– H_2S	0.00068	(22.1%)	0.003	1.0	no
Incremental cancer risk at Residence 4					
– Benzene (unit risk)	7.52E-07	(19.7%)	3.82E-06	1.0E-06	**YES**
– Benzene (cancer potency factor)	9.77E-07	(22.1%)	4.42E-06	1.0E-06	**YES**

a from Appendix B to Draft EIR, Appendix D

b Calculated as (health risk presented in Draft EIR) / (percentage of total emissions considered in Draft EIR) × 100%

1-286

As Table 4 shows, based on 100% of total Project emissions of benzene (and for sake of the calculation assuming that emissions would occur at the same location), incremental cancer risk at Residence 4 can be approximated at about 4 in one million (based on either the unit risk factor or the cancer potency factor). Thus, there is a high likelihood that the incremental cancer risk due to benzene emissions would exceed the one in one million significance threshold at Residence 4. Thus, by only evaluating a portion of Project operational emissions, the Draft EIR has likely failed to identify and mitigate a significant impact due to emissions of carcinogenic compounds.

II.D.3 Hydrogen Sulfide and Benzene Emissions from Well Drilling, Flow Testing, and Maintenance Are Not Included

1-287

The health risk assessment presented by the Draft EIR assesses the potential health risks associated with emissions of the hazardous air pollutants benzene ("C_6H_6") and H_2S contained in the stream of noncondensible gases from the well pad high-pressure separators that is routed to the RTO unit/scrubber or to the North cooling tower (for the maximum 276 hours/year the RTO unit/scrubber is assumed not to be operating). The health risk assessment does not include emissions associated with well drilling, testing, and maintenance.

1-288

There are 36 wells, each requiring drilling of about would last 20 to 30 days and flow testing would last about 20 days.[101] The Draft EIR states that, conservatively assuming that the geothermal fluid contains 70 ppm of H_2S and that all of the H_2S in the geothermal fluid is released to the atmosphere upon flashing, a well flow test

[101] Draft EIR, Appendix D: Air Quality Assessment, Environmental Management Associates, Inc., East Brawley Geothermal Development Project, Air Quality Assessment, revised January 2011, p. 16.

Letter 1 Continued

conducted at rate of 500,000 lbs/hr would emit H_2S at a rate of about 35 lbs/hr.[102] To put this rate in perspective, total estimated H_2S emissions from all other sources are less than 0.2 lbs/hour. (*See* Table 4.) **1-288 cont.**

The Draft EIR should be revised to include hourly, daily, and annual emission estimates for well testing and use these estimates to assess potential health risks. **1-289**

II.D.4 Health Risks due to Diesel Particulate Matter Emissions Are Not Modeled

The Draft EIR fails to address incremental cancer risks due to emissions of diesel particulate matter, a known carcinogen. The Draft EIR presents estimates for diesel particulate matter emissions from the Project's emergency fire water pump and diesel generator but fails to conduct a health risk assessment for this recognized carcinogen. Further, the Draft EIR fails to address diesel particulate matter emissions from drill rigs and mobile sources associated with well pad maintenance, deliveries, and waste handling, and possibly also from the black-start generator. **1-290**

II.D.5 Cumulative Health Risks Are Not Modeled

In addition to the shortcomings of the health risk assessment discussed above, the Draft EIR also does not address the additive incremental risks from construction and operational emissions, or the cumulative health risks due to emissions from existing, planned, and future projects. These include both the North Brawley facility and the expansion of the BWTTP. **1-291**

II.D.6 Conclusion Regarding Health Risks due to Project Emissions

Because the incremental cancer risk for the maximum exposed individual estimated by the Draft EIR of 0.75 per million (based on unit risk factor) or 0.98 per million (based on cancer potency factor) for benzene emissions from RTO unit/scrubber and the North Cooling tower is very close to the threshold of one in one million, when adding the incremental cancer risk associated with emissions of diesel particulate matter and benzene emissions from the sand separators, injection filters, and NCG pipeline condensate drains, the incremental cancer risk will most likely exceed the *de minimus* threshold of one in one million. Therefore, the Draft EIR has failed to identify a potentially significant impact of incremental cancer risk due to emissions of hazardous air pollutants from the Project. **1-292**

[102] Draft EIR, Appendix D: Air Quality Assessment, Environmental Management Associates, Inc., East Brawley Geothermal Development Project, Air Quality Assessment, revised January 2011, p. 7.

Letter 1 Continued

During well flow testing, H_2S emissions may also exceed the threshold for acute health risks.

To reduce potentially significant health risks, the Draft EIR should, a minimum, require that wells not be drilled/tested simultaneously and require adequate mitigation for all diesel-powered equipment including drill rigs. (*See* Comment II.E.5)

1-293

II.E The Draft EIR's Analysis of Construction Emissions and Their Impacts on Air Quality Is Flawed and Fails to Require Adequate Mitigation

Draft EIR states that construction of the proposed project would result in short-term emissions of criteria air pollutants from construction equipment operation and soil disturbances and claims, with no support whatsoever, that these emissions would not violate or significantly contribute to an existing violation of one or more air quality standards.[103]

1-294

II.E.1 Failure to Provide a Construction Plan

The Draft EIR fails to provide a construction plan showing the schedule for construction phasing and the number of workers and delivery trucks, type and number of construction equipment on site, etc. Without such a plan, construction emissions cannot be estimated. The Draft EIR apparently had some of this information available to estimate construction emissions (see below) but failed to disclose sufficient detail for review. The Draft EIR should be revised to provide a detailed construction plan for the projected two-year construction period as is customary for larger projects under CEQA review.

1-295

II.E.2 Failure to Estimate Emissions from Well Drilling and Flow Testing

The Project would require construction of 36 total wells, half for production and half for injection, with an average 4,500 feet in depth. The Draft EIR states that well drilling would last about 30 days[104] and would require about 20 days of testing. The Draft EIR's emission estimates for construction activities quantify emissions for well pad construction but fail to include emissions associated with well drilling and testing emissions. *See* also Comment II.D.3. (While some of the wells have already been constructed under exploratory well permits, their emissions must nonetheless be included for estimates of Project construction to avoid piecemealing.) In addition to drill rigs, drilling sites typically also have pumps and portable diesel engines to power construction trailers, etc.

1-296

[103] Draft EIR, pp. 4.3-16 – 4.3-17.

[104] Draft EIR, Appendix B.

Letter 1 Continued

A typical drill rig for drilling geothermal wells contains four to five diesel engines of about 450 horsepower ("hp"). Each engine emits about 6.5 lbs/hour of NOx.[105] Based on a load factor of 75%, as recommended, for example, by the U.S. EPA,[106] NOx emissions from operation of one drill rig used to drill 12 wells in one year can be estimated at 467.3 lbs/day and 84.1 tons/year.[107] Thus, emissions of NOx from drill rigs dwarf the Draft EIR's estimates for maximum annual on-site NOx emissions of 6.7 tons/year during construction.[108] As discussed in Comment II.E.3below, drill rig NOx emissions also exceed the ICAPCD's CEQA threshold of 100 lbs/day and Rule 207 threshold of 25 tons/year. Thus, drill rig emissions alone are significant and, because the Draft EIR does not require mitigation for drill rig emissions, not mitigated. Emissions of NOx would contribute to formation of ozone and further aggravate the already severely compromised air quality in Imperial County. **1-297**

The Draft EIR must be revised to quantify and properly mitigate emissions from well drilling and construction including combustion exhaust from drill rig engines, generators, worker vehicles, delivery trucks, waste management trucks, etc.

II.E.3 Failure to Support Conclusion Regarding Significance of Construction Emissions

The Draft EIR presents maximum mitigated emissions associated with Project site construction and well pad construction including upgrades to the BWTTP, allegedly estimated with the computer model URBEMIS[109]; output files for these model runs were not provided. Thus, the presented maximum abated emissions are unsupported and could not be verified. **1-298**

Further, the Draft EIR presents mitigated estimated emissions for the Project's assumed two-year construction period on an annual basis (ton/year) concludes without any support whatsoever that Project construction would not violate or significantly contribute to an existing violation of one or more air quality standards. To arrive at this conclusion, the Draft EIR neither compares emissions to any thresholds nor does it present any ambient air quality modeling; thus, its conclusion that construction **1-299**

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[105] *See, e.g.*, Salton Sea Unit 6 Geothermal Power Plant, Application for Certification, Table G-2, and CE Obsidian Responses To CURE Data Requests, Set Three (Nos. 237-275), (02-AFC-02), February 3, 2003, Attachment CDR-242 (available upon request).

[106] U.S. Environmental Protection Agency, Nonroad Engine and Vehicle Emission Study – Report, EPA Report 21A-2001, November 1991.

[107] (4 engines/drill rig)(6.49 lbs/hr-engine of NOx)(0.75)(24 hours/day) = 467.28 lbs/day of NOx; (467.28 lbs/day of NOx)(30 days/well)(12 wells/year) /(2,000 lb/ton) = 84.11 tons/year.

[108] Draft EIR, Table 4.3-5, p. 4.3-15.

[109] Draft EIR, Table 4.3-5, p. 4.3-15.

Letter 1 Continued

emissions are less than significant is pure speculation. The Applicant's air quality assessment does not provide any further insight, stating only that "[a]s can be seen in Table 2 [summarizing mitigated annual construction emissions] construction emissions are small, and their impacts would be low."[110] The air quality assessment does not explain how the reviewer is expected to "see" that construction emissions are "small" as it also fails to provide a significance threshold as a reference.

1-299 cont.

The ICAPCD has established the following significance thresholds for construction emissions in its CEQA Guidelines: 150 lbs/day of PM10, 75 lbs/day of ROG, 100 lbs/day of NOx, and 550 lbs/day of CO. These thresholds were developed to indicate whether construction emissions have the potential to result in or contribute significantly to violations of ambient air quality standards. Because construction emissions can vary considerably depending on the number of equipment on site and the type of construction activities, these thresholds were developed on a daily basis; thus, the Draft EIR's presentation of annual construction emissions (in tons/year) is meaningless and cannot be compared to the ICAPCD's thresholds.

1-300

Due to the lack of adequate information in the Draft EIR and the failure to supply the supporting URBEMIS files, I was unable to re-run the URBEMIS model to estimate maximum daily construction emissions. However, considering the large acreage that would have to be graded – 15 acres for the power plant site; 10 acres for equipment laydown, fabrication and construction; 93 acres for well pads; and 3 acres for the BWWTP for a total of 121 acres – and the notoriously dry climate in Imperial County, it is likely that mitigated emissions of fugitive dust would exceed the ICAPCD's threshold of 150 lbs/day of PM10. Due to the use of a number of large equipment that would operate simultaneously, *e.g.*, the drill rig(s) and dozers and scrapers for mass grading, in addition to worker commuter vehicles and delivery trucks, emissions would also exceed the significance threshold for NOx of 100 lbs/day. (*See* Comment II.E.2.)

1-301

For example, the URBEMIS model assumes a default factor for emissions fugitive dust PM10 of 20 pounds per acre and day ("lbs/acre-day") during mass grading and a worst-case emission factor of 38.2 lbs/acre-day. Thus, assuming the worst-case emission due to Imperial County's very dry climate and high silt content of soils in the area, for every ten acres that would be graded, 382 lbs/day of PM10 may be emitted into the atmosphere. Mitigation such as watering can achieve emissions reductions; however, due to the multitude of contemporaneous activities both on site and at the well pads and emissions of entrained road dust from vehicle travel on paved and unpaved roads (for a discussion see Comment II.B.3), the significance threshold of 150 lbs/day for PM10 would likely be exceeded after the proposed mitigation. Additionally, fugitive dust emissions would not be adequately mitigated by the proposed mitigation measures, as discussed in Comment II.E.4 below.

1-302

[110] Draft EIR, Appendix D, p. 6.

Letter 1 Continued

The Draft EIR must be revised to quantify unmitigated and mitigated emissions of fugitive dust and combustion exhaust emissions from Project construction on a daily basis and either a) compare these emissions to the ICAPCD's thresholds of significance for construction or b) provide modeling to demonstrate that Project emissions would not result in or contribute significantly to an existing violation of ambient air quality standards. **1-303**

II.E.4 Proposed Mitigation Measures Are Not Enforceable as a Practical Matter

For fugitive dust emissions during Project construction, the Draft EIR requires implementation of Mitigation Measure MM 4.3.2a in addition to the requirements of ICAPCD's Regulation VIII. For construction equipment exhaust, the Draft EIR requires Mitigation Measure MM 4.3.2b. The Draft EIR's mitigation measures as written are too vague and therefore ineffective in achieving their goals of reducing emissions and are not enforceable because they fail to specify performance goals. Moreover, as discussed above, even if the proposed mitigation measures were enforceable, the measures proposed will not reduce construction emissions to a less than significant level. **1-304**

Mitigation Measure MM 4.3.2a requires implementation "*where feasible*," Mitigation Measure MM4.3.2b requires implementation "*when feasible*" without specifying how feasibility would be determined and how these measures would be enforced. As such, the Draft EIR's the mitigation measures as written are not enforceable as a practical matter. Further, the mitigation measures proposed in the Draft EIR do not stipulate any feedback or enforcement in case the construction contractor should fail to implement or adequately execute the control measures, thereby rendering the proposed mitigation measures essentially meaningless. **1-305**

Mitigation measures must be enforceable to assure that they are actually implemented.[111] Enforceability is normally achieved by including mitigation measures in the requests for bids and resulting construction contracts, posting bonds, drawing up legal agreements between the applicant and the implementing jurisdiction, or recording conditions of approval on property titles or in agency permits. Contract specifications stipulate emission reduction technology as part of a contract's terms and conditions. This mechanism has been widely used and demonstrated to be successful. Examples include Massachusetts' Big Dig, Connecticut's Q Bridge I-95 program, and New York City's Local Law 77, which incorporates requirements for off-road diesel emission reductions into all of its public works contracts.[112] None of the Draft EIR's proposed **1-306**

[111] *See*, for example, South Coast Air Quality Management District, CEQA Air Quality Handbook, p. 11-2.

[112] ICF Consulting, Emission Reduction Incentives for Off-Road Diesel Equipment Used in the Port and Construction Sectors, Final Report, Prepared for the U.S. Environmental Protection Agency, May 19, 2005,

Letter 1 Continued

mitigation measures include any legally binding commitments or methods to ensure implementation and enforcement and, thus, are not enforceable. Therefore, all of the mitigation measures in the Draft EIR should be revised to incorporate enforcement provisions, and the enforcement provisions included as conditions in the CUP. **1-306 cont.**

Further, the CUP must stipulate an on-site construction manager to enforce the mitigation measures. Duties of the construction mitigation manager typically include, but are not limited to, implementing a comprehensive communications strategy including establishment of a construction mitigation hotline; creating construction surveys and monitoring plans to control dust, vibrations, work hours, and noise as well as issues such as preventing contractor parking on residential streets; implement a procedure to address complaints in a timely and effective manner; and providing transportation plans for truck routes and queuing. **1-307**

In sum, to ensure that all mitigation measures are implemented effectively, the Draft EIR should be revised a) to include a construction mitigation monitoring plan; b) require the presence of a construction mitigation monitor on site; and c) use explicit language for each mitigation measure requiring oversight by the Imperial County Planning and Development Services Department. **1-308**

II.E.5 Additional Feasible Mitigation for Construction Emissions

There are numerous additional mitigation measures available that should be required for the Project in order to mitigate Project construction emissions to the extent feasible.

a) General

To reduce the potential for violations of ambient air quality standards as well as acute health hazards and odor impacts associated with H_2S emissions, the Draft EIR should require that wells are not simultaneously constructed and flow-tested. **1-309**

b) Fugitive Dust

There are numerous additional feasible fugitive dust mitigation measures found in the CEQA guidelines of air pollution control districts throughout the state. Further, several air pollution control agencies have conducted research on fugitive dust control during construction and published best management practices guidelines.

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pp. 5-6 and Chapter 5; http//www.epa.gov/sectors/pdf/emission_20050519.pdf, accessed March 18, 2007.

Letter 1 Continued

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May 4, 2011

The South Coast Air Quality Management District ("SCAQMD") has sponsored research, adopted regulations (*e.g.*, Rule 403),[113] and published guidelines that identify best management practices for controlling fugitive dusts at construction sites. The SCAQMD's *Rule 403 Implementation Handbook*[114] contains a comprehensive list of such measures. Clark County, Nevada, has also sponsored research, adopted regulations (Rule 94), and published best management practices for controlling fugitive dust from construction activities.[115] Clark County's *Construction Activities Notebook* contains a comprehensive list of best management practices.[116] Similarly, Arizona has developed guidance to control fugitive PM10 emissions.[117] Some of the measures included in these agency guidelines that should be required here are listed below:

1-309 cont.

- For backfilling during earthmoving operations, water backfill material or apply dust palliative to maintain material moisture or to form crust when not actively handling; cover or enclose backfill material when not actively handling; mix backfill soil with water prior to moving; dedicate water truck or large hose to backfilling equipment and apply water as needed; water to form crust on soil immediately following backfilling; and empty loader bucket slowly; minimize drop height from loader bucket. (CCHD)[118]
- During clearing and grubbing, prewet surface soils where equipment will be operated; for areas without continuing construction, maintain live perennial vegetation and desert pavement; stabilize surface soil with dust palliative unless immediate construction is to continue; and use water or dust palliative to form crust on soil immediately following clearing/grubbing. (CCHD)
- While clearing forms, use single stage pours where allowed; use water spray to clear forms; use sweeping and water spray to clear forms; use industrial

[113] South Coast Air Quality Management District, Revised Final Staff Report for Proposed Amended Rule 403 – Fugitive Dust and Proposed Rule 1186 – PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations, February 14, 1997.

[114] South Coast Air Quality Management District, Rule 403 Implementation Handbook, January 1999.

[115] P.M. Fransioli, PM10 Emissions Control Research Sponsored by Clark County, Nevada, Proceedings of the Air &Waste Management Association's 94th Annual Conference & Exhibition, Orlando, FL, June 24–28, 2001.

[116] Clark County District Board of Health, Construction Activities Notebook including the Section 94 Handbook, August 24, 2000.

[117] Arizona Department of Environmental Quality, Air Quality Exceptional and Natural Events Policy PM10 Best Available Control Measures, June 5, 2001.

[118] The following acronyms are used in this listing of mitigation measures: ADEQ = Arizona Department of Environmental Quality; BCAQMD = Butte County Air Quality Management District; CCHD = Clark County (Nevada) Health Department; MBUAPCD = Monterey Bay Unified Air Pollution Control District; SBCAPCD = Santa Barbara County Air Pollution Control District; SJVAPCD = San Joaquin Valley Air Pollution Control District; SLOCAPCD = San Luis Obispo County Air Pollution Control District.

Letter 1 Continued

shop vacuum to clear forms; and avoid use of high pressure air to blow soil and debris from the form. (CCHD)

- During cut and fill activities, prewater with sprinklers or wobblers to allow time for penetration; prewater with water trucks or water pulls to allow time for penetration; dig a test hole to depth of cut to determine if soils are moist at depth and continue to prewater if not moist to depth of cut; use water truck/pull to water soils to depth of cut prior to subsequent cuts; and apply water or dust palliative to form crust on soil following fill and compaction. (CCHD)
- For large tracts of disturbed land, prevent access by fencing, ditches, vegetation, berms, or other barriers; install perimeter wind barriers 3 to 5 feet high with low porosity; plant perimeter vegetation early; and for long-term stabilization, stabilize disturbed soil with dust palliative or vegetation or pave or apply surface rock. (CCHD)
- In staging areas, limit size of area; apply water to surface soils where support equipment and vehicles are operated; limit vehicle speeds to 15 mph; and limit ingress and egress points. (CCHD)
- For stockpiles, maintain at optimum moisture content; remove material from downwind side; avoid steep sides or faces; and stabilize material following stockpile-related activity. (CCHD)
- To prevent trackout, pave construction roadways as early as possible; install gravel pads; install wheel shakers or wheel washers, and limit site access. (CCHD)
- When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least six inches of freeboard space from the top of the container shall be maintained. (BAAQMD, SJVAPCD, SCAQMD Rule 403 Handbook, ADEQ)
- Where feasible, use bedliners in bottom-dumping haul vehicles. (SCAQMD Rule 403 Handbook)
- Grade each phase separately, timed to coincide with construction phase or grade entire project, but apply chemical stabilizers or ground cover to graded areas where construction phase begins more than 60 days after grading phase ends. (SCAQMD Rule 403 Handbook)
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. (BAAQMD) *(The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.).* (SJVAPCD)

1-309 cont.

Letter 1 Continued

- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant. (SJVAPCD, ADEQ)
- During initial grading, earth moving, or site preparation, projects 5 acres or greater may be required to construct a paved (or dust palliative treated) apron, at least 100 ft in length, onto the project site from the adjacent site if applicable. (BCAQMD)
- Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 24 hrs. (BCAQMD, MBUAPCD, CCHD)
- Prior to final occupancy, the Applicant demonstrates that all ground surfaces are covered or treated sufficiently to minimize fugitive dust emissions. (BCAQMD)
- Gravel pads must be installed at all access points to prevent tracking of mud on to public roads. (SBCAPCD)
- The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. (SBCAPCD, SLOCAPCD)
- Prior to land use clearance, the Applicant shall include, as a note on a separate informational sheet to be recorded with map, these dust control requirements. All requirements shall be shown on grading and building plans. (SBCAPCD, SLOCAPCD)
- All roadways, driveways, sidewalks, etc., to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used. (SLOCAPCD)
- Barriers with 50% or less porosity located adjacent to roadways to reduce windblown material leaving a site. (SCAQMD Rule 403 Handbook)
- Limit fugitive dust sources to 20% opacity. (ADEQ)
- Require a dust control plan for earthmoving operations. (ADEQ)

1-309 cont.

While portions of some of these measures are included in the mitigation measures proposed in the Draft EIR, the above measures are generally more specific and protective than those recommended in the Draft EIR. All of these measures are feasible and various combinations of them are routinely required elsewhere to reduce fugitive PM10 emissions. *See*, for example, the fugitive dust control program for the Big

1-310

Letter 1 Continued

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Dig (Kasprak and Stakutis 2000[119]), for the El Toro Reuse Draft EIR[120], and for the Padres Ballpark Final EIR.[121] The CEC also frequently requires more stringent mitigation than required by the Draft EIR, for example:

- Areas of excavated or disturbed soils where construction activities have ceased for more than 15 days will be covered, or treated with a dust suppressant compound (such as magnesium chloride);
- The beds of trucks will be covered when hauling excavated soils which have the potential to generate fugitive dust;
- A maximum speed limit of 15 miles per hour will be posted on site; and
- Construction activities that create significant amounts of fugitive dust will be discontinued when wind speeds are greater than 20 mph.[122]

1-310 cont.

Finally, the Salton Sea Anomaly Master Environmental Impact Report ("Salton Sea Anomaly MEIR")[123] additionally recommends the following:

- Gravel or pave parking lots and entrances;
- Enforce reduced speed by drilling and maintenance personnel on unpaved roadways; and
- Limit public access to well sites and access roads through gates or fences.

All of these measures should be imposed during Project construction because the soils in the area are highly erodible and generate substantial amounts of dust when

[119] A. Kasprak and P.A. Stakutis, A Comprehensive Air Quality Control Program for a Large Roadway Tunnel Project, Proceedings of the Air & Waste Management Association's 93rd Annual Conference 7 Exhibition, June 18–22, 2000.

[120] County of Orange, Draft Environmental Impact Report No. 573 for the Civilian Reuse of MCAS El Toro and the Airport System Master Plan for John Wayne Airport and Proposed Orange County International Airport, Draft Supplemental Analysis, Volume 1, April 2001, pp. 2-121 to 2-123.

[121] City of San Diego, Final Subsequent Environmental Impact Report to the Final Master Environmental Impact Report for the Centre City Redevelopment Project and Addressing the Centre City Community Plan and Related Documents for the Proposed Ballpark and Ancillary Development Projects, and Associated Plan Amendments, V. IV. Responses to Comments, September 13, 1999, pp. IV-254 to IV-256.

[122] California Energy Commission, Sutter Power Project, Commission Final Decision, April 14, 1999, p. 149.

[123] The Salton Sea Anomaly MEIR was prepared for the County of Imperial's expansion and rezoning of the Geothermal Overlay Zone in order to construct geothermal power plants in the area. (Salton Sea Anomaly MEIR, Executive Summary, p. 1.) The Salton Sea Anomaly MEIR addresses cumulative environmental consequences of geothermal development in the area, phased over a 30-year time horizon. (*Id.*) The Salton Sea Anomaly MEIR was finalized in 1981 and applies to all geothermal development in the Salton Sea Anomaly. (*Id.*)

Letter 1 Continued

disturbed. (*See* Comment II.B.3.) The implementation of all of the measures required by the Draft EIR likely would not reduce fugitive PM10 emissions to a less than significant level. Thus, the above mitigation measures should all be required to satisfy the County's obligation to impose all feasible mitigation.

1-310 cont.

c) Mobile Sources

There are a number of options available to cost-effectively reduce emissions, including diesel particulate matter emissions, from construction equipment that could substantially reduce exhaust emissions. Options for controlling emissions from construction equipment include requiring the use of best practices in construction management and the use of new or newer equipment. Emissions from existing older construction equipment can be dramatically reduced following the five "Rs" of emissions reduction, *i.e* refuel, replace, rebuild, repower, and retrofit. Both the CARB and the U.S. EPA maintain lists of recommended diesel retrofit alternatives and alternative fuels. Alternative fuels in combination with retrofit technologies or in new construction equipment can achieve emission reductions of up to 89 percent PM10, 90 percent CO, 93 percent ROG, and 40 percent NOx depending on the engine type of on-road or off-road equipment.[124,125] A combination of these options provides the greatest benefit and is frequently required as CEQA mitigation. Feasible mitigation measures include:

1-311

- Require the contractor to use only newer construction equipment or equipment that is retrofitted to meet Tier 2 or higher emission standards set by the U.S. EPA.
- Require the contractor to submit a comprehensive inventory (*i.e.* make, model, year, emission rating) of all heavy-duty off-road equipment (50 horsepower or greater) that will be used an aggregate of 40 hours or more for the construction project. Require the contractor to provide a plan for approval demonstrating that the heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project-wide fleet average 40 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB fleet average.
- Require the use of construction equipment meeting the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, §2423(b)(1) unless such engine is not available for a particular item of equipment. Require construction

[124] U.S. Environmental Protection Agency, Verification, Verified Technologies List, Verified Retrofit Technologies; http://epa.gov/cleandiesel/verification/verif-list.htm.

[125] California Air Resources Board, Verification Procedure - Currently Verified; http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm.

Letter 1 Continued

equipment engines to meet Tier 1 California standards if equipment with engines that meet Tier 2 standards are not available, unless such engine is not available for a particular item of equipment. Require that the construction company keep documentation if the required Tier 2 or Tier 1 equipment is not available within the area or within a reasonable timeframe.

- Require that construction equipment that does not meet, at a minimum, Tier 1 standards, be retrofitted with one or a combination of the following post-combustion controls: (If retrofitting pre-Tier 1 equipment is not feasible, require that the contractor document why retrofitting is not feasible.)
  a. Diesel particulate filters
  b. Diesel oxidation catalysts
  c. Selective catalytic reduction
  d. Lean NOx catalysts
  e. Exhaust gas recirculation
- For pre-Tier 1 equipment which cannot be reasonably retrofitted, use alternative power, alternative fuels, and/or fuel additives instead, such as:
  a. Emulsified (aqueous) diesel fuel
  b. Fuel borne-catalysts
  c. Compressed natural gas or liquefied natural gas
  d. Propane, ethanol, and methanol
  e. Electric power
- Instead of a diesel-powered generator, provide for on-site electrical service for hand tools such as saws, drills, and compressors.
- Limit idling time to 3 minutes for all construction equipment and haul trucks.
- Provide for on-site meals for construction workers by arranging a lunch wagon to visit the construction site.
- Suspend use of all construction equipment operations during second stage smog alerts.
- Prohibit open burning of removed vegetation. Vegetative material shall be chipped or delivered to waste or energy facilities.
- Require that the engine size of construction equipment shall be the minimum practical size to support the required scope of work for the equipment.
- Require construction company to document that at least 50 percent of workers will carpool.
- Locate construction equipment away from sensitive receptors such as fresh air intakes to buildings, air conditioners and operable windows.
- Require the contractor to document that all construction equipment has been properly maintained with all maintenance repairs completed at an off-site location, including proper tuning and timing of internal combustion engines.

1-311 cont.

Letter 1 Continued

— Ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 20 percent opacity for more than three minutes in any one hour.

A combination of these measures is frequently required as CEQA mitigation and is feasible here. Thus, the County is required to reduce the public health and economic burden that results from the use of construction equipment by requiring the use of technically feasible and cost-effective solutions. The Draft EIR should be revised to adequately address air pollutant emissions from Project construction, particularly diesel particulate matter, and to propose adequate mitigation. This would allow the County to make an informed decision that takes into account the consequences on public health impacts associated with Project construction. **1-311 cont.**

II.F The Draft EIR's Analysis of Cumulative Impacts on Air Quality Is Flawed

The Draft EIR's analysis of the Project's potential cumulative impacts on air quality including odor only reiterates the discussion of individual impacts and provides no additional information. The Draft EIR makes no effort to disclose the cumulative emissions and impacts on ambient air quality including odor from other nearby sources such as the existing cattle feedlots, the North Brawley facility, and the BWTTP. **1-312**

III. HAZARDOUS MATERIALS/PUBLIC HEALTH

The Draft EIR's hazardous materials section fails to address disposal of potentially hazardous waste and the potential for significant impacts due to spills of geothermal fluid ("brine"). **1-313**

III.A Disposal of Hazardous Wastes Is Not Adequately Addressed

The sand separators would generate large amounts of solids that may have elevated concentrations of heavy metals and other hazardous compounds. The Draft EIR fails entirely to address the topic of disposal of these solids. Depending on the composition, they may have to disposed of as hazardous waste. **1-314**

Similarly, pipeline and well maintenance would generate scale containing sulfides and arsenic. Based on experience with other geothermal facilities, this scale is likely hazardous and must be disposed of properly. **1-315**

Letter 1 Continued

III.B Brine Spills May Be Significant

1-316

The Draft EIR does not contain any analysis of the probability of brine spills or a discussion of the potential impacts of brine spills and mitigation.

III.B.1 Probability of Brine Spills

1-317

The Draft EIR does not contain any analysis of brine spills, even though numerous, large spills have occurred existing geothermal facilities in the Salton Sea area. Attached Table A-1 summarizes reported brine spills of the Salton Sea Known Geothermal Resource Area and indicates that between March 1993 and September 2001, 58 brine spills occurred, releasing about 230,000 gallons (where quantified). This information also indicates that the largest reported spill was about 60,000 gallons and occurred on June 26, 2001. About 33% of the spills had a volume greater than or equal to 1,000 gallons and 10% had a volume over 10,000 gallons. For example, on February 18, 2001, the brine transfer line between Salton Sea Units 1 and 3 broke and released 22,500 gallons of brine over 9 hours. On July 28, 2001, a production pipeline for Salton Sea Units 3, 4, and 5 burst and released 16,000 gallons of brine. On June 6, 1997, a brine spill of 15,500 gallons occurred next to the injection line on the property of the J.J. Elmore Power Plant. Where reported, the spills lasted from 45 minutes to 18 hours. The reported releases were caused by pipeline breaks, malfunctioning pumps, and valve failures, among others.

1-318

The proposed Project would utilize several miles of pipelines to transport geothermal fluids from 18 production wells to the plant site. These pipelines include associated valves, flanges, and pumps. The combined failure rates for these components, as well as the individual failure rates for each class of components, likely exceed the significance threshold of 10 in one million commonly used by the CEC to determine if an accident scenario is likely and thus should be analyzed.

1-319

Further, the Project site is located near several earthquake faults. A certified geologist in reviewing Draft EIR concluded that these faults "have the potential to rupture the ground surface" and finds that "ground rupture is a potentially significant impact." The review also finds that ground liquefaction, expansion, and subsidence may impact the structural integrity of the pipelines and their supports.[126]

1-320

Thus, the Draft EIR should be revised to analyze pipeline failure based on the type of service, pipeline material, and pipeline construction characteristics and corresponding pipeline failure rates reported in the literature as well as the probability

[126] Tania Gonzalez, Earth Consultants International, Inc., Letter to Elizabeth Klebaner, Adams Broadwell Joseph & Cardozo, Re: Review of the Draft Environmental Impact Report for the Proposed East Brawley Geothermal Development Project, north of and within the City of Brawley's Sphere of Influence, in Imperial County, California, April 15, 2011.

Letter 1 Continued

that the failure would not be detected, or that the control valve would not function properly. The discussion should include the consequences of accidental releases. **1-320 cont.**

III.B.2 Impacts of Brine Spills

Brine spills could have direct and indirect negative effects. These include worker and public health impacts as well as impacts on biological resources and soil and water resources. For example, spills on agricultural land could cause thermal stress leading to destruction of crops and contamination of soil, removing agricultural lands from production. Indirect effects may include toxicity associated with the mineral-laden brine, *e.g.*, due to high concentrations of boron or arsenic. **1-321**

III.B.3 Mitigation

In order to minimize potential hazards associated with geothermal fluid pipeline failures and spills, additional mitigation measures beyond those currently proposed as part of the Project should be implemented. This should include the use of double walled-pipelines throughout and the plant site, an improved maintenance and inspection program, including electromagnetic testing of pipeline integrity and periodic valve testing; redundant pipeline monitoring systems; and/or containment berms beneath the pipelines. Frequent control equipment testing and maintenance would reduce the likelihood of failure to a certain extent. Redundant pipeline monitoring systems would also substantially reduce the likelihood that a pipeline failure is not detected. **1-322**

IV. HYDROLOGY AND WATER QUALITY

The Draft EIR fails to address the potential for aquifer contamination due to the use of chemicals that are reinjected with the geothermal fluids and potential leakage from the wells into the aquifer underlying the site. Chemicals that would be used include corrosion inhibitors and injection of lube oil for down-hole pumps. In addition, there is the potential for contamination of soils, IID water and the underlying aquifer through accidental losses of geothermal fluid. **1-323**

V. LIMITATIONS

The discussion contained in this comment letter represents my opinion based upon the currently available information and are arrived at in accordance with currently acceptable professional standards. The comment letter is intended for use by Adams, Broadwell, Joseph & Cardozo and its clients in this case. I will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, I make no express or implied warranty as to the contents of this

Letter 1 Continued

comment letter. I am not a lawyer and the discussion in this comment letter represents my layperson's understanding of the law as we have discussed it. Nothing in this comment letter is intended to be my legal opinion nor should it be interpreted as such.

VI. RECOMMENDATIONS

As discussed in my comments above, the Draft EIR is deficient and fails to fulfill the requirements as an informational document under CEQA. I recommend that the County revise the Draft EIR to address the above discussed issues and recirculate the revised document for public review.

Please feel free to call me at (415) 492-2131 or e-mail at petra@ppless.com if you have any questions about the comments in this letter.

Regards,

Petra Pless, D.Env.

Letter 1 Continued

Table A-1:

Geothermal Brine Spills, Salton Sea Known Geothermal Resource Area

Date	Facility	CDR-95	CDR-322	Incident/Spill Location	Quantity (gal)	Duration	Affected	Action/Cleanup	Source
6/26/2001	Salton Sea Unit 3, 4, & 5			Unit 5 brine overflow from TK5204	60,000			Vacuum truck; 3,345 tons soil excavated; level control reestablished in separator	RWQCB 11/5/2001
2/3/2001	Vulcan Power Plant			Pond overflowed	41,200		Inside plant, underneath pipe rack	Vacuum truck; soils excavated	CalEnergy Report/Notification WDR 94-083
2/18/2001	Salton Sea Unit 3, 4, & 5			Brine transfer line between Unit 3 and Unit 1	22,500	9 hrs		Vacuum truck; 19,900 tons soil excavated; piping replaced	RWQCB 11/5/2001
7/28/2001	Salton Sea Unit 3, 4, & 5	X	X	IID 16 production pipeline burst	16,000			Vacuum truck; 3,323 tons soil excavated; production line replaced	RWQCB 11/5/2001
6/6/1997	J.J. Elmore Power Plant			Next to injection line inside fence	15,500		Inside facility, some on public road	Vacuum truck; soil disposed	Information Report
7/1/1997	Unit 3 Power Plant			Field east of plant - mist in plant near injection pumps	14,800			Soil excavated or rinsed	Information Report
5/24/2001	Salton Sea Unit 3, 4, & 5			Unit 3 south of pump row	6,700			Vacuum truck; soils excavated	RWQCB 11/5/2001
9/15/1999	Vulcan Power Plant			Brine pond overflow due to pump failure	6,220	About 18 hrs		Valve repaired	CalEnergy letter to RWQCB, 9/16/99
1/31/1995	J.M. Leathers Power Plant	X	X	Production line near RR11	5,350			Shutdown prod. header	Information Report
9/8/1998	Unit 3 Power Plant			Brine pond temporary pump discharge line	4,500		Inside Unit 3 plant	Shut down pump; replaced pipe; soil removal; liquid rinse under pipe rack	CalEnergy Report/Notification WDR 94-081
3/18/2001	Salton Sea Unit 3, 4, & 5	X		Brine pond transfer line	4,200			Vacuum truck; soils excavated; piping replaced	RWQCB 11/5/2001
5/14/1995	Unit 3 Power Plant			In plant under injection line	4,200			Vacuumed to brine pond	Information Report

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Letter 1 Continued

Table A-1:

Geothermal Brine Spills, Salton Sea Known Geothermal Resource Area

Date	Facility	CDR-95	CDR-322	Incident/Spill Location	Quantity (gal)	Duration	Affected	Action/Cleanup	Source
2/20/2001	Salton Sea Unit 3, 4, & 5	X	X	Von2 production line	3,860			Vacuum truck; soils excavated; piping repaired	RWQCB 11/5/2001
8/5/1997	Vulcan Power Plant			T504 overflow and production header leak	2,700		Pipe trench & under pipeline	Vacuum truck; soil cleaned	Information Report
4/19/2001	Vulcan Power Plant			Test unit vent	1,500			Affected structures washed; soils collected	RWQCB 11/5/2001
2/2/2001	J.M. Leathers Power Plant	X	X	Under injection piping south of plant	1,500		Soil under pipeline; minor burns 2 employees		CalEnergy Report/Notification WDR 94-016
4/20/2001	Salton Sea Unit 3, 4, & 5			Brine line between Unit 5 filter press and cooling tower	1,120			Vacuum truck; soils excavated; level control float system repaired	RWQCB 11/5/2001
12/31/1998	Unit 3 Power Plant	X	X	Reinjection line to west of Unit 3	1,100		Under pipeline	Pipeline taken out of service, soil removed	CalEnergy Report/Notification WDR 94-084
9/12/2001	Salton Sea Unit 3, 4, & 5			Downstream side of V-303	1,000			Vacuum truck; soils excavated; line repaired; gasket replaced	RWQCB 11/5/2001
7/14/1995	J.J. Elmore Power Plant	X	X	Well 11 - leak between master and HIV	950		Well pad & ag field	No crop damage expected	Information Report
4/12/1999	Del Ranch Power Plant			NW of secondary clarifier	912		Dirt area nr clarifier	Repair containment joint	CalEnergy Report/Notification WDR 92-031
7/8/2001	Salton Sea Unit 3, 4, & 5	X	X	IID 16 well head	800		Well pad, Crummer Rd, 5 acres of alfalfa	Vacuum truck; soils excavated; field excavated; crops purchased	RWQCB 11/5/2001
11/24/1994	J.M. Leathers Power Plant			Production header near RR17	800			Leak patched and area cleaned	Information Report
1/27/1998	J.M. Leathers Power Plant			Test unit and bermuda field to the west	700			Shut down test unit	CalEnergy Report/Notification WDR 91-051

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Letter 1 Continued

Table A-1:

Geothermal Brine Spills, Salton Sea Known Geothermal Resource Area

Date	Facility	CDR-95	CDR-322	Incident/Spill Location	Quantity (gal)	Duration	Affected	Action/Cleanup	Source
4/15/2001	Salton Sea Unit 1, 2			Pipe underpass on SE side of plant	680			Vacuum truck; soils excavated; piping repaired	RWQCB 11/5/2001
3/15/2001	Salton Sea Unit 3, 4, & 5			Unit 5 pneuma press	640			Vacuum truck; soils excavated; filtrate pump repaired	RWQCB 11/5/2001
8/18/2000	J.J. Elmore Power Plant	X	X	Under injection line	640			Valve repaired	CalEnergy Report/Notification WDR 94-016
8/12/1997	Del Ranch Power Plant	X	X	Production line nr transformer nr DR-5	620		Well pad, private road	Pipeline repaired	Information Report
9/11/1999	J.J. Elmore Power Plant			Warm up line on south side of test unit	500		Well pad	Soil disposed	CalEnergy Report/Notification WDR 91-052
3/16/2001	Vulcan Power Plant			Rupture disc blew on HP separator	450			Soils collected in vacuum unit; disc repaired	RWQCB 11/5/2001
10/18/1998	Unit 3 Power Plant	X	X	Pipeline valve between IID-16 and Von3--flange gasket leak	440		Alfalfa field	Shutdown line, replaced gasket	CalEnergy Report/Notification WDR 94-084
4/7/1999	Unit 3 Power Plant			IID-16 well flowing through portable test unit	433		Well pad	Shut down well venting	CalEnergy Report/Notification WDR 94-084
11/18/1998	Unit 3 Power Plant			Mist from vents during transmission line trip	400 (equiv. as salt)		Alfalfa field	Hay will not be sold	CalEnergy Report/Notification WDR 94-081
8/18/2000	J.M. Leathers Power Plant	X	X	Production line leak near RR-9	380		Minor burns 2 employees	Leak repaired	CalEnergy Report/Notification WDR 94-016
4/28/1995	J.J. Elmore Power Plant	X	X	Injection line near IW-4	378		Well pad	Vacuum truck; dispose soil to mud sump	Information Report
2/22/2001	Salton Sea Unit 3, 4, & 5			Unit 5 recirculation line for clarifier	334			Vacuum truck; soils excavated; control valve repaired	RWQCB 11/5/2001
5/2/2001	Salton Sea Unit 3, 4, & 5	X	X	Von3 production pipeline leak	300			Vacuum truck; soils excavated; piping repaired	RWQCB 11/5/2001
4/11/2000	Vulcan Power Plant			Soil underneath production line header valves	300		Inside plant	Pipeline repaired; soil disposed	CalEnergy Report/Notification WDR 94-083

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Letter 1 Continued

Table A-1:

Geothermal Brine Spills, Salton Sea Known Geothermal Resource Area

Date	Facility	CDR-95	CDR-322	Incident/Spill Location	Quantity (gal)	Duration	Affected	Action/Cleanup	Source
3/24/2000	Vulcan Power Plant			North of primary clarifier inside Region 2 facility	300		Inside plant	Soil taken to mud sump	CalEnergy Report/Notification WDR 94-083
9/4/1997	Del Ranch Power Plant	X	X	Production header east of Vulcan	300		Under pipeline	Leak repaired; soil removed	CalEnergy Information Report WDR 91-051
7/14/1997	East Mesa Generating Facility			Valve on injection well washed out	200-300			Valve replaced	GEO letter to RWQCB 7/14/97
3/25/1999	Del Ranch Power Plant			Mist from atmospheric flash vent during turbine trip	284		Parking area, public road, & alfalfa field		CalEnergy Report/Notification WDR 92-031
5/21/2001	Salton Sea Unit 3, 4, & 5	X	X	Brine line between clarifier and injection pump	280			Vacuum truck; soils excavated; injection pump repaired	RWQCB 11/5/2001
5/22/1997	J.M. Leathers Power Plant			On dirt north of cooling tower pumps	250			Filter press sump was pumped down	CalEnergy Report/Notification
4/9/2001	Salton Sea Unit 3, 4, & 5	X	X	Sinclair 27 well head	220			Vacuum truck; soils excavated; valve repaired	RWQCB 11/5/2001
2/10/2001	J.M. Leathers Power Plant	X	X	Header pipeline for RR-18	200		Soil under pipe; minor burns 2 employees	Line repaired; soil removed	CalEnergy Report/Notification WDR 94-016
2/25/1997	Del Ranch Power Plant			South of main transformer - backup from clarifier overflow	200		Inside plant		Information Report
4/10/2000	J.J. Elmore Power Plant			Mist from steam vent	150		Inside plant and on public road	Soil removed, street washed	CalEnergy Report/Notification WDR 94-016
2/10/2000	J.J. Elmore Power Plant	X	X	Production line leak near RR12	115			Line depressurized for repair	CalEnergy Report/Notification WDR 91-053
4/6/2001	Salton Sea Unit 3, 4, & 5			Unit 5 injection pump containment	105			Pumped down containment	CalEnergy Report/Notification WDR 94-081
7/16/2001	Salton Sea Unit 3, 4, & 5	X	X	IID 16 production pipeline burst	100			Vacuum truck; soils excavated; piping repaired	RWQCB 11/5/2001
4/5/1999	Unit 3 Power Plant			Sinclair 26 well pad	90		Well pad	Leak repaired	CalEnergy Report/Notification WDR 94-084
5/25/1999	Del Ranch Power Plant			Main Steam Event BC-210	82		Parking area, public road, & alfalfa field		CalEnergy Report/Notification WDR 92-031

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Letter 1 Continued

Table A-1:

Geothermal Brine Spills, Salton Sea Known Geothermal Resource Area

Date	Facility	CDR-95	CDR-322	Incident/Spill Location	Quantity (gal)	Duration	Affected	Action/Cleanup	Source
9/21/1999	J.J. Elmore Power Plant			Steam vent mist	60		Inside fence line, some on public road	Flow from wells reduced	CalEnergy Report/Notification WDR 94-016
4/10/1995	Vulcan Power Plant			Test unit	60		Agricultural field	Rinse field	Information Report
4/27/1995	Unit 3 Power Plant			Corner of Forrester & Bowles (public road)	30			Wash, remove soil	Information Report
6/9/1997	Del Ranch Power Plant	X	X	Production line near DR-6	not stated		Under pipeline, and on cotton field	Leak repaired, water truck to wash cotton	Information Report
3/29/1993	Salton Sea Unit 1, 2			Elmore 100 atmospheric flash separator	not stated	Approx. 45 minutes	Asparagus and melon fields	Farmers compensated	Unocal letter to RWQCB, 4/17/93

Source: California Unions for Reliable Energy, Comments on Preliminary Staff Assessment, Salton Sea Geothermal Unit #6 Power Project, Application for Certification (02-AFC-2), Imperial County, June 2, 2003

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Letter 1 Continued

EXHIBIT B

Letter 1 Continued

April 27, 2011

Ms. Elizabeth Klebaner
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

Subject: Comments on the Draft Environmental Impact Report Prepared for the East Brawley Geothermal Development Project

Dear Ms. Klebaner:

This letter contains my comments on the Draft Environmental Impact Report (DEIR) prepared by the County of Imperial (County) for the East Brawley Geothermal Development Project (Project) as the lead agency under the California Environmental Quality Act (CEQA). The Project includes the development of a 49.9-megawatt geothermal power plant and associated well field, approximately three miles north of the City of Brawley (Brawley) in unincorporated Imperial County.

I am an environmental biologist with 18 years of professional experience in wildlife ecology, forestry, and natural resource management. For the past 11 years I have served as an environmental consultant focusing on biological resource investigations. I have additional professional experience as a wildlife researcher, consulting forester, and instructor of wildlife management for the Pennsylvania State University. My educational background includes a B.S. in Resource Management from the University of California at Berkeley, and a M.S. in Wildlife and Fisheries Science from the Pennsylvania State University. A copy of my curriculum vitae is attached to this letter.

I have gained particular knowledge of the biological resources in the Project area through my involvement in several other regional development projects. The comments contained herein are based on my review of the environmental documents prepared for the Project, including the DEIR and all supporting documentation, scientific literature pertaining to biological resources known to occur in the Project area, and the knowledge and experience I have acquired during more than 18 years of working in the field of natural resources management.

I. The DEIR Fails to Provide a Complete Project Description

A. Transmission Line and Communication Tower

1-324

Implementation of the Project would require a new, 2 to 5-mile long transmission line with 66-foot high poles to transfer energy to the North Brawley 1 Substation.[1] The transmission line would span the New River. According to the DEIR, two potential

[1] DEIR, p. 3.0-16.

1

Letter 1 Continued

transmission lines routes are under consideration.[2] However, the DEIR does not identify the location of either route. In addition, the DEIR does not discuss the footings, pull sites, staging areas, and maintenance roads that will be required to install and maintain the Project transmission line. This information is necessary to effectively analyze the Project's direct and indirect impacts to biological resources, including impacts to suitable habitat for special-status species. **1-324 cont.**

The Project will also include the installation of a communication tower on the power plant site to facilitate communications with a central Ormat Imperial Valley control room.[3] The DEIR does not provide any information on the communication tower, including its height and design features. This information is necessary to effectively analyze the potentially significant avian collision hazard associated with the Project. **1-325**

The DEIR lacks any analysis of potentially significant impacts associated with the Project transmission line, substation, pipelines, and communication tower. In addition, because the DEIR fails to identify the specific locations and design parameters associated with the transmission line, substation, pipelines, and communication tower, I cannot address all potentially significant impacts associated with these features. However, they pose at least two potentially significant impacts that were not analyzed in the DEIR. **1-326**

First, both the transmission line and pipeline will cross the New River. The New River supports several special-status species, and it serves as a significant north-south corridor for wildlife. In addition, the New River is a jurisdictional feature subject to provisions of the Federal and State Clean Water Acts, and to Section 1602 of the California Fish and Game Code. The DEIR suggests the Project could impact the New River, but it does not identify the extent and types of impacts that may occur.[4] Potential impacts cannot be analyzed until there has been a formal delineation of the New River and other potentially jurisdictional waters. Based on the information presented in the Biological Resource Assessment ("BRA") and DEIR, the Applicant has not even conducted a draft delineation of the New River. **1-327**

My review of the County's files suggests that the footings used to support the Project pipeline will impact riparian vegetation along the New River.[5] Impacts associated with pipeline footings and transmission line towers must be disclosed and analyzed prior to Project approval. As a long, narrow habitat strip within a landscape dominated by agricultural fields, the function of the New River as a movement corridor is highly susceptible to the effects of fragmentation, especially for non-flying species. **1-328**

Second, the DEIR fails to address the collision and electrocution hazard that will be generated by the Project transmission line and communication tower. Millions of birds die each year due to collision with towers, and due to collision with, or **1-329**

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[2] *Id.*
[3] DEIR, Appendix D, Air Quality Assessment, p. 3.
[4] DEIR, p. 4.4-38.
[5] *See* Revised CUP Application. 2010 Jan 29. p. 29. Salt cedar (*Tamarix* spp.) is considered a riparian species due to its dependence on water.

2

Letter 1 Continued

electrocution from, power lines. The collision and electrocution hazard posed by the Project has the potential to be particularly significant given its location within a major flyway. This potentially significant impact to both resident and migratory birds needs to be disclosed and analyzed prior to Project approval.

1-329 cont.

B. Project Boundaries and Impact Areas

The DEIR presents inconsistent information on the boundaries of the Project well field, and the proposed locations for Project wells and pipelines.[6] Consistent information on the Project footprint and the locations of Project features is needed to effectively analyze Project impacts to biological resources, including impacts to suitable habitat for special-status species.

1-330

C. Road Crossing at Best Canal

The main entrance to the power plant would be off Best Road, and it would require covering Best Canal along the property frontage to accommodate widening of the road for a turn pocket.[7] The DEIR does not identify: 1) the particular portion of the canal that will be covered; 2) how much of the canal will be covered; or 3) the methods that will be used to cover the canal (i.e., type of road crossing). Information on these variables is required to assess the direct and indirect impacts to biological resources. Covering the canal will alter the functions and values of the canal's aquatic resources, and may result in the direct loss of aquatic habitat. In addition, vehicles that cross the canal to enter the power plant site have the potential to transfer pollutants (e.g., sediment, fuel, and engine fluids) into the canal, which are likely to have adverse effects on biological resources.

1-331

D. Fencing

According to the DEIR, "[t]he property will be enclosed by a 6-foot wire fence."[8] This description is not sufficient to evaluate the impacts of the fence on wildlife. Specifically, the DEIR does not identify the area that will be fenced (i.e., the entire Project area or just the power plant site), or the specific type of fence that will be installed. Fencing may impede wildlife access to critical resources (e.g., water, forage, reproduction sites, cover) or restrict escape routes essential to the well being of individuals and populations. Many types of fences represent an entanglement hazard to ungulates, and a collision hazard to birds. The DEIR lacks an assessment of these potentially significant impacts, or mitigation to conclude impacts from fencing will be less than significant (e.g., wildlife "friendly" design features).

1-332

[6] *See* DEIR, Appendix K, Water Supply Assessment, p. 15. *See also* DEIR, Figure 3.0-2. *See also* DEIR, Appendix E, Biological Resources Assessment, Figure 2.
[7] DEIR, p. 3.0-22.
[8] *Id.*

3

Letter 1 Continued

II. The DEIR Does Not Provide an Accurate Description of Baseline Conditions

A. Biological Resources Surveys Conducted for the Project Do Not Adequately Establish Existing Conditions

To document the biological resources present within the Project site, the DEIR relies on a BRA prepared by Barrett's Biological Surveys.[9] Due to numerous significant flaws, the BRA does not provide an accurate account of the biological resources present (or potentially present) in the Project area. These flaws include the following:

1. Surveys Were Not Properly Documented

1-333

The BRA suffers from an extreme lack of proper documentation. First, the BRA provides virtually no information on the field surveys that were used to support the assessment. Specifically, it fails to provide:

1) the survey methods;
2) a concrete description or map of the study area;
3) a discussion of environmental factors (e.g., temperature, wind, precipitation) that may have influenced survey results; and
4) information on the survey effort (e.g., total person-hours).

These items are fundamental to any scientific study and the ability to evaluate the validity of the BRA.

Second, the BRA provides an inconsistent account of the field survey results, and in many instances, the field survey results do not support the conclusions presented in the BRA and DEIR. For example, Barrett's Biological Surveys documented several burrowing owls within the Project area, including along proposed pipeline routes.[10] However, the BRA and DEIR both report:

1-334

> [n]o burrowing owls a CDFG species of special concern or active burrows were observed within the 8 well pad sites, pipeline routes and plant site surveyed to date. No burrowing owls or burrows were found on field ditches near the sites and the IID ROW adjacent to the project sites within 250 feet.[11]

2. Most of the Project Area Was Not Surveyed

1-335

According to the BRA, "[t]his [BRA] report covers field surveys of eight proposed well pads (OB 201, 202, 203, 204, 205, 206, 23-22 and 26-22), their access routes, [and] pipeline routes connecting wellpads and the geothermal plant site."[12] Of the eight well pad sites surveyed for the BRA, six have already been approved (of which

[9] DEIR, p. 4.4-1.
[10] DEIR, Appendix E, Biological Resources Assessment: Table 4 and Figure 2.
[11] *Id.*, p. 5.
[12] *Id.*, p. 3. *See also* DEIR, p. 4.4-21.

4

Letter 1 Continued

three have been constructed), and two are no longer being proposed for the Project.[13] As a result, the biological resource field surveys have little relevance to the currently proposed Project, and most of the Project site remains unsurveyed. This includes the: 1) 28 "proposed" well pad sites; 2) pipeline routes associated with the 28 proposed well pads; 3) water conveyance structures that will connect the Project to the Rockwood Canal and the Brawley Wastewater Treatment Plant (BWWTP); 4) proposed utility line corridors and substation; 5) New River crossings; and 6) wastewater retention basin adjacent to the power plant site. Based on this information, it appears the BRA was conducted for a separate project (i.e., installation of the test wells). Surveys of the current Project area and buffer zones are essential to evaluating the potential direct and indirect Project impacts on sensitive biological resources.

1-335 cont.

3. Biological Resource Survey Results Are Out of Date

The Project's biological resource surveys were conducted on January 25 and 31, February 6, May 29 and 30, 2008; and on July 22 and 23, 2010.[14] The 2008 surveys were conducted approximately three years ago, and they should no longer be considered valid. Most biological resource survey results are considered valid for no more than one year.[15]

1-336

4. Surveys Were Not Properly Conducted

Barrett's Biological Surveys 2010 surveys were conducted on July 22nd and 23rd. During late July, most annual plants are no longer present or identifiable. In addition, most birds have finished breeding, and they no longer defend their territories (which makes them more detectable due to frequent vocalizations and movements). During the summer, bird activity is further limited by hot weather. In desert environments, many wildlife species spend the hot summer months in underground refugia where they are undetectable to biologists. As a result of these issues, the July 2010 surveys should not be relied on to establish the plant and animal species occurring in the Project area.

1-337

5. The Biological Resource Surveys Lack Credibility

Neither the DEIR nor BRA provides any information on the qualifications of the surveyors, including their familiarity with biological resources and ecological concepts. The survey results presented in the BRA and DEIR are considerably less robust than the results presented in the California Department of Transportation's Brawley Bypass Project Environmental Impact Report. Differences in these survey results provides additional evidence that the Applicant's effort to establish baseline conditions at the Project site was insufficient.

1-338

[13] *Id.*, Figure 2. *See also* DEIR Figure 3.0-2.
[14] DEIR, p. 4.4-30.
[15] CDFG. 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. Available at: http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html#Plants.

5

Letter 1 Continued

The Project and Brawley Bypass Project are comparable in size, and they occur in the same general areas and habitats. However, surveys for the Brawley Bypass Project documented 79 species of animals and 42 species of plants within the project area, whereas Barrett's Biological Surveys documented only 27 species of animals and 21 species of plants.[16]

1-339

III. The DEIR and BRA Omit and/or Mischaracterize the Biological Resources Occurring in the Project Area

A. Biotic Communities

1-340

The DEIR and BRA indicate there are four biotic communities in the Project area: 1) Agriculture; 2) Urban; 3) Irrigation Ditches/Canals; and 4) River.[17] However, the DEIR fails to quantify or map the extent of any of these communities in the Project area.

1. Native (or Naturalized) Vegetation Communities

According to the DEIR, "native vegetation communities and naturally-occurring habitats are not found" in the Project area.[18] This conclusion is unsubstantiated. Whereas the majority of the lands surrounding the Project are in agricultural production, the Applicant has yet to conduct the field surveys needed to substantiate the absence of native vegetation communities in the Project area. Based on recent Google Earth imagery, it appears some portions of the Project area contain native (or naturalized) vegetation. These areas were never surveyed. As an example, Figures 1 through 3 depict native vegetation at proposed well pad sites 44-15 and 45-15.[19]

1-341

[16] Caltrans and FHWA. 2001. State Route 78/111 Brawley Bypass. Draft Environmental Impact Report/Statement. p. 3-15. *See also* DEIR, Appendix E, Biological Resources Assessment, Appendix C.
[17] DEIR, p. 4.4-2.
[18] *Id.*
[19] *See* DEIR Figure 3.0-5. The DEIR depicts 2 well sites as "45-15"; the image presented here is of the southern one.

6

Letter 1 Continued

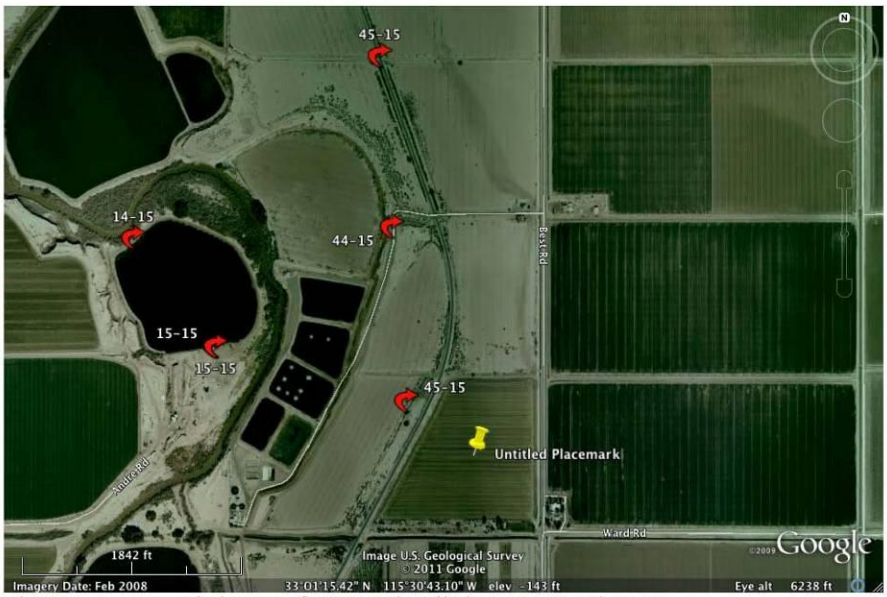

Figure 1. Large-scale image of proposed well sites 44-15 and 45-15.

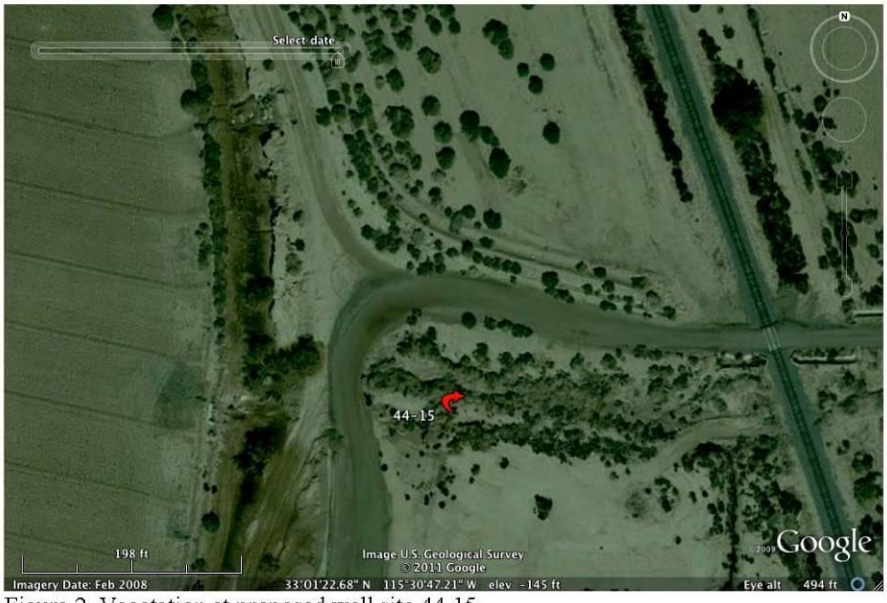

Figure 2. Vegetation at proposed well site 44-15.

7

Letter 1 Continued

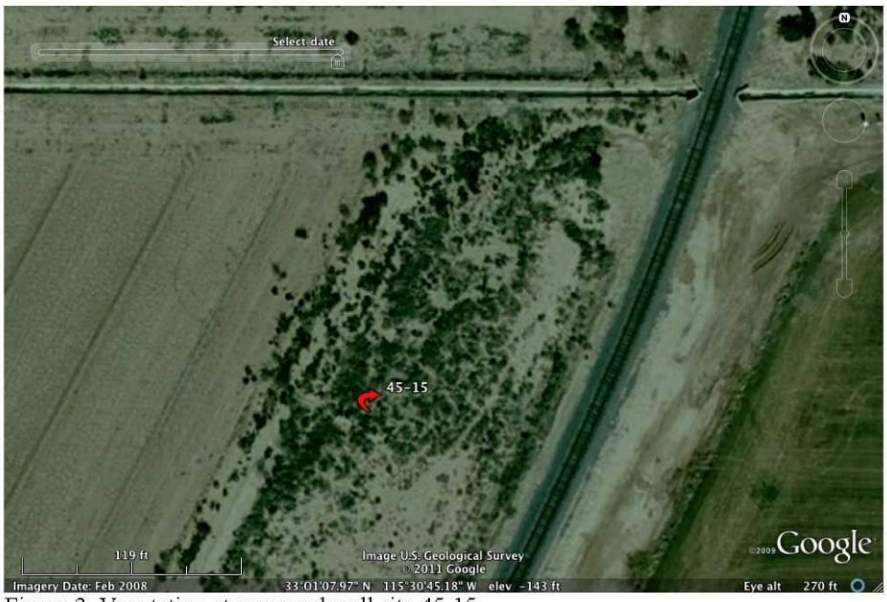

Figure 3. Vegetation at proposed well site 45-15.

2. Agricultural Areas

Much of the Project area contains agriculture. The DEIR indicates: "[b]ecause of their high degree of disturbance, agricultural areas generally have a low habitat value for wildlife, although a number of species adapted for disturbed conditions can utilize these areas."[20] Agricultural areas in the Imperial Valley may support fewer species than undisturbed areas, but they should not be characterized as having "low habitat value." **1-342**

In the Salton Sea Basin, agricultural lands provide habitat for at least 68 bird species.[21] This includes foraging, roosting, and/or breeding habitat for both migratory and resident birds. Species such as mountain plover and burrowing owl occur exclusively in agricultural areas, and their continued presence in the Salton Sea Basin could depend on the persistence of agriculture.[22] **1-343**

The Sonoran and Mojave Desert regions, in which the Salton Sea Basin is located, play an important role for wintering and migrating black-bellied plovers, wintering mountain plovers, wintering, migrating and breeding black-necked stilts, wintering and migrating greater yellowlegs, migrating and wintering long-billed curlews, and Wilson's phalarope. Agricultural fields in the Imperial Valley are an important resource for these **1-344**

[20] DEIR, p.4.4-3.
[21] California DWR and DFG. 2006. Salton Sea Ecosystem Restoration Program Draft Programmatic Environmental Impact Report. p H1-25.
[22] *Id.*

8

Letter 1 Continued

and numerous other species of waterbirds that winter and migrate through the Salton Sea Basin. Insects, which are common in agricultural fields, provide abundant forage for shorebirds, and grain crops (e.g., wheat, rye grass, barley) provide critical, high-energy content forage for waterfowl. The DEIR confirms that the Project site contains alfalfa, wheat, Bermudagrass and hay.[23] These crop types are especially valuable to waterfowl, shorebirds, and many other types of birds because they support abundant and diverse food resources.[24]

1-344 cont.

3. Canals/Ditches

Multiple irrigation canals and drainage ditches course through the Project area, however; the DEIR does not identify or map them.[25] Additionally, it appears the canals and ditches were never surveyed, and as a result, the DEIR is limited to a generic description of plant species that are generally associated with canals and ditches.

1-345

Canals and ditches in the Project area may support riparian and freshwater marsh habitats that may contain special-status species such as the federally endangered and state threatened Yuma clapper rail.[26] As a result, the DEIR must identify the canals and ditches that occur in the Project area, and it must provide site-specific information on canal/ditch habitat features such that potential impacts to biological resources can be evaluated.

1-346

4. River

The New River occurs in the Project area. The DEIR's description of the New River is limited to the following:

> Vegetation within the project area consists of a perimeter of mostly salt cedar. The New River is heavily polluted and offers marginal wildlife habitat opportunities.[27]

1-347

The riverine and riparian habitats within the Project area are sensitive habitats under the jurisdiction of the California Department of Fish and Game (CDFG) and the U.S. Army Corps of Engineers (USACE).[28] The New River, while polluted, provides some of the last available riparian habitat in Imperial Valley. Approximately 40 species of birds, 20 species of mammals, and 10 species of reptiles and amphibians utilize the salt cedar community type, and it provides habitat for numerous special-status species.[29] The desert riparian habitat along the New River provides an important north-south corridor

[23] DEIR, p. 4.4-2. *See also* DEIR, Appendix E, Biological Resources Assessment, Figure 2.
[24] Putnam D, M Russelle, S Orloff, J Kuhn, L Fitzhugh, L Godfrey, A Kiess, R Long. 2001. Alfalfa, wildlife and the environment - The importance and benefits of alfalfa in the 21st century. California Alfalfa and Forage Association, Novato, CA.
[25] DEIR, p. 4.4-3.
[26] *Id.* and p. 4.4-4.
[27] DEIR, p. 4.4-4.
[28] *Id.*
[29] U.S. Dept. of Interior, Bureau of Reclamation. 2002. Final Environmental Impact Statement. Implementation Agreement (IA), Inadvertent Overrun and Payback Policy (IOP), and Related Federal Actions Lower Colorado River and the States of Arizona, California and Nevada.

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Letter 1 Continued

for many riparian, wetland, and upland species, both locally and regionally.[30] As a result, it should not be characterized as offering "marginal habitat opportunities." 1-347 cont.

The potential for several special-status species to occur in the Project area depends on the specific habitat characteristics present along the New River. These habitat characteristics are determined by a combination of the River's physical (e.g., width, substrate); hydrological (e.g., flow patterns); and vegetative (e.g., structure, cover) environments. Based on the information presented in the DEIR and BRA, the Applicant never conducted any surveys to document the species and habitats associated with the New River. Consequently, the DEIR lacks the basis to make any conclusions related to the value of habitat associated with the River. Emergent and riparian vegetation along the River banks immediately downstream of the BWWTP (Figure 4) constitutes one of the largest patches of riparian habitat between Brawley and the Salton Sea, and it likely provides suitable habitat for several special-status species. 1-348

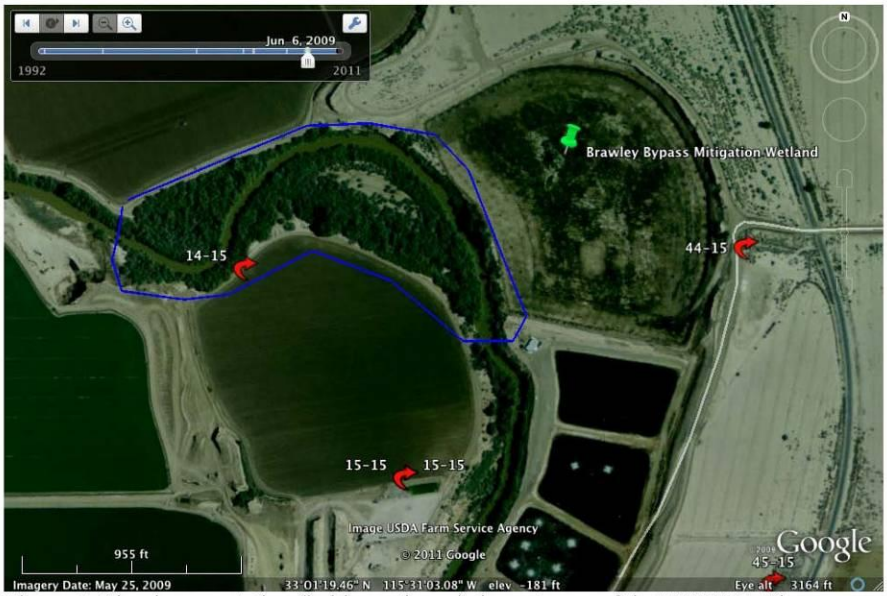

Figure 4. Riparian vegetation (in blue polygon) downstream of the BWWTP. The Brawley Bypass wetland (green thumbtack) is located immediately east. Red arrows indicate approximate locations of proposed Project wells.

[30] Caltrans and FHWA. 2001. State Route 78/111 Brawley Bypass. Draft Environmental Impact Report/Statement. p. 3-14.

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Letter 1 Continued

B. Wetlands and Jurisdictional Waters

The Project site contains the New River and several irrigation canals that are likely under the jurisdiction of the USACE.[31] The Project may impact these aquatic resources.[32] A delineation of wetlands and waters of the U.S. and/or state was not conducted for the Project, and the DEIR fails to quantify the potentially jurisdictional waters within the Project area.[33]

1-349

C. Important Biological Resources in the Project Region

The Finney-Ramey Unit of the Imperial Wildlife Area (managed by CDFG) is located approximately 1.25 miles east of the Project site. The Brawley site for the "New River Wetlands Project" is located south of the Project site. The Brawley Bypass mitigation wetland is surrounded by the Project's proposed well pads.[34] The DEIR fails to disclosure these landscape features or provide any analysis of the Project's potential impacts on the valuable biological resources that they support.

1-350

D. Special-Status Wildlife

The DEIR states that the Project site has no potential to impact threatened, endangered, or sensitive plant or animal species other than the burrowing owl.[35] This statement is not accurate. The DEIR acknowledges the potential for Project impacts to the American badger, southwestern willow flycatcher, and several special-status bird species.

1-351

In addition, as detailed in the preceding comments, survey efforts were insufficient to determine presence of absence of suitable habitats. Similarly, focused surveys to determine the presence of special-status plant or animal species were never conducted. The BRA reports:

> This survey was not intended to determine the presence/absence of threatened or endangered species except for the burrowing owl *Athene cunicularia,* but only assess the potential for them to occur based on habitat suitability. Other focused surveys to determine presence/absence would be at the discretion of the appropriate State or federal resource agencies.[36]

1-352

In this regard, the DEIR fails to discuss whether the Applicant or the County of Imperial ever consulted with the CDFG and USFWS concerning the need for focused surveys.

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[31] DEIR p. 4.4-38.
[32] *Id.*
[33] *Id.*
[34] Susan Scatolini, District Biologist, California Department of Transportation. [email communication with Scott Cashen. 2011 Apr 26].
[35] DEIR, p 3.0-2.
[36] DEIR, Appendix E, Biological Resources Assessment, p. 3. The burrowing owl is not a threatened or endangered species. It appears the author intended to indicate the surveys were not intended to determine the presence of any *special-status* species other than the burrowing owl.

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Letter 1 Continued

IV. The DEIR Lacks a Valid Assessment of Project Impacts

A. Impacts to Wetlands and Jurisdictional Waters

The DEIR identifies the potential for the Project to cause the loss or fill of jurisdictional wetlands or waters of the U.S. and State. The DEIR identifies this as a potentially significant impact. However, it does not provide the specific information required to assess the nature or relative severity of the Project's potential impacts.[37] Specifically, the DEIR fails to identify which jurisdictional features may be impacted, how they might be impacted, or the extent (i.e., acreage) of the impacts. 1-353

Because the Project description lacks information on Project features, and because the Applicant never conducted a wetland delineation (draft or formal), I am unable to evaluate whether mitigation proposed in the DEIR would be adequate to reduce Project impacts to wetlands to a less than significant level. For example, the Brawley Bypass mitigation wetland is located within the Project footprint, yet the DEIR fails to identify, and assess potentially significant Project impacts on, this wetland (among others) . 1-354

The Brawley Bypass mitigation wetland provides breeding and migratory stopover habitat for numerous bird species.[38] The Project proposes a geothermal development well immediately east of the mitigation wetland (*see* Figure 4 above). Wells near the mitigation wetland are likely to cause several adverse impacts (e.g., noise) to the wetland, which will reduce its functions and values. Potentially significant impacts to the mitigation wetland need to be disclosed and analyzed prior to Project approval. Absent site specific baseline conditions and an analysis of the Project's direct and indirect impacts, the County cannot conclude that Project impacts to wetlands have been reduced to a less than significant level. 1-355

B. Impacts to New River Species

The DEIR proposes to divert approximately 4,400 AFY of water away from the New River.[39] The DEIR indicates that this amount constitutes at least 55% of all treated wastewater currently supporting the New River (from point sources in Imperial Valley).[40] A hydrological study is required to determine the impacts associated with diverting 4,400 AFY of water away from the New River. A hydrological study was required to evaluate the impacts of diverting wastewater from the Seeley Wastewater Treatment Plant for use by the Imperial Valley Solar Project.[41] The East Brawley Geothermal Project proposes to divert an amount that is more than *40 times* the volume proposed for the Seeley Wastewater Treatment Plant. However, even in the absence of a hydrological study, substantial scientific evidence exists to conclude that the Project's proposed diversion of 1-356

[37] DEIR, p. 4.4-38.
[38] Susan Scatolini, District Biologist, California Department of Transportation. [email communication with Scott Cashen. 2011 Apr 26].
[39] DEIR, p. 3.0-23.
[40] DEIR, p. 4.4-31.
[41] CEC. 2010 Jul. Supplemental Staff Assessment: Imperial Valley Solar Project. p. ES-23.

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Letter 1 Continued

water away from the New River will result in several potentially significant adverse impacts to biological resources. 1-356

The New River contains emergent and riparian vegetation that provides habitat for several special-status species. This includes a patch of riparian/emergent vegetation immediately downstream of the BWWTP (*See* Figure 4 above). Based on my review of satellite imagery, the vegetation immediately downstream of the BWWTP constitutes one of the largest patches of riparian habitat between Brawley and the Salton Sea. The DEIR does not provide a valid or thorough analysis of Project impacts to habitats along the New River. Specifically, the DEIR indicates: 1-357

> In order to determine a conservative estimate of the proposed project's contribution to reduced return flow to the New River, the average New River flow to the Salton Sea provided by the State Water Resources Control Board was used, or 430,000 acre-feet per year. The proposed project will require approximately 4,400 acre-feet of treated wastewater from the Brawley Wastewater Treatment Plant and an additional 1,110 acre-feet of water from the IID. The project will reduce the amount of return flow to the New River. The project's contribution to the reduction of return flow is approximately 0.01 percent. However, it is unlikely that the reduction of 4,400 acre-feet, or 0.01 percent, will have an impact on habitat in the New River.[42]

There are two significant flaws with the calculation used to support the DEIR's reasoning. First, reducing 430,000 AFY by 4,400 AFY is equivalent to a one percent reduction in return flow to the New River, not 0.01 percent. Second, 430,000 AFY is the average flow volume at the Salton Sea. The flow volume at the Project site is considerably less. Consequently, the Project's relative impact on New River flows would be even greater than one percent. 1-358

Emergent and riparian vegetation are very sensitive to changes in hydrology, as are the species that depend on the vegetation for habitat. In the case of the Seeley WWTP, the USFWS stated: 1-359

> Providing the reduction in flows absent any information regarding either the total volume of current flows or that which is anticipated to remain in the channel (including any seasonality of such flows) following the proposed improvements does not allow for specific conclusions to be drawn relative to the resultant effects on the wetland vegetation in the effluent channel.[43]

A similar analysis has not been conducted for this Project, nor has the DEIR provided any substantive analysis of the potentially significant impacts to that are likely to occur to habitats when water is diverted away from the New River. 1-360

The Project's diversion of water from the New River threatens the Yuma clapper rail, California black rail, least Bell's vireo, and several other special-status species. For 1-361

[42] DEIR, p. 4.4-32.
[43] USFWS. 2010 Feb 2. Letter from Carol Roberts to Sandra Estigoy regarding Draft Mitigated Negative Declaration for the Seeley Wastewater Treatment Plant Improvements, Imperial County, California.

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Letter 1 Continued

example, the Draft Recovery Plan for the Yuma clapper rail identifies the loss of water supporting habitat as the biggest threat to the species' recovery.[44] Due to the lack of adequate surveys, or a valid impact analysis, impacts to New River species and habitats cannot be ruled out.

1-361 cont.

C. Impacts to Specific Species

1. Yuma Clapper Rail

The Yuma clapper rail is a federally endangered and state threatened species. The DEIR concludes that the Project will not significantly impact this species. This conclusion lacks foundation, as it is not supported by science or empirical field data.

1-362

First, the DEIR states that there have not been any recorded occurrences of Yuma clapper rails within five miles of the Project site.[45] This statement is not accurate. During surveys for the Brawley Bypass Project Yuma clapper rails were detected along the New River approximately 1.5 miles south of the Project's proposed River crossing (Figure 5).[46] A Yuma clapper rail may also have been detected along the New River near the Brawley Bypass mitigation wetland.[47] The Yuma clapper rail is an extremely elusive species requiring specialized survey techniques (i.e., playback recordings) for detection.[48] The fact that the species has been previously encountered in the Project impact area suggests that individuals may exist in and around the Project site.

Second, the DEIR concludes that "the Project site does not contain suitable habitat to support the Yuma clapper rail due to the lack of dense cattails (*Typha* sp.) or Phragmites (*Phragmites* sp.)."[49] This conclusion lacks foundation for the following reasons:

1-363

1. The DEIR and BRA suggest the Applicant never conducted field surveys to document potential Yuma clapper rail habitat in the Project area (i.e., along the New River and along all Project canals and ditches).
2. Cattails and Phragmites are both listed on the BRA's list of plant species occurring in the Project area. Because the field surveyors did not measure

[44] U.S. Fish and Wildlife Service. 2009. Yuma Clapper Rail (*Rallus longirostris yumanensis*) Recovery Plan. Draft First Version. U.S. Fish and Wildlife Service, Southwest Region, Albuquerque, New Mexico. p. iv.
[45] DEIR Table 4.4-2.
[46] Caltrans and FHWA. 2001. State Route 78/111 Brawley Bypass. Draft Environmental Impact Report/Statement. Figure 3-1F.
[47] Susan Scatolini, District Biologist, California Department of Transportation. [email communication with Scott Cashen. 2011 Apr 26].
[48] USFWS. 2006. 2006 Yuma clapper rail survey protocol. Available at: http://www.fws.gov/southwest/es/arizona/Documents/SpeciesDocs/YumaClapperRail/2006_YCR_surveyprotocol.pdf. *See also* USFWS. 2000. Yuma clapper rail survey protocol. Available at: http://www.fws.gov/pacific/ecoservices/endangered/recovery/documents/YumaClapperRail2000Protocol.pdf.
[49] DEIR p. 4.7 and 4.8.

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Letter 1 Continued

the density of vegetation, the DEIR has no basis to conclude vegetation is not dense enough to support Yuma clapper rails.

3. The Yuma clapper rail is not limited to dense cattails or Phragmites. Research on habitat use by clapper rails in the lower Colorado River valley has indicated the Yuma clapper rail "regularly reached greatest densities in some cattail-bulrush marshes of only *moderate foliage density*."[50] The researchers concluded "[o]ur data demonstrate that Clapper Rails occur in vegetation other than cattail. This vegetation included dense reed and *sparse* cattail-bulrush stands where crayfish may have been fairly abundant."[51]

1-363 cont.

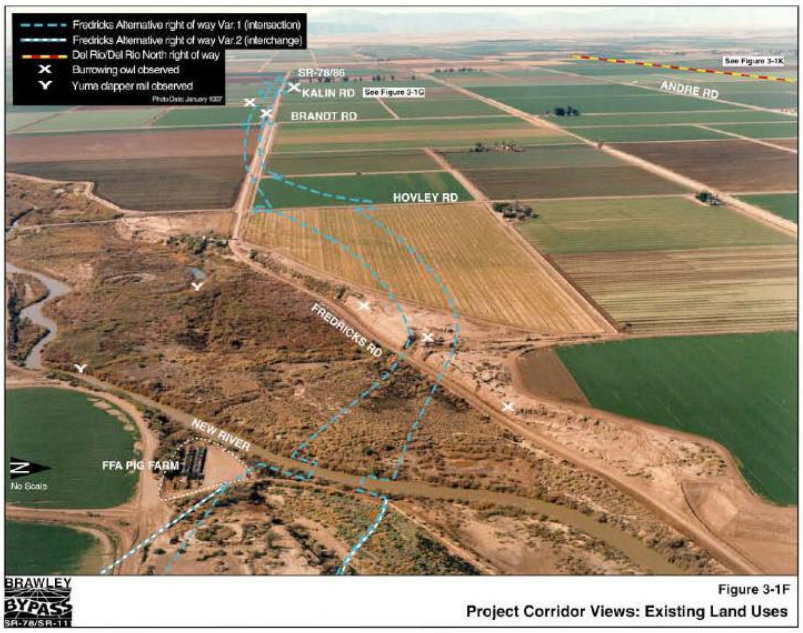

Figure 5. Yuma clapper rails ("Y") detected south of Project site during surveys for the Brawley Bypass Project.

2. Mountain Plover

1-364

The mountain plover is proposed for listing as threatened under the federal Endangered Species Act. It is also a federal and state listed species of special concern. The DEIR does not provide a valid assessment of Project impacts on the mountain

[50] Anderson BW, RD Ohmart. 1985. Habitat Use by Clapper Rails in the Lower Colorado River Valley. Condor 87:116-126. [emphasis added].
[51] *Id.*

15

Letter 1 Continued

plover. The special-status listing associated with mountain plovers in California applies to birds on their wintering grounds. The DEIR's impact assessment, however, addresses impacts to mountain plovers that may be nesting in trees adjacent to the Project site.[52] Mountain plovers do not nest in California, nor do they nest in trees.[53]

1-364 cont.

The DEIR indicates there are no recorded occurrences of mountain plovers within five miles of the Project site.[54] This statement is not accurate. Mountain plovers have been documented near Brawley, and they were documented approximately one mile from the Project site during the surveys conducted for the Brawley Bypass Project.[55]

1-365

The DEIR further indicates the Project site provides only marginal foraging habitat for the mountain plover.[56] This statement is unsupported. The cultivated landscape of the Imperial Valley supports approximately half of the global population of mountain plovers.[57] Within the Imperial Valley, mountain plovers most frequently occupy agricultural lands similar to those on the Project site (e.g., alfalfa and Bermudagrass).[58] As a result, the Project site provides excellent wintering habitat that research indicates may be critical to wintering mountain plovers.[59]

1-366

3. White-faced Ibis

The white-faced ibis is a CDFG Watch List species. The DEIR states this species was observed in "nearby areas."[60] Nevertheless, it concludes the Project site does not provide nesting habitat for this species, and that the disturbed agricultural setting provides only marginal foraging habitat.[61]

1-367

The DEIR does not provide the scientific basis to conclude the Project site provides only marginal foraging habitat for the white-faced ibis. White-faced ibises prefer to forage in irrigated or flooded pastures and croplands (among other wet habitat types).[62] Furthermore, the DEIR indicates the species was observed in nearby areas—

[52] DEIR, p. 4.3-33.
[53] California Wildlife Habitat Relationships System. 2005. California Department of Fish and Game. California Interagency Wildlife Task Group. CWHR version 8.1 personal computer program. Sacramento (CA).
[54] DEIR, Table 4.4-2.
[55] Shuford WD, T Gardali, editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento. *See also* Caltrans and FHWA. 2001. State Route 78/111 Brawley Bypass. Draft Environmental Impact Report/Statement. Figure 3-1E.
[56] DEIR, p. 4.4-21.
[57] Wunder MB, FL Knopf. 2003. The Imperial Valley of California is critical to wintering Mountain Plovers. J. Field Ornithol. 74:74-80.
[58] *Id.*
[59] *Id.*
[60] DEIR, Table 4.4-2.
[61] *Id.*
[62] California Wildlife Habitat Relationships System. 2005. California Department of Fish and Game. California Interagency Wildlife Task Group. CWHR version 8.1 personal computer program. Sacramento (CA).

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Letter 1 Continued

which are no different than the habitats that will be impacted by the Project. Based on the information provided in the DEIR, habitat for the white-faced ibis on the Project site should be considered *occupied.*

1-367 cont.

4. Ferruginous Hawk

The ferruginous hawk is a federal and state listed species of special concern. The DEIR concludes there is no nesting habitat for ferruginous hawks on the Project site.[63] This conclusion appears to have been used to exclude the ferruginous hawk from impact analysis. The DEIR's conclusion on nesting habitat is irrelevant because ferruginous hawks do not nest in California. The special-status listing for ferruginous hawks is applied to birds on their *wintering* grounds.

1-368

The DEIR indicates ferruginous hawks are unlikely to forage within the Project site due to the level of human disturbance in the area.[64] This conclusion is unsupported. The ferruginous hawk is a fairly common winter resident of grasslands and agricultural areas in southwestern California, and it is known to use habitat in the Project region.[65]

5. Burrowing Owl

The burrowing owl is a federal and state listed species of special concern. Approximately 71 percent of the burrowing owls in California occur in Imperial Valley, primarily in agricultural areas.[66] As a result, Imperial Valley historically has been considered a "stronghold" for California's burrowing owl population. However, preliminary data from the Imperial Irrigation District (IID) suggests the Imperial Valley population may now be declining.

1-369

According to the DEIR, the Project site contains "marginally suitable nesting habitat" along the canal/ditch banks and dirt roadways.[67] This is a *gross mischaracterization* of the Project site's value as burrowing owl habitat. In Imperial Valley, burrowing owls nest primarily along the edges of canals and ditches that border agricultural fields.[68] In these locations, owls occur at a density approximately eight times that of other locations within the state.[69] Burrowing owls associated with agricultural

1-370

[63] DEIR, Table 4.4-2.
[64] *Id.*
[65] California Wildlife Habitat Relationships System. 2005. California Department of Fish and Game. California Interagency Wildlife Task Group. CWHR version 8.1 personal computer program. Sacramento (CA). *See also* DEIR, Table 4.4-2.
[66] Klute DS, LW Ayers, MT Green, WH Howe, SL Jones, JA Shaffer, SR Sheffield, TS Zimmerman. 2003. Status assessment and conservation plan for the western Burrowing Owl in the United States. Bio Tech Pub FWS/BTP-R6001-2003. Washington: US Fish and Wildlife.
[67] DEIR, Table 4.4-2.
[68] Rosenburg, DK and KL Haley. 2004. The ecology of burrowing owls in the agroecosystem of the Imperial Valley, California. Studies in Avian Biology No. 27: 120-135.
[69] Klute DS, LW Ayers, MT Green, WH Howe, SL Jones, JA Shaffer, SR Sheffield, TS Zimmerman. 2003. Status assessment and conservation plan for the western Burrowing Owl in the United States. Bio Tech Pub FWS/BTP-R6001-2003. Washington: US Fish and Wildlife.

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Letter 1 Continued

fields in Imperial Valley have some of the highest survival and reproductive rates.[70] As a result, the Project site should be considered excellent and occupied burrowing owl habitat. This statement is supported by the numerous owls detected during the Project reconnaissance surveys, and by the Brawley Bypass DEIR, which concluded all berms, drainages, and canals within the project area were either occupied or presented potential burrow habitat.

1-370 cont.

The DEIR reports: "[n]o burrowing owls were observed within the eight pad sites, pipeline routes, and power plant site surveyed. In addition, no burrowing owls or burrows were found within field ditches near the sites and the Imperial Irrigation District (IID) right-of-way adjacent to the project sites within 250 feet (Barrett's Biological Survey's 2010)."[71] This conclusion is entirely inaccurate. Barrett's Biological Surveys documented 11 burrowing owls and 13 active owl burrows within the small fraction of the Project site that was surveyed, and these numbers likely underestimated the abundance of owls given the failure to follow survey protocol.[72]

1-371

The County of Imperial General Plan requires burrowing owl surveys that adhere to CDFG protocol prior to project approval.[73] The surveys conducted for the Project did not adhere to CDFG protocol.[74] The CDFG protocol instructs that:[75]

1) Surveys should be conducted by walking suitable habitat on the *entire* project site and (where possible) in areas within 150 meters (approximately 500 ft.) of the project impact zone -- the surveys conducted by Barrett's Biological Surveys covered only a fraction of the Project site and impact zone;

2) Surveys should be conducted from two hours before sunset to one hour after, or from one hour before to two hours after sunrise -- the BRA fails to establish whether surveys were conducted during these timeframes;

1-372

3) Pedestrian survey transects should be spaced to allow 100 percent visual coverage of the ground surface, and the distance between transect center lines should be no more than 30 meters (approximately 100 ft.). -- the BRA fails to establish whether surveyors adhered to this requirement;

4) A breeding season survey and census is required if owls or burrows are detected on the site. The survey and census requires four site visits on four separate days. During each site visit, biologists are supposed to observe potential (or confirmed) owl burrows from fixed observation points --

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[70] *Id.*
[71] DEIR, p. 4.4-21.
[72] DEIR, Appendix E, Biological Resources Assessment.
[73] DEIR p 4.4-29.
[74] The DEIR indicates surveys should conform to USFWS and CDFG protocols. However, to the best of my knowledge the USFWS has not issued a survey protocol for the burrowing owl.
[75] CDFG has adopted the survey protocol initially prepared by the California Burrowing Owl Consortium. *See* The California Burrowing Owl Consortium. 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. Available online at: http://www.dfg.ca.gov/wildlife/species/docs/boconsortium.pdf.

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Letter 1 Continued

Barrett's Biological Surveys detected owls and burrows on the site, but never conducted the breeding season survey and census; and

5) A report for the project should be prepared and submitted to the CDFG. The survey protocol outlines the content required of reports -- the BRA lacks much of this required content. In addition, the DEIR does not indicate whether a burrowing owl survey report was ever submitted to CDFG.

1-372 cont.

CDFG guidelines relay the importance of adhering to the survey protocol in order to provide an adequate impact assessment and develop effective mitigation. In particular, the guidelines stress that deferring surveys until ground disturbance is imminent leaves insufficient time to evaluate impacts to owls and their habitat.

1-373

The surveys conducted by the Applicant's consultant deviated considerably from the survey protocol required by Imperial County's General Plan. Additionally, much of the Project site and surrounding buffer was never surveyed. As a result, the DEIR has not provided an adequate assessment of Project impacts to burrowing owls, and the Project's impacts on the burrowing owl are understated.

1-374

6. Sonoran Desert Toad

The DEIR did not assess Project impacts on the Sonoran desert toad. The DEIR's rationale for omitting impact analysis appears to be based on the premise that the Project site lacks suitable habitat for the species. The Sonoran desert toad is associated with canals and irrigation ditches, which are present in the Project area.[76] As a result, an analysis of Project impacts to this species must be included in the DEIR.

1-375

7. Desert Pupfish

The DEIR did not provide an analysis of the Project's potential impacts on the desert pupfish, a federal and state listed endangered species. According to the DEIR, the desert pupfish occurs in "a majority of the irrigation drains leading into the sea," and that it is dependent on these drains as habitat.[77] The DEIR must be revised to address whether the Project will impact the hydrologic conditions within these drains (e.g., through water diversion).

1-376

8. Special Status Plants

The DEIR provides inconsistent information on the potential for special-status plant species to be impacted by the Project. It first concludes the developed and maintained nature of the Project site eliminates the potential for special-status plant species.[78] However, it later indicates the Project could result in the direct and indirect loss of special-status plant species.[79] Portions of the Project area contain native (or

1-377

[76] *Id.*
[77] DEIR, p. 4.4-2 and Table 4.4-2.
[78] *Id.*, p. 4.4-5.
[79] *Id.*, p. 4.4-31.

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Letter 1 Continued

naturalized) vegetation communities, which have the potential to contain special-status plant species (*see* Figures 2 and 3). Protocol surveys are required to establish whether any special-status plants occur in the Project area. **1-377 cont.**

D. Cumulative Impacts on the Salton Sea

The Salton Sea ecosystem is an extremely valuable resource for resident and migratory birds, including a large number of threatened, endangered, and species of concern. Until recently, the Salton Sea also supported a robust marine sport fishery. Increasing salinity and declining water quality have eliminated the marine fish species, and now threaten the Salton Sea's ability to support birds and other wildlife. **1-378**

Currently, the salinity level of the Salton Sea is increasing by approximately 1% per year. Because the Salton Sea is a closed basin, water quality and salinity level in the Sea are heavily influenced by its primary inflows: agricultural and municipal wastewater. The reduction of these inflows in the future is a primary threat to the Salton Sea ecosystem.

Based on the DEIR's analysis, the Project would contribute to a 3 percent reduction of the Sea's current total inflows, which would cause the surface elevation of the Salton Sea to drop by 1.2 inches.[80] The DEIR indicates a drop in surface elevation of 1.2 inches is negligible given the seasonal fluctuation in surface elevation.[81] As a result, the DEIR concludes the Project would not result in significant impacts on "habitat areas."[82] The DEIR's conclusion is unsupported because the DEIR provides no analysis of the potential impacts to habitats as a result of changes to surface elevation. **1-379**

A more rapidly declining Sea level has the potential to result in the loss of marsh and riparian vegetation, especially in the southern portion of the Sea where there are large concentrations of waterbirds. Any loss of marsh and riparian habitat resulting from reduced flow could adversely impact fish and wildlife using that habitat. For example, increased salinity and lower surface elevation threaten the connectivity of desert pupfish habitat and the viability of the species. In addition to habitats within the Sea, the declining Sea level could impact wetland and riparian vegetation along the drains, rivers and streams entering the Sea, as well as the estuarine habitats where fresh waters meet the Sea. **1-380**

The Project's diversion of water will contribute to increased selenium concentrations in the New River and Salton Sea. Selenium accumulation in rail habitat has been identified as a potentially significant new threat to the recovery of the Yuma clapper rail.

The DEIR fails to address these, or any of the numerous other changes that may occur to Salton Sea habitats as a result of the Project. **1-381**

[80] *Id.*, p. 4.8-19.
[81] *Id.*
[82] *Id.*

20

Letter 1 Continued

E. Impacts from Well Drilling Activities Were Excluded from Impact Analysis

The DEIR lacks a discussion of impacts of the proposed well drilling activities. These impacts are potentially significant and should have been included in the County's analysis. Absent adequate mitigation, birds and terrestrial wildlife will be attracted to the ponded water in the drilling mud sumps during construction of the wells. In particular, bat foraging opportunities will increase from the construction of well drilling mud sumps as well as through lighted drill rigs. Additionally, the potential for bioaccumulation of toxins via the food chain from insects colonizing the ponded water exists and should be addressed by the County prior to Project approval.[83] 1-382

F. Other Indirect Impacts

Foreseeable impacts affecting biological resources outside of the immediate Project include noise, fires, increased nighttime lighting, and other indirect impacts that would be potentially significant to sensitive biological resources.[84] The DEIR provides almost no data to assess these impacts. Furthermore, the Project noise levels provided in the DEIR are not consistent with values provided for other Ormat binary cycle projects.[85] 1-383

V. The DEIR Fails to Establish Adequate Mitigation Measures

A. Mitigation for Avian Collision and Electrocution Hazards

The DEIR lacks any measures to minimize and mitigate potentially significant impacts from the Project's transmission line and communication tower. The utility industry (in conjunction with the USFWS) has developed Avian Protection Plan Guidelines for new transmission facilities.[86] The Project Applicant should be required to adhere to these guidelines and develop an avian monitoring and remedial action plan for the Project's transmission line and communication tower. 1-384

B. Mitigation for Impacts to Riparian Habitat

The DEIR proposes habitat compensation at a "1:1 impact preservation ratio" to mitigate potentially significant Project impacts to riparian habitat.[87] Preservation at 1:1 results in a net loss of habitat. To prevent a net loss, the DEIR must incorporate a higher compensation ratio, and/or incorporate habitat restoration or creation. Given the limited riparian habitat in the Imperial Valley, and the habitat's function as a wildlife corridor 1-385

[83] Calpine, Telephone Flat Geothermal Development Project, Final Environmental Impact Statement/Final Environmental Impact Report, February 1999, pp. 3.5-54 and 3.5-56.
[84] DEIR, p. 4.4-33. *See also* DEIR, p. 5.0-9.
[85] *See* DEIR for Mammoth Pacific Project. Available at: http://www.monocounty.ca.gov/departments.html.
[86] APLIC and USFWS. 2005. Avian Protection Plan (APP) Guidelines. Available at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/APP/AVIAN%20PROTECTION%20PLAN%20FINAL%204%2019%2005.pdf.
[87] DEIR, p. 4.4-37.

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Letter 1 Continued

within a major flyway, the proposed 1:1 compensation ratio is not commensurate with Project impacts. To mitigate for impacts to riparian habitat (i.e., tamarisk woodland) along the New River, the Brawley Bypass Project provided compensation at 3:1 (1:1 enhancement and 2:1 creation). **1-385 cont.**

C. Mitigation for Impacts to Wetlands and Jurisdictional Waters

The DEIR's proposed mitigation for potentially significant Project impacts to wetlands and jurisdictional waters includes: 1) applying for a Section 404 permit from the USACE, if required; 2) obtaining a Section 401 water quality waiver of certification from the Regional Water Quality Control Board (RWQCB); and, 3) implementation of a mitigation plan.[88] The mitigation plan will identify impacts on all jurisdictional features and mitigation measures that will be implemented to achieve "no net loss."[89] **1-386**

I am unable to evaluate whether the proposed mitigation would be adequate to reduce Project impacts to wetlands to a less than significant level because the Project description lacks information on Project features, and because the Applicant never conducted a wetland delineation (draft or formal). However, I have the following initial comment related to the proposed mitigation.

For decision makers to be able to evaluate the likely effectiveness of the proposed mitigation, the DEIR needs to define:[90] **1-387**

a. the proposed compensation ratio;
b. the functions and values gained at the mitigation site;
c. the process for selecting potential mitigation sites;
d. the likelihood of success, and compatibility with future land use;
e. the work plan and schedule for implementation;
f. wetland success criteria and performance measures;
g. site protection and maintenance activities; and
h. a monitoring and adaptive management plan.

D. Mitigation for Project Impacts to Endangered, Threatened, and Other Listed Species

The DEIR concludes that implementation of the proposed Project could result in direct and indirect loss of habitat and individuals of endangered, threatened, rare, proposed, and candidate status, as well as plant species identified by the California Native Plant Society with a rating of List 1A or 1B (i.e., rare, threatened, or endangered **1-388**

[88] *Id.*, p. 4.4-39.
[89] *Id.*, p. 4.4-37.
[90] USACE. 2003 Nov 7. Memorandum to the Field: Model Compensatory Plan Checklist for Aquatic Resource Impacts Under the Corps Regulatory Program Pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act.

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Letter 1 Continued

plants).[91] To mitigate this potentially significant impact, the DEIR proposes to have a biologist conduct protocol-level surveys for the southwestern willow flycatcher in all suitable habitat within the proposed Project site.[92] If southwestern willow flycatchers are detected at anytime during surveys, construction activities associated with the proposed Project will be restricted during the breeding season (May 15 through August 15) in the areas within a 0.5-mile radius of the New River.[93]

1-388 cont.

The DEIR's proposed mitigation does not address any of the other listed species that may be impacted by the Project. These include the Yuma clapper rail, California black rail, mountain plover, Gila woodpecker, and least Bell's vireo. As a result, the Project may result in a significant, unmitigated impact to one or more of these species.

1-389

In addition, I have the following comments pertaining to the mitigation measures proposed for potentially significant impacts to the southwestern willow flycatcher:

1) The DEIR needs to identify where protocol-level surveys will occur.
2) The DEIR omits any mitigation for direct or indirect loss of habitat, which was identified as a potentially significant impact.

1-390

E. Mitigation for Impacts to Species of Concern, California Fully Protected, and Other Non-Listed Special-Status Species

The DEIR indicates that implementation of the proposed Project could result in direct and indirect loss of habitat and individuals of animal and plant species of concern.[94] However, it concludes pre-construction surveys, a Worker Environmental Awareness Program, and best management practices (BMPs) would reduce potentially significant impacts to a level that is considered less than significant.[95] The DEIR's conclusion is unjustified for the following reasons:

1) The proposed mitigation measures do not address the loss of habitat.
2) The proposed measures do not require surveys or other mitigation for impacts to special-status plants.
3) The DEIR does not provide any mitigation for impacts from Project noise.[96]
4) Many bird nests in trees are not detectable from the ground. As a result, pre-construction surveys are not a reliable mitigation measure for impacts to tree-nesting birds.[97]

1-391

Because the proposed mitigation measures do not address many of the potentially significant impacts identified in the DEIR (i.e., loss of habitat, impacts to special-status

1-392

[91] DEIR, p. 4.4-31.
[92] *Id.*, p. 4.4-32.
[93] *Id.*
[94] *Id.*, p. 4.4-33.
[95] *Id. See also* DEIR, p. 4.4-35.
[96] *Id.*
[97] *Id.*

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Letter 1 Continued

plants, impacts from noise), the Project will result in an unmitigated, potentially significant impact to one or more special-status species. **1-392 cont.**

F. Mitigation for Project Impacts to the Burrowing Owl

The DEIR proposes several measures to mitigate potentially significant Project impacts to burrowing owl populations and habitat. According to the DEIR, "[t]he following [burrowing owl] mitigation measures apply the recommendations as described in the CDFG staff report (1995) and consideration of the site-specific dynamics associated with the burrowing owl population in the Imperial Valley."[98] The DEIR's statement is misleading. First, the mitigation measures proposed in the DEIR incorporate *some*—but not *all*—of the recommendations provided in the CDFG staff report. Second, CDFG currently promotes the mitigation measures recommended by the California Burrowing Owl Consortium, not the ones provided in CDFG's 1995 staff report. Third, the DEIR provides nothing to support the claim that it has incorporated mitigation measures that consider the site-specific dynamics associated with the burrowing owl population in the Imperial Valley (despite the availability of numerous scientific publications on owls in the Imperial Valley). To the contrary, the mitigation measures proposed in the DEIR incorporate far fewer considerations than most other projects elsewhere in the State. **1-393**

The DEIR concludes the Project would have a potentially significant impact on burrowing owls because it "could result in the loss of populations or essential habitat." The measures proposed by the DEIR do not mitigate the loss of populations or essential habitat. **1-394**

The DEIR requires the preservation of foraging habitat when the destruction of occupied burrows is unavoidable. This mitigation measure lacks assuredness. First, it fails to require an appropriate mechanism for locating burrows and determining whether the burrows are occupied. Second, it omits mitigation for owls that abandon their territories due to Project disturbance, or degradation of habitat.[99] Finally, the DEIR fails to propose an effective and enforceable mitigation scheme. To ensure that impacts are mitigated, the DEIR must identify and define: a) suitable habitat; b) how many acres will be preserved; c) the legal mechanism (e.g., conservation easement) that will ensure preservation in perpetuity; d) success criteria for the mitigation program; and e) a mitigation management and monitoring program. Absent adequate mitigation, the Project will result in significant impacts to burrowing owls. **1-395**

G. Mitigation for Cumulative Impacts

The DEIR concludes the Project would result in direct mortality, habitat loss, and deterioration of habitat suitability for special-status species.[100] Because the proposed **1-396**

[98] DEIR p. 4.4-36.
[99] *See p. 6 of* The California Burrowing Owl Consortium. 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. Available online at: http://www.dfg.ca.gov/wildlife/species/docs/boconsortium.pdf.
[100] DEIR, p. 5.0-9.

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Letter 1 Continued

Project may contribute incrementally to these effects, the DEIR considers the impacts to be cumulatively considerable.[101] However, the DEIR concludes the cumulative impacts related to biological resources would be reduced to less than cumulatively considerable through implementation of the proposed mitigation measures.[102] As discussed above, the mitigation measures proposed in the DEIR (i.e., surveys and impact minimization measures) do not address the impacts (i.e., direct mortality, habitat loss, and deterioration of habitat suitability). **1-396 cont.**

VI. Conclusion

In conclusion, it is my professional opinion that the environmental effects of the proposed Project have not been thoroughly analyzed. The lack of field survey data prevents an informed impact assessment and the formulation of appropriate mitigation. The DEIR attempts to mask this flaw by requiring future surveys under the guise of mitigation. Baseline surveys to establish Project impacts are not "mitigation"; they are an essential component of the environmental review process. **1-397**

The proposed Project may impact wetlands under the jurisdiction of the USACE and RWQCB. However, the DEIR defers establishment of wetland impacts and mitigation until after Project approval. This does not constitute reliable mitigation. **1-398**

The Project will have a potentially significant, unmitigated impact on numerous special-status species and their habitat. This includes several species that are protected by the federal and State Endangered Species Act. The DEIR proposes surveys to mitigate potentially significant impacts to these species and their habitat. Surveys do not mitigate habitat loss or satisfy CESA's requirement for full mitigation. **1-399**

Because the County did not require protocol surveys, or *any* surveys for many biological resources, the DEIR does not provide the information needed to evaluate Project impacts and the effectiveness of proposed mitigation. As a result, it is my professional opinion that environmental impacts of the Project have not been thoroughly analyzed, and that the Project may result in several unmitigated, significant impacts to sensitive biological resources. **1-400**

Sincerely,

Scott Cashen, M.S.
Senior Biologist

[101] *Id.*
[102] *Id.*

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Letter 1 Continued

Scott Cashen, M.S.
Senior Biologist / Forest Ecologist
3264 Hudson Avenue, Walnut Creek, CA 94597. (925) 256-9185. scottcashen@gmail.com

In his 18 years in the profession, Scott Cashen has consulted on projects pertaining to wildlife and fisheries ecology, avian biology, wetland restoration, and forest management. Because of his varied experience, Mr. Cashen is a versatile scientist capable of addressing numerous disciplines of natural resource management.

Mr. Cashen's employment experience includes work as an expert witness, wildlife biologist, consulting forester, grant writer, and instructor of Wildlife Management. He has worked throughout California, and he is knowledgeable of the different terrestrial and aquatic species and habitats present in the state.

PROFESSIONAL EXPERIENCE

Litigation Support / Expert Witness

Mr. Cashen serves as the biological resources expert for the Sierra Club, Mount Diablo Audubon Society, Save Mount Diablo, and the law firm of Adams Broadwell Joseph & Cardozo. He is responsible for reviewing CEQA/NEPA documents, assessing biological resource issues, preparing written comments, providing testimony, coordinating with other experts, and interfacing with public resource agencies.

REPRESENTATIVE EXPERIENCE

- Ivanpah Solar Electric Generating System: Ivanpah, CA (3,000-acre solar facility) – Review of CEQA and NEPA documents and preparation of written documents. Field study on desert tortoises. Preparation of opening and rebuttal testimony. Oral testimony at evidentiary hearings.
- Calico Solar Project: San Bernardino County, CA (8,230-acre solar facility) – Review of CEQA and NEPA documents and compliance. Preparation of opening and rebuttal testimony. Oral testimony at evidentiary hearings.
- Imperial Valley Solar Project: Imperial County, CA (6,500-acre solar facility) – Review of CEQA and NEPA documents and compliance. Preparation of opening and rebuttal testimony. Oral testimony at evidentiary hearings.
- Genesis Solar Energy Project: Riverside County, CA (4,640-acre solar facility) – Review of CEQA and NEPA documents and compliance. Preparation of opening and rebuttal testimony. Oral testimony at evidentiary hearings.
- Blythe Solar Power Project: Riverside County, CA (9,400-acre solar facility) – Review of CEQA and NEPA documents and compliance. Preparation of opening and rebuttal testimony.

Letter 1 Continued

- Victorville 2 Solar-Gas Hybrid Power Project: Victorville, CA (338-acre natural gas and solar energy facility) – Review of CEQA documents and preparation of written materials.
- Avenal Energy Power Plant: Avenal, CA (148-acre natural gas facility) – Review of CEQA documents and preparation of written materials.
- Carrizo Energy Solar Farm: San Luis Obispo County, CA (640-acre solar energy facility) – Review of CEQA documents. Preparation of written comments on Preliminary Staff Assessment, wildlife corridor model, and other environmental documents.
- Beacon Solar Energy Project: California City, CA (2,012-acre solar facility) – Review of CEQA and NEPA documents and compliance. Preparation of opening and rebuttal testimony.
- Abengoa Mojave Solar Project: San Bernardino County, CA (1,765-acre solar facility) Review of CEQA documents. Preparation of data requests.
- San Joaquin Solar I & II: Fresno County, CA (640-acre hybrid power plant) – Review of CEQA equivalent documents and preparation of data requests.
- Fink Road Solar Farm: Stanislaus County, CA (1,647-acre solar facility) – Review of CEQA documents and preparation of comment letter regarding proposed Mitigated Negative Declaration.
- Western GeoPower Power Plant and Steamfield: Geyserville, CA (887-acre geothermal facility) – Review of CEQA documents and preparation of comment letter.
- Live Oak Master Plan: Hanford, CA (390-acre housing development) – Review of CEQA documents and preparation of comment letter.
- Rollingwood: Vallejo, CA (214-unit housing development) – Review of CEQA documents and preparation of comment letter.
- Columbus Salame: Fairfield, CA (430,000 ft^2 food processing plant) – Review of CEQA documents and preparation of comment letter.
- Concord Naval Weapons Station: Concord, CA (5,028-acre redevelopment) – Review of CEQA documents, preparation of comment letters, and provision of public testimony at County hearings.
- Chula Vista Bayfront Master Plan: Chula Vista, CA (556-acre development) – Review of CEQA documents and preparation of comment letter.
- Alves Ranch: Pittsburgh, CA (320-acre housing development) – Review of CEQA documents.
- Roddy Ranch: Antioch, CA (640-acre housing and hotel development) – Review of CEQA documents and preparation of comment letter.
- Aviano: Antioch, CA (320-acre housing development) – Review of CEQA documents.

Cashen, Curriculum Vitae 2

Letter 1 Continued

- Sprint-Nextel Tower: Walnut Creek, CA (communications tower in open space preserve) - Review of project documents and preparation of comment letter.

Project Management

Mr. Cashen has managed several large-scale and high profile natural resources investigations. High profile projects involving multiple resources often require consideration of differing viewpoints on how resources should be managed, and they are usually subject to intense scrutiny. Mr. Cashen is accustomed to these challenges, and he is experienced in facilitating the collaborative process to meet project objectives. In addition, the perception of high profile projects can be easily undermined if inexcusable mistakes are made. To prevent this, Mr. Cashen bases his work on solid scientific principles and proven sampling designs. He also solicits input from all project stakeholders, and provides project stakeholders with regular feedback on project progress. Mr. Cashen's educational and project background in several different natural resource disciplines enable him to consult on multiple natural resources simultaneously and address the many facets of contemporary land management in a cost-effective manner.

REPRESENTATIVE EXPERIENCE

- Forest health improvement projects – Biological Resources *(CDF: San Diego and Riverside Counties)*
- San Diego Bark Beetle Tree Removal Project – Biological Resources, Forestry, and Cultural Resources *(San Diego Gas & Electric: San Diego Co.)*
- San Diego Bark Beetle Tree Removal Project - Forestry *(San Diego County/NRCS)*
- Mather Lake Resource Management Study and Plan – Biological Resources, Hydrology, Soils, Recreation, Public Access, CEQA compliance, Historic Use *(Sacramento County: Sacramento)*
- "KV" Spotted Owl and Northern Goshawk Inventory *(USFS: Plumas NF)*
- Amphibian Inventory Project *(USFS: Plumas NF)*
- San Mateo Creek Steelhead Restoration Project – TES species, Habitat Mapping, Hydrology, Invasive Species Eradication, Statistical Analysis *(Trout Unlimited and CA Coastal Conservancy: Orange County)*
- Hillslope Monitoring Project – Forest Practice Research *(CDF: throughout California)*
- Placer County Vernal Pool Study – Plant and Animal Inventory, Statistical Analysis *(Placer County: throughout Placer County)*
- Weidemann Ranch Mitigation Project – Mitigation Monitoring and Environmental Compliance *(Toll Brothers, Inc.: San Ramon)*

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Letter 1 Continued

- Delta Meadows State Park Special-status Species Inventory – Plant and Animal Species Inventory, Special-status Species *(CA State Parks: Locke)*
- Ion Communities Biological Resource Assessments – Biological Resource Assessments *(Ion Communities: Riverside and San Bernardino Counties)*
- Del Rio Hills Biological Resource Assessment – Biological Resource Assessments *(The Wyro Company: Rio Vista)*

Biological Resources

Mr. Cashen has a diverse background in biology. His experience includes studies of a variety of fish and wildlife species, and work in many of California's ecosystems. Mr. Cashen's specialties include conducting comprehensive biological resource assessments, habitat restoration, species inventories, and scientific investigations. Mr. Cashen has led investigations on several special-status species, including ones focusing on the foothill yellow-legged frog, mountain yellow-legged frog, steelhead, burrowing owl, California spotted owl, northern goshawk, willow flycatcher, and forest carnivores. Mr. Cashen was responsible for the special-status species inventory of Delta Meadows State Park, and for conducting a research study for Placer County's Natural Community Conservation Plan.

REPRESENTATIVE EXPERIENCE

Avian

- Study design and Lead Investigator - Delta Meadows State Park Special-status Species Inventory *(CA State Parks: Locke)*
- Study design and lead bird surveyor - Placer County Vernal Pool Study *(Placer County: throughout Placer County)*
- Surveyor - Willow flycatcher habitat mapping *(USFS: Plumas NF)*
- Independent surveyor - Tolay Creek, Cullinan Ranch, and Guadacanal Village restoration projects *(Ducks Unlimited/USGS: San Pablo Bay)*
- Study design and Lead Investigator - Bird use of restored wetlands research *(Pennsylvania Game Commission: throughout Pennsylvania)*
- Study design and surveyor - Baseline inventory of bird species at a 400-acre site in Napa County *(HCV Associates: Napa)*
- Surveyor - Baseline inventory of bird abundance following diesel spill *(LFR Levine-Fricke: Suisun Bay)*
- Study design and lead bird surveyor - Green Valley Creek Riparian Restoration Site *(City of Fairfield: Fairfield, CA)*
- Surveyor - Burrowing owl relocation and monitoring of artificial habitat *(US Navy: Dixon, CA)*

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Letter 1 Continued

- Surveyor - Pre-construction raptor and burrowing owl surveys *(various clients and locations)*
- Surveyor - Backcountry bird inventory *(National Park Service: Eagle, Alaska)*
- Lead surveyor - Tidal salt marsh bird surveys (*Point Reyes Bird Observatory: throughout Bay Area*)

Amphibian

- Crew Leader - Red-legged frog, foothill yellow-legged frog, and mountain yellow-legged frog surveys *(USFS: Plumas NF)*
- Surveyor - Foothill yellow-legged frog surveys *(PG&E: North Fork Feather River)*
- Surveyor - Mountain yellow-legged frog surveys *(El Dorado Irrigation District: Desolation Wilderness)*
- Crew Leader - Bullfrog eradication *(Trout Unlimited: Cleveland NF)*

Fish and Aquatic Resources

- Surveyor - Hardhead minnow and other fish surveys *(USFS: Plumas NF)*
- Surveyor - Weber Creek aquatic habitat mapping (*El Dorado Irrigation District: Placerville, CA*)
- Surveyor - Green Valley Creek aquatic habitat mapping *(City of Fairfield: Fairfield, CA)*
- GPS Specialist - Salmonid spawning habitat mapping *(CDFG: Sacramento River)*
- Surveyor - Fish composition and abundance study (*PG&E: Upper North Fork Feather River and Lake Almanor*)
- Crew Leader - Surveys of steelhead abundance and habitat use *(CA Coastal Conservancy: Gualala River estuary)*
- Crew Leader - Exotic species identification and eradication *(Trout Unlimited: Cleveland NF)*

Mammals

- Principal Investigator – Peninsular bighorn sheep resource use and behavior study (*California State Parks: Freeman Properties*)
- Scientific Advisor – Red Panda survey and monitoring methods. Study on red panda occupancy and abundance in eastern Nepal *(The Red Panda Network: CA and Nepal)*
- Surveyor - Forest carnivore surveys *(University of CA: Tahoe NF)*

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Letter 1 Continued

- Surveyor - Relocation and monitoring of salt marsh harvest mice and other small mammals *(US Navy: Skagg's Island, CA)*

Natural Resource Investigations / Multiple Species Studies

- Scientific Review Team Member – Member of the science review team assessing the effectiveness of the US Forest Service's implementation of the Herger-Feinstein Quincy Library Group Act.
- Lead Consultant - Baseline biological resource assessments and habitat mapping for CDF management units *(CDF: San Diego, San Bernardino, and Riverside Counties)*
- Biological Resources Expert – Peer review of CEQA/NEPA documents (*Adams Broadwell Joseph & Cardoza: California)*
- Lead Consultant - Pre- and post harvest biological resource assessments of tree removal sites *(SDG&E: San Diego County)*
- Crew Leader - T&E species habitat evaluation for BA in support of a steelhead restoration plan *(Trout Unlimited: Cleveland NF)*
- Lead Investigator - Resource Management Study and Plan for Mather Lake Regional Park *(County of Sacramento: Sacramento, CA)*
- Lead Investigator - Wrote Biological Resources Assessment for 1,070-acre Alfaro Ranch property *(Yuba County, CA)*
- Lead Investigator - Wildlife Strike Hazard Management Plan *(HCV Associates: Napa)*
- Lead Investigator - Del Rio Hills Biological Resource Assessment *(The Wyro Company: Rio Vista, CA)*
- Lead Investigator – Ion Communities project sites (*Ion Communities: Riverside and San Bernardino Counties*)
- Surveyor – Tahoe Pilot Project: CWHR validation *(University of California: Tahoe NF)*

Forestry

Mr. Cashen has five years of experience working as a consulting forester on projects throughout California. During that time, Mr. Cashen has consulted with landowners and timber harvesters on best forest management practices; and he has worked on a variety of forestry tasks including selective tree marking, forest inventory, harvest layout, erosion control, and supervision of logging operations. Mr. Cashen's experience with many different natural resources enable him to provide a holistic approach to forest management, rather than just management of timber resources.

Letter 1 Continued

REPRESENTATIVE EXPERIENCE

- Lead Consultant - CDF fuels treatment projects *(CDF: San Diego, Riverside, and San Bernardino Counties)*
- Lead Consultant and supervisor of harvest activities – San Diego Gas and Electric Bark Beetle Tree Removal Project *(SDG&E: San Diego)*
- Crew Leader - Hillslope Monitoring Program *(CDF: throughout California)*
- Consulting Forester – Inventory and selective harvest projects *(various clients throughout California)*

EDUCATION / SPECIAL TRAINING

M.S. Wildlife and Fisheries Science, The Pennsylvania State University (1998)

B.S. Resource Management, The University of California-Berkeley (1992)

Forestry Field Program, Meadow Valley, California, Summer (1991)

PERMITS

U.S. Fish and Wildlife Service Section 10(a)(1)(A) Recovery Permit for the Peninsular bighorn sheep

CA Department of Fish and Game Scientific Collecting Permit

PROFESSIONAL ORGANIZATIONS / ASSOCIATIONS

The Wildlife Society

Society of American Foresters

Mt. Diablo Audubon Society

OTHER AFFILIATIONS

Scientific Advisor and Grant Writer – *The Red Panda Network*

Scientific Advisor – *Mt. Diablo Audubon Society*

Grant Writer – *American Conservation Experience*

Scientific Advisor and Land Committee Member – *Save Mt. Diablo*

TEACHING EXPERIENCE

Instructor: Wildlife Management, The Pennsylvania State University, 1998

Teaching Assistant: Ornithology, The Pennsylvania State University, 1996-1997

Letter 1 Continued

EXHIBIT C

Letter 1 Continued

Project No: 3105
April 15, 2011

Earth Consultants International

To: **Adams Broadwell Joseph & Cardozo**
601 Gateway Boulevard, Suite 1000
South San Francisco, California 94080-7037

Attention: **Ms. Elizabeth Klebaner**

Subject: **Review of the Draft Environmental Impact Report for the Proposed East Brawley Geothermal Development Project, north of and within the City of Brawley's Sphere of Influence, in Imperial County, California**

References: **PMC, 2011, Draft Environmental Impact Report for ORMAT, East Brawley Geothermal Development Project, Orni 19, LLC; EIR prepared for County of Imperial Department of Planning and Development Services, dated March 2011 (State Clearinghouse No 2010061054).**

Black Eagle Consulting, Inc., 2008, Geotechnical Investigation, East Brawley Geothermal Plant, Imperial County, California; Project No 0478-09-1; August 11, 2008; signed by Dal Hunter, PhD, CEG, and Jonathan W. Pease, PhD, PE No C-59611. (Included as Appendix H of EIR).

Ms. Klebaner,

At your request and per your authorization, we have reviewed the project description section, geology and soils section, and appendix H (Geotechnical Investigation) of the Draft Environmental Impact Repor (DEIR) for the East Brawley Geothermal Project ("Project"), referenced above, and prepared this review letter. Our findings are summarized below:

1. In California, all geologic documents and reports shall be prepared by a professional geologist or registered certified specialty geologist in good standing with the Board of Professional Engineers, Land Surveyors and Geologists (Business Professions Code §§ 7800 et seq.). Dr. Dal Hunter, who signed the geotechnical report, does not provide his engineering geology (EG) certification number or seal. The Board's list of licensees does not include a "Dal Hunter," although it does list a "Robert Dalton Hunter" with EG number 1411. It is unclear whether this is the same individual. **1-401**

2. As indicated in the DEIR, there are no Alquist-Priolo Earthquake Fault Zones mapped across or near the site (per California PRC Div. 2, Chapter 7.5, sec. 2621-2630; CGS, 2007), however, the site is located near several faults associated with the transitional zone between the southern San Andreas and the Imperial faults, in the area referred to as the Brawley Seismic Zone. Many active faults in California have not yet been zoned by the California Geological Survey under the Alquist-Priolo Earthquake Fault Zone Act; however, because they have the potential to rupture the ground surface, it is negligent to ignore these unzoned active and potentially active faults **1-402**

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Letter 1 Continued

during the geotechnical study of a site. Ground rupture is a potentially significant impact which must be addressed in the DEIR. **1-402 cont.**

This geologically young region is undergoing both crustal extension and strike-slip movement. As evidenced by the irregular and wide zone of faulting and fracturing that characterized the 1979 rupture of the southern Brawley fault zone, the region is underlain by a series of near-surface faults, any and all of which have the potential to rupture during an earthquake on the San Andreas or Imperial faults. The mud pots and geothermal vents that characterize the area are further evidence of the fractured nature of the underlying sediments. These geothermal features are generally oriented along both northwest- and northeast-trending lineaments that are often coincident with faults (Baldwin et al., 1997; Lynch and Hudnut, 2008). Some of the northwest-trending right-lateral faults that have been mapped or have been inferred through the area include, from northeast to southwest, the Wister or Sand Hills fault, the Calipatria fault, the Red Hill fault, the Brawley fault, the Fondo fault and the Westmorland fault (Lynch and Hudnut, 2008, summarizing faults identified by Schroeder, 1976, and Meidav and Furgerson, 1972). The proposed location of the East Brawley geothermal plant site is located within about 500 feet of the Brawley fault as shown by Lynch and Hudnut (2008; their Figure 5), and of the eastern margin of the Brawley seismic zone as shown by Meltzner et al. (2006; their Figure 1). Given the stepping nature of the Brawley fault zone as it extends north and west toward the San Andreas fault, the potential for surface fault rupture to occur in the Project area should not be dismissed so readily. Furthermore, a review of the boring logs and cone penetration test (CPT) records presented in the geotechnical report (Black Eagle Consultants, 2008) shows that there are some differences in the type and thickness of the sedimentary layers across the site. Whether these differences are the result of sedimentary facies changes, logging interpretations, or faulting through the site is unknown. This should be addressed further by the applicant or its geotechnical consultants. **1-403**

3. The liquefaction section of the DEIR indicates that liquefaction is not a hazard because groundwater is too deep for this phenomenon to occur. This is not correct; the geotechnical report was not quoted correctly in the DEIR. Black Eagle Consultant's (2008) study indicates that groundwater at the site of the geothermal plant is between about 10 and 17 feet below the ground surface (sites underlain by young sediments with groundwater within 50 feet of the ground surface are considered potentially susceptible to liquefaction). Their analysis indicates that liquefaction will not occur at the site of the geothermal plant because the underlying clay sediments are fine-grained (consisting of clay and silt), and have a high resistance to softening as a result of cyclic loading resulting from seismic ground shaking. These conclusions, however, do not apply to the entire Project area, as discussed further in Item 5 below. **1-404**

4. The Seismic Hazards Mapping Act sub-section of the Regulatory Framework section of the DEIR is incorrect. The California Geological Survey (not the U.S. Geological Survey) has not mapped the seismic hazards in Imperial County because the program was funded in southern California for the counties of Los Angeles, Ventura, and Orange only. This does not mean that there are no seismic hazards in Imperial County, only that they have not been identified and mapped by the California Geological Survey. The County's Safety Element recognizes that liquefaction is a common in the Valley (Salton Trough), but does not include a map showing where liquefaction is likely to occur. Nevertheless, given the shallow groundwater and young age of the sediments underlying this area, geotechnical studies should evaluate the potential for liquefaction to occur in the Project area. **1-405**

5. The geotechnical report used as the basis for the geology and soils section of the EIR addresses only the conditions at the site of the proposed geothermal plant, but does not address the **1-406**

Letter 1 Continued

geotechnical conditions of the entire Project area, which includes the well pads; production and injection wells; production fluid, injection fluid, gas, and water pipelines, and interconnection transmission line and associated power poles and river crossing. The near-surface soils underlying the Project area consist of young, unconsolidated sediments associated with the filling and waning of prehistoric Lake Cahuilla, the New and Alamo Rivers, and alluvial and delta sediments associated with prehistoric rivers that used to flow into Lake Cahuilla. The lake deposits are generally clay rich, whereas the deltaic and alluvial deposits consist of silt and sand. The clay-rich lake deposits underlying the near-surface in the geothermal plant site are considered not likely to liquefy (Black Eagle Consultants, 2008). The alluvial and deltaic deposits underlying other sections of the Project, including sections of the pipelines, and some of the well pads and wells, however, may be susceptible to liquefaction. Liquefaction-induced ground failure was reported just west of the geothermal plant site, along the New River, and within the Project area. This was acknowledged in the geotechnical report but was not addressed in the DEIR.

1-406 cont.

Liquefaction can be manifested as sand blows, tilting and cracking of the ground surface, or lateral spreading. Lateral spreading is the most damaging of these phenomena, as it is essentially a shallow landslide that can result in substantial lateral movement, shearing pipes, breaking roads, and causing substantial structural damage. Pipelines extending across the liquefiable zone could rupture, releasing brine (either production or injection fluid) onto the adjacent fields, irrigation canals, the rivers adjacent to these fields and canals, and ultimately into the Salton Sea. Mitigation measures or engineering solutions, such as the strengthening of the sections of pipelines extending across areas where liquefaction-induced spreading or slumping can occur, should be considered.

1-407

6. Subsidence as a result of groundwater extraction associated with the production of geothermal energy has been reported in the Imperial Valley (Massonnet et al., 1997). Subsidence is generally a regional hazard that occurs over a relatively large area, and as the geotechnical report states, subsidence is not likely to impact the structures in the geothermal plant area. However, subsidence has the potential to impact the pipelines that are part of the Project, and more significantly, regional subsidence as a result of the Project can definitely impact the flow and flow direction in the agricultural canals that are critical to the ecosystem and agricultural economy of the region. If subsidence starts to occur at levels that are not acceptable to maintain the desired canal flows, then mitigation measures, such as increased introduction of fluids into the formation, would have to be implemented. Monitoring helps to evaluate the problem, but does not solve it. The DEIR should provide potential mitigation measures that would be considered if subsidence is detected in the region as a result of pumping of geothermal fluids by the proposed Project.

1-408

7. As reported by Black Eagle Consultants, the lake deposits underlying the geothermal plant site contain clay minerals that are highly expansive. Expansive clays shrink when they dry, and expand when wet. These volumetric changes can exert significant pressures and result in structural damage to foundations and other improvements. To mitigate this hazard, the geotechnical consultant has recommended the placement of all structures atop a mat of non-expansive structural fill at least 3 to 4 feet thick. This structural fill will have to be imported. The DEIR should discuss the transportation issues associated with the import of this fill, including construction-related truck traffic, noise, and air quality impacts.

1-409

In summary, the impacts of liquefaction, subsidence and ground rupture are potentially significant in the Project area. A geotechnical study has been conducted for the site where the geothermal plant is proposed.

1-410

Letter 1 Continued

That geotechnical study is specific to that parcel and the findings presented therein do not necessarily apply to the entire Project area. The hazards of liquefaction and subsidence have the potential to impact other components of the Project. Liquefaction-induced ground deformation, in the form of earth slumps and sand boils, has been reported along the New River, within the Project area, as a result of the 1979 Imperial Valley earthquake (Youd and Wieczorek, 1982). Subsidence as a result of the Project has the potential to impact the region's irrigation canals and other infrastructure. Regular leveling will provide the monitoring needed to determine whether or not subsidence is occurring in the region, but the DEIR does not provide mitigation measures that would have to be implemented if subsidence becomes an issue. **1-411**

Although the site of the geothermal plant is not within an Alquist-Priolo Earthquake Fault Zone, surface deformation due to fault rupture and intense seismic shaking is possible in this area. Fault rupture is a geologic hazard that could make the Project as proposed unfeasible; if active faults are found to underlie the area, the plan would have to be modified so that buildings are not placed across the fault traces. Therefore, and at a minimum, the area immediately around the habitable structures, the EOC units, pressure vessels, and other critical components, should be evaluated for the potential for faulting. **1-412**

If you have any questions, please do not hesitate to contact us at your earliest convenience. We appreciate the opportunity to assist you with this project.

Respectfully submitted,

EARTH CONSULTANTS INTERNATIONAL, INC.

Tania Gonzalez, CEG 1859
Vice-President

Distribution: **(1)** **Addressee**

Letter 1 Continued

Project No: 3105
April 15, 2011

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Letter 1 Continued

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Ms. Gonzalez has over 25 years experience in site evaluation and geological feasibility studies, and has managed and prepared dozens of planning studies with emphasis on geological hazard mitigation. Ms. Gonzalez also has extensive experience using soil-stratigraphic and geomorphic techniques to estimate the age of paleo-surfaces and to characterize the recency and magnitude of activity of faulting. She has successfully coordinated and managed complex field studies that involved mobilizing several subcontractors and field personnel at once. Her experience includes field mapping, logging and documenting trenches and excavations, drilling (auger and rotary), and down-hole logging of bucket borings for landslide and fault studies. She has experience in absolute and relative dating techniques, including radiometric, thermoluminescence, and paleomagnetic sampling and interpretation.

EDUCATION

M.S.	Geology (Engineering Geology Option), Texas A&M University	1989
B.S.	Geology (Engineering Geology Option), Texas A&M University Minor in Anthropology	1986

PROFESSIONAL CERTIFICATIONS

Professional Geologist (received 3/1994, expires 10/2011):	California, PG 5868
Certified Engineering Geologist (received 3/1994, expires 10/2011):	California, CEG 1859

SELECTED PROJECT EXPERIENCE

Field Project Manager for a seismic hazard investigation of the San Bernardino Valley College to locate the active traces of the San Jacinto fault for campus redevelopment planning. The San Bernardino Valley College campus in San Bernardino was constructed upon an elevated pressure ridge (the Bunker Hill Dike) formed along the San Jacinto fault. As part of an overall campus redevelopment planning, this study was undertaken to quantify the fault rupture hazard through the SBVC. In addition to the threat posed by surface rupture, other secondary seismic impacts were addressed, including liquefaction, shaking amplification, and ground deformation due to folding. The project involved the excavation of eight trenches within the campus area to expose the traces of the San Jacinto fault, completion of ten boreholes to depths of 50-100 feet coupled with nearly 100 cone penetrometer tests, and shear wave velocity profiling of the borings. The seismic hazard assessment we undertook at San Bernardino Valley College led them to receiving a major FEMA mitigation grant to reconstruct seismically vulnerable buildings. Manager for additional field studies conducted between 2002 and 2010 to determine whether or not proposed new building locations are underlain by active faults or within the zone of folding.

Project Manager for two fault hazard investigations in downtown San Diego, along the projection of the Rose Canyon fault. The first study consisted of trenching in the street in front of the property in question to evaluate whether faults associated with the Rose Canyon fault extend beneath the site. Sediments of the Bay Point Formation, locally with strongly developed soils, were exposed in the trench. Minor folding of the deeper layers was observed

Letter 1 Continued

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Project Geologist, Vice President

near the eastern end of the trench, but no faults were exposed. The second study approximately four streets to the south consisted of excavating two trenches, one in an east-west direction, and the other in a north-south direction, again in the street. Very loose historical and late Holocene sediments were exposed to depth in sections of the trenches, making the excavations unstable. Therefore, to investigate these areas for faults, we drilled several closely spaced, large-diameter bucket borings. The borings were downhole logged. A fault juxtaposing sediments of the San Diego Formation against possible Ardath Shale was exposed in one of the borings. Trenching in the area exposed recent alluvial sediments down-dropped into the fault zone. Radiocarbon dating of the sediments indicates that the last surface rupturing event occurred less than 3,200 years ago.

Field Manager for a Paleoseismic Investigation of the Limón and Gatún faults in Panama. Earth Consultants International was retained under contract to ACP to conduct detailed studies of the Gatún and Limón faults in the Canal Area of Central Panama. As part of the study, we used DEM and stereo aerial photos to map lineaments and tectonic geomorphic features indicative of active faulting. Following the imagery review, we conducted field reconnaissance of the two faults, and identified locations for detailed, three-dimensional paleoseismic trenching. Results were presented to ACP management, and ACP geologists were given hands on training in active fault investigation techniques.

Co-Project Manager and Field Geologist, fault trenching and mapping study of the Ford-Otosan Plant near Golçuk, Turkey, after the August 17, 1999 M 7.4 earthquake. The earthquake caused considerable damage at the Ford-Otosan automobile assembly plant, which was under construction at the time. Management halted construction and retained ECI to conduct a seismic risk analysis of the site to evaluate the probability of another similar earthquake occurring during the lifetime of the plant. As part of the study we mapped surface fault ruptures, with vertical offsets of between 1 and 2.35 meters, and lateral offsets of as much as 1.2 meters, along the southern perimeter of the property. We also mapped the faults and fractures in the area where the main plant buildings were located to determine that the 1.5 meters of subsidence and synclinal warping were associated with secondary faulting associated with a step in the main fault. In the seaward side of the property, we mapped an extensive zone where lateral spreading and slumping occurred. Our field mapping was supplemented with review of aerial photographs taken shortly after the earthquake, before wave action and vehicular traffic destroyed some of the evidence. Our paleoseismic studies and review of historical records indicated that at least two other similar earthquakes occurred in the area of the Ford Otosan plant in the last 500 years, in AD 1509, and AD 1719, suggesting a predictable and regular pattern of surface rupture. Based on these findings, we concluded that the Ford-Otosan plant has a low probability of experiencing another similar earthquake in the next 50 to 100 years. However, it is likely to experience smaller earthquakes (aftershocks) generated by the same fault system, and lower, attenuated ground motions as a result of earthquakes on other faults some distance from the site.

Project Manager and Field Geologist, Fault Location Study for a Proposed Industrial Facility in the Northern Coast of Honduras, Central America (location, client and project are confidential). Conducted a review of published geologic data and aerial images (Landsat and photographs) to look for features indicative of faulting, aeolian accretion, and flooding at the site and vicinity. Based on these data, we designed and conducted a detailed three-week field survey at the site to characterize the subsurface stratigraphy, to 50-meter depths, using cone

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Letter 1 Continued

penetrometer soundings. The subsurface data were correlated across the site to identify potential active traces of a major fault system in the area that would make the project unfeasible. The project required the coordination of several different teams and equipment originating from various places in the United States, Canada and Central America. The data were imported into and modeled using a three-dimensional, GIS-based computer software package that helped us to model the deltaic deposits and determine where they are continuous, and where they have been truncated by faulting.

Project Manager, fault trenching study in the Newport Mesa, across strands of the Newport-Inglewood fault. The three-month long field project involved the excavation and logging of over 2,400 lineal feet of trenches and field mapping of 2,000 lineal feet of natural exposures along the bluffs to locate faults of the Newport-Inglewood fault system. The faults exposed were evaluated as to their recency of activity using soil stratigraphic techniques and their association with cultural deposits of pre-historic age. One of the faults exposed was determined to have ruptured at least once in the Holocene. Structural setbacks were recommended for this fault. The other faults exposed were determined to have been inactive for at least 80,000 years. The main active Newport-Inglewood fault projects immediately south of the site.

Field Manager for a fault hazard investigation of the northern San Jacinto fault within the Lytle Creek drainage in Rialto to locate the active traces of the fault, and quantify probable displacement magnitudes for bridge structure design. The purpose of the study was to quantify the fault rupture hazard of the northern segment of the San Jacinto fault where several new freeway bridge structures are proposed for the I-210 extension in San Bernardino County (Foothill Freeway). The project included a subsurface trenching investigation across the major bridge locations to screen the area for secondary faults.

Field Geologist, detailed fault investigation, Las Posas Hills, Camarillo, Ventura County. As part of the study we located the Springville fault, and characterized the frequency and magnitude of activity. Worked closely with Dr. Thomas Rockwell to prepare a soil chronosequence for the Las Posas Anticline, and determined based on soil age relationships, that the hills started to uplift about 80-120 thousand years ago. In addition to the main Springville fault, the west-facing flank of the Las Posas Hills is comprised of steeply dipping sandstone. Bedding-plane faults are common. We conducted extensive trenching in this area to characterize the recency of activity of these bedding plane faults.

Co-Project Manager, Seismic Hazard Assessments for Several Proposed New School Facilities, City of Los Angeles, California. We assessed the potential hazard of surface fault rupture, tectonic deformation and strong ground motion at eleven potential school sites near the downtown area of Los Angeles. As part of this study we reviewed the geologic literature, including unpublished geologic reports for the metro system, to assess the potential for surface fault rupture and tectonic folding at or near each of the sites. We also conducted a detailed geomorphic assessment to identify potential secondary folds at or near each site that could result in warping or tilting during a future earthquake. We also conducted a deterministic and probabilistic seismic hazard analysis for each site to determine the estimated peak ground motions resulting from any of several active faults in the region. To conduct these analyses, we considered and modified the existing tectonic models to include the most recently available data on buried thrust faults in the region.

Letter 1 Continued

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Project Geologist, Vice President

Project Manager, Drilling Study in LADWP property in Support of Evaluating the Activity of Faults Exposed at the Belmont Learning Center, in Los Angeles, California. This study was designed to evaluate the recency of activity of the faults exposed at the Belmont Learning Center on property owned by the LADWP south of the proposed school site. The study consisted of drilling six continuously cored borings to determine whether intact native soil materials were present across the projected trace of the fault zone, and if present, whether the soil materials were of sufficient age to be used in the determination of the fault's activity. The borings were drilled in a pattern designed to test the most opportune locality to excavate a trench if the required soils were present. The project included meetings with LADWP personnel to discuss the scope of work, and to confirm the boring locations so as to not impact the existing and abandoned structures onsite. All LADWP safety regulations were strictly followed. Three of the borings exposed a thick section of artificial fill directly overlying bedrock, whereas two other borings exposed bedrock with no overlying soil. Shallow ground water was encountered throughout. For these reasons, trenching at this location to resolve the age of faulting was deemed unfeasible. No further work was recommended at this location.

Project Manager, Geologic and Seismic Assessment for a Pacific Energy Pipeline Proposed Across the Pier 400 Container Terminal in the Port of Los Angeles. The results of this desktop study indicate that the project site has the potential to be impacted by fault rupture, strong ground shaking, liquefaction, liquefaction-induced lateral spreading, and possibly lurching. All of these hazards could occur if an earthquake occurs on the Palos Verdes fault zone. Where the proposed pipeline would cross the fault zone, the east-west trending section of the pipeline would be placed under tension, whereas the north-south section of pipeline would be in compression. The fault maps reviewed show the fault as a single trace, but it is possible for it to break along several strands distributed along the width of the fault zone. It was suggested that SPEC Services, Inc. model the worst-case scenario to provide a factor of safety for the pipeline at this location. The entire project site is located within a zone susceptible to liquefaction. Recommendations to mitigate this hazard were suggested.

Project Manager, Study on the Potential for Surface Fault Rupture, Liquefaction-Induced Lateral Spreading and Landsliding along the California Section of the El Paso Pipeline between the California-Arizona border and Wheeler Ridge. The existing petroleum pipeline will be converted to a high-pressure natural gas pipeline. We were retained to identify those sections of the pipeline that cross faults, liquefaction-susceptible areas, and unstable slope areas. A total of 18 known faults were identified; 11 of these were deemed active. The most significant fault crossing is the Garlock fault, which may move laterally as much as 10 feet during the next event. Of the liquefaction-susceptible areas identified, the section of pipe near Barstow, along the Mojave River was deemed the most vulnerable to this hazard. Given the population of the area, this is also the area at most risk of being impacted should the pipeline break. Engineering strengthening of the pipe and increased number of automatic shut-off valves were recommended at specific mileposts to reduce the hazards identified.

Project Manager, Study on the Potential for Surface Fault Rupture and Liquefaction-Induced Lateral Spreading to Impact the Section of a Proposed Natural Gas Pipeline between Twentynine Palms and Long Beach, California. An existing petroleum pipeline is to be converted to a high-pressure natural gas pipeline. The pipeline crosses 23 active fault zones, and several potential liquefaction zones and active landslides. We were asked to better define

Letter 1 Continued

the location of the fault crossings, estimate the fault displacements in the event of fault rupture at each of the fault crossings, and evaluate which segments of the pipeline would be under compression or under tension as a result of fault rupture. We also identified those sections of pipeline that extend across potentially liquefiable terrain, and for five areas, estimated the amount of displacement that could be expected if lateral spreading occurred during an earthquake. The structural engineers used our estimates to evaluate which sections of pipeline need to be retrofitted or replaced to reduce the potential for failure during a seismic event. We worked closely with the engineers to identify the areas where automatic shutoff valves are most appropriate based on the likelihood of that section of pipeline breaking during its expected lifetime, and the population density near that section of pipe. Finally, we provided technical assistance during presentations to the California Geological Survey and the State Lands Commission.

Project Manager and Principal Investigator, Hazard Vulnerability Assessment Studies for the Cities of Pasadena, Glendale and Newport Beach, California. The studies included an analysis of the seismic, geologic, flooding, fire, and hazardous materials management issues for each City. For Newport Beach, ECI also conducted an assessment of their coastal hazards, and subcontracted and managed a study of the hazards posed by air traffic from John Wayne Airport. The city of Glendale requested a review of their crime and terrorism potential, and a discussion on dangerous animals and plants common to the area. Loss estimation analyses using HazUS were prepared for each city using those earthquake scenarios most applicable to each area. For the cities of Glendale and Pasadena, we also prepared the Safety Element, a policy document that identifies the goals, policies and programs that can be implemented to reduce the city's risk to the hazards identified.

SELECTED PUBLICATIONS

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Gonzalez, T., 2007, Pre-instrumental Earthquakes in Panama and the Seismic Hazard of the Panama Canal: Using the Past to Prepare For the Future (abstract): Association of Engineering Geologists 50th Anniversary Annual Meeting, Los Angeles, California, September 24-28, 2007, Program with Abstracts, pp. 85-86.

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Letter 1 Continued

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Gath, E.M.; **Gonzalez, T.**; Drumm, P.L.; and Buchiarelli, P., 1994, A paleoseismic investigation at the northern terminus of the Whittier Fault Zone, in the Whittier Narrows area, Rosemead, California: Technical Report to the Southern California Earthquake Center.

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Gath, E.M.; **Gonzalez, T.**; and Rockwell, T.K., 1992, Evaluation of the Late Quaternary Rate of Slip, Whittier Fault, Southern California: U.S. Geological Survey Final Technical Report, NEHRP Contract No. 14-08-0001-G1696, 24p.

Gonzalez, T.; Rockwell, T.K.; and Gath, E., 1992, Exploratory Excavations for Fault Investigations: Logging Techniques: Abstracts with Programs, 1992 Annual Meeting of the Association of Engineering Geologists, held in Long Beach, California, October 2-9, 1992.

Gath, E.M.; **Gonzalez, T.**; and Rockwell, T.K., 1992, Slip Rate of the Whittier Fault Based on 3-D Trenching at Brea, Southern California: Abstracts with Programs, The Geological Society of America 88th Annual Cordilleran Section, Vol. 24, No. 5., 26 p.

Gonzalez, T.; and Rockwell, T.K., 1991, Holocene Activity of the Springville Fault in Camarillo, Transverse Ranges, Southern California; Preliminary Observations; in Blake, T.F. and Larson, R.A. (Editors), *Engineering Geology along the Simi-Santa Rose Fault System and Adjacent Areas, Simi Valley to Camarillo, Ventura County, California; Field Trip Guidebook of the 1991 Annual Field Trip, Southern California Section*: Association of Engineering Geologists, pp. 369-383.

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Letter 1 Adams Broadwell Joseph & Cardozo, Attorneys at Law, on behalf of California Unions for Reliable Energy (CURE)

Response 1-1: Comment noted.

Response 1-2: Comment noted.

Response 1-3: The commenter does not provide any specific details as to why the DEIR is inadequate. The potential environmental impacts associated with implementation of the proposed project are addressed in Sections 4.1 through 4.14 of the DEIR. The reader is also referred to Responses 1-4 through 1-412 below.

Response 1-4: The commenter is asserting inaccurate information was provided regarding the project description for the project. It is unclear how the project description is inaccurate as described in the DEIR, as it contains the required components of an EIR project description as provided under CEQA Guidelines Section 15124. Nevertheless, the commenter is referred to FEIR Section 4.0, Minor Revisions to the EIR, to review the minor project description clarifications to provide additional information on specific project components the commenter requests. The following changes are made to the DEIR.

On page 3.0-18 of the DEIR, the following discussion is added after the second full paragraph:

> The proposed tertiary treatment system would have a capacity of 5.9 mgd. As of 2008, existing Brawley WWTP average dry weather flows were 3.9 mgd. Therefore, the tertiary treatment system would operate at the initial available flow rate of 3.9 mgd but increase over time to 5.9 mgd as dry weather flows increase.
>
> The new tertiary treatment system would receive water from a new tertiary treatment diversion structure, which would be installed approximately 200 feet downstream of the existing secondary effluent distribution structure. Secondary effluent flow would be diverted from the existing 42-inch pipeline to the tertiary effluent pump station wet well. From the wet well, water would be pumped into a flash mixing chamber for alum addition. Alum will be added using a high-energy direct-vacuum induction or pump diffusion system for near instantaneous and homogenous mixing.
>
> Following flash mixing, the water would overflow into two parallel flocculation and sedimentation trains. Flocculation will be based on a two-stage design. The first stage would provide greater mixing energy to begin particle agglomeration and floc formation. The second stage would impart less energy to avoid shearing and encourage continued growth of large settleable floc. After the flocculation chambers, water would flow into the rectangular sedimentation tanks. The majority of the suspended solids would be removed in the sedimentation basin and the supernatant would be collected via weirs from the top of the

sedimentation basin. The supernatant would then flow into the multimedia filter by gravity. A polymer would be added to the water as needed to increase filter performance and minimize filtered effluent turbidity. The gravity multimedia filter would have four filtration cells operating in parallel with sand and anthracite media. The filtered water would be collected in the filter effluent distribution box.

The filter effluent distribution box will be designed with a three-way weir system that would allow the filtered water to flow into the filter backwash supply storage sump, to the UV system by gravity, or to the chlorine contact basin should the UV system become unavailable due to service interruption or maintenance. Once the water is disinfected by the existing UV system, the water would flow into the effluent pump station wet well. Sodium hypochlorite would be injected at the dosage of 2 mg/L into the effluent pump station discharge pipe to maintain the residual disinfectant. The pump station would pump the disinfected tertiary water to the East Brawley power plant and/or to a storage equalization basin. The free chlorine residual would be monitored and analyzed downstream of the injection point. The equalization basin would hold approximately 5.0 million gallons to provide an operational buffer in case of WWTP or tertiary system interruptions, or power plant operational disruptions.

If the UV system operations are disrupted for a brief amount of time, the secondary effluent would be diverted to the chlorine contact chamber instead of the tertiary treatment process. The secondary effluent would be chlorinated and discharged to the New River. In this short period, the water demand at the East Brawley power plant would be met by utilizing the equalization storage. If the UV system operations were shutdown for an extended period of time, water demand at the project would be met by utilizing IID water available pursuant to the IWSP.

The tertiary system would have infrastructure and control valves/gates in place to manually divert the tertiary effluent into the chlorine contact chamber (during dry weather periods only) for situations where the UV system would be unavailable for an extended period that would exhaust the equalization storage supply. To initiate this temporary tertiary disinfection mode, an operator would manually close the UV system inlet control gate, which would cause the water level in the filtered effluent distribution box to rise and overflow into the chlorine contact chamber. The chlorine contact chamber would be dosed with 5 mg/L of sodium hypochlorite to meet the Title 22 disinfected tertiary CT requirements. The chlorinated tertiary effluent would then flow to the tertiary effluent pump station via a dedicated pipeline and connect to the effluent pump station wet well bypassing the UV system.

As part of the normal dry weather tertiary operation, the filter effluent distribution box would allow the filtered effluent to flow into the filter backwash supply storage sump. The weir height would be equivalent to the weir height that controls flow to the UV system. This would keep

the filter backwash supply storage sump full at all times. The sump would have the capacity to store water to satisfy two sequential filter backwash cycles without interrupting normal tertiary treatment system operation. The filter backwash supply pumps would convey the stored backwash supply water to the media filter at a higher rate to provide cleaning, fluidization, and restratification of the media. The backwash wastewater would then be collected and conveyed back to the influent pump station wet well.

Alum sludge would be collected from the sedimentation basin using a chain-and-flight system and conveyed to a sludge holding tank. The sludge pumps would convey the collected sludge to a new centrifuge system. Two parallel centrifuges would be installed near the existing centrifuge. A new polymer system would be utilized at the new centrifuge system to increase the dewatering efficiency. The concentrate from the centrifuge would then be recirculated to the tertiary influent pump station wet well and the solids from the centrifuge would be collected and transferred to solids drying beds for further dewatering. Once the water content of the dried solids is reduced below 50 percent, the solids will be hauled off to a landfill for final disposal.

Chemical storage, feed systems, and electrical distribution and control systems will occupy separate areas in a common building. The pipeline connecting the upgraded facilities to the proposed power plant is shown on **Figure 3.0-5** and is approximately 5,040 feet in length.

On page 3.0-18, under the Well Field subheading, a new last paragraph is added:

Because geothermal well site selection is an iterative process, after the first exploration wells were drilled, the well field was further refined. Additionally, it was decided that some of the wells drilled for East Brawley exploration will be used as wells for Ormat's North Brawley project. The County previously approved the use of these wells as well as construction of a pipeline crossing over the New River pipeline. **Figure 3.0-5** is the most recent well field layout and also shows which wells were already drilled and/or approved to be drilled under exploration.

On page 3.0-22, the following new subheading is added under the Geothermal Pipeline Systems subheading:

Transmission and Interconnect

A substation would be located on the westerly portion of the development footprint for the power plant site. A new transmission line would interconnect to the IID Energy grid at the North Brawley 1 substation located near the intersection of Hovley and Andre roads. The interconnection line would be a 2- to 5-mile-long double-circuit 13.8- and 92-kilovolt (kV) transmission line with 66-foot-high poles. The transmission line pole and turning structure designs have not yet been

completed, but the distance between the conductors and the ground wire near the top of poles will exceed 60 inches to prevent the potential electrocution of birds that may perch on the poles. Both the new substation and the interconnection transmission line would be part of the East Brawley project. The new line would span the New River, but no structures would be constructed within the river. Encroachment permits and easements would be obtained from landowners or agencies as required for permitting and installation of the interconnection transmission line.

The proposed interconnection line would be routed to the west from the power plant substation, crossing the New River, and would be aligned north of Andre Road to the interconnection point at the North Brawley 1 substation (west route). The alternative interconnection transmission line route would course northerly to an alignment on the south side of Baum/West Baughman Road turning west and crossing the New River to Hovley Road where it would turn to the south to the North Brawley 1 substation interconnection point (north route). The substation and interconnection transmission line construction would be conducted concurrent with the construction of the power plant.

The substation at North Brawley is the point of demarcation between Ormat and the IID. The substation is owned by ORNI 18, LLC. The transmission lines beyond the substation are owned and operated by IID to a point of interconnection with the California Independent System Operator's (CAISO) controlled grid.

On page 3.0-24, under the Dry Utilities subheading, text has been revised as follows:

No new distribution facilities or cabling is required to serve the project area. The project proponent would develop transmission lines from the project. A new transmission line would interconnect to the IID at the North Brawley 1 substation located near the intersection of Hovley and Andre roads. The interconnection line would be a 2- to 5-mile-long double-circuit 13.8- and 92-kilovolt (kV) transmission line with 66-foot-high poles. The installation of all utilities would be coordinated with the County of Imperial and individual service providers. All utility lines would be placed in underground conduit. Further discussion and details regarding electricity/natural gas and telephone are provided in Section 4.13, Utilities, of this Draft EIR. Placement of any utilities within County road rights-of-way will require the applicant to secure an encroachment permit from the Imperial County Department of Public Works.

Further, the commenter is referred to revised Figure 3.0-5 (provided in Section 4.0), which clarifies that the New River crossing, called out on the East Brawley Geothermal Project Site Figure 3.0-5, is existing approved infrastructure to be utilized by the proposed project. The text of Section 3.0 of the Draft EIR has been revised in the Final EIR to reflect this modification, which does not change the conclusions or adequacy of the EIR.

Lastly, the commenter asserts that the DEIR fails to use an adequate environmental baseline for air quality, biological resources, geology and soil resources, and surrounding land uses and uses a hypothetical baseline in assessing the project's impacts on worker health and safety during project construction. However, the commenter does not provide specific information as to how the environmental baseline is inadequate. As identified on Draft EIR page 4.0-1, the baseline environmental setting utilized in the Draft EIR was based on conditions at the time of the release of the Notice of Preparation (June 2010) with some updates on baseline conditions as they changed after release of the NOP consistent with CEQA Guidelines Section 15125(a) and the *Pfeiffer v. City of Sunnyvale City Council* published court decision.

Response 1-5: The applicant's North Brawley project is a separate project located over 1.4 miles west of the proposed project site. The North Brawley project was approved under a separate discretionary action, and a Notice of Determination was filed with the State Clearinghouse on May 21, 2009, and analyzed under a separate CEQA document (SCH No. 2008021134); there are no proposed "expansion" activities. Therefore, the commenter's assertions are not accurate.

The commenter states that the DEIR is inadequate because it fails to identify the project's proposed water supply. The proposed water supply for the project is described and analyzed in DEIR Section 3.0, Project Description, Section 4.8, Hydrology and Water Quality, and Section 4.13, Utilities. Specifically, a summary of the proposed water supply plan is provided on pages 3.0-23 through -24 of the DEIR. An evaluation of the proposed project's potential impacts on groundwater supplies is provided on pages 4.8-17 through -18 under Impact 4.8.4, and a comprehensive evaluation of the proposed project's potential impacts related to water supply is provided on pages 4.13-1 through -12 of the DEIR. Lastly, the commenter is referred to Appendix K of the DEIR, which provides the Water Supply Assessment prepared for the project. The DEIR adequately describes and evaluates the project's proposed water supply. The commenter does not provide any specific details as to why the DEIR inadequately describes the project's proposed water supply; therefore, no specific response is possible.

The commenter states that the many defects in the analyses contained in the DEIR are fatal errors and that the County must withdraw the DEIR and prepare a revised DEIR. The commenter does not provide any specific details as to why the DEIR is inadequate; therefore, no specific response is possible. The potential environmental impacts associated with implementation of the proposed project are addressed in Sections 4.1 through 4.14 of the DEIR. The reader is also referred to Responses 1-4 through 1-412.

Response 1-6: The commenter is referred to the California Energy Commission's *Best Management Practices and Guidance Manual: Desert Renewable Energy Projects*, October 2010, page 66 (http://www.energy.ca.gov

/2010publications/REAT-1000-2010-009/REAT-1000-2010-009.PDF) regarding water supply sources for projects, which states:

> *Project developers are also advised to consult with local governments, as appropriate, for local water use and quality requirements. Proposed groundwater or surface water use for power plant cooling or other industrial purposes, including mirror washing, would require detailed analysis and may delay the permitting process. The following guidance recommends approaches for being responsive to agency water supply/quality concerns. 1) Given scarce water resources in the desert region use of dry cooling technologies for power plant cooling is encouraged and preferred. To the extent that water is proposed for power plant cooling conduct an analysis to demonstrate that alternative water supply sources and alternative cooling technologies are environmentally undesirable or economically unsound. It is recommended the analysis identify land-use, electricity efficiency, and other tradeoffs associated with the proposed cooling technology*.

Further, the commenter is referred to the California Energy Commission's *Best Management Practices and Guidance Manual: Desert Renewable Energy Projects*, October 2010, Appendix B (http://www.energy.ca.gov /2010publications/REAT-1000-2010-009/REAT-1000-2010-009.PDF), which states:

> *Some binary-cycle geothermal power plants are air cooled because meteorological conditions allow use of the technology without affecting plant performance or insufficient water is available to provide year-round water cooling (Kutscher, C. and D. Costenaro 2002). Aircooled geothermal plant performance is highly dependent on the ambient air temperature (much more so than fossil fuel plants that operate at higher boiler temperatures). Most air cooling systems use noisy fans to cool the air, but noise can be reduced by use of quieter, albeit more expensive, fans. Plant electric output can drop by 50 percent or more on hot summer days, compared to winter performance. The reduced summer performance problem is exacerbated by the fact that electricity has a higher value in the summer.*
>
> *Data from the Salton Sea weather station in Imperial County, where many geothermal power plants are expected to be built, show ambient air temperatures typically exceed 100◦ F every day in June through September. When hourly temperatures are hottest, relative humidity is lowest: 24 to 35 percent.*

The use of dry cooling technology would render the project infeasible, because the plant would not be able to run efficiently during at least four months of the year. In addition, there is no County requirement for dry cooling. Moreover, hybrid cooling is only in experimental stages in geothermal plants, and it is not feasible to recommend using a technology that is not proven to be effective.

Response 1-7: Given the power generation capacity of the equipment comprising the proposed project, it is not subject to the jurisdiction of the California Energy Commission (CEC) and the project is properly within the jurisdiction of Imperial County. As such, Imperial County is the proper lead agency for this EIR. CURE submitted a Complaint on June 30, 2011, to the CEC to determine if the project (and in combination with the North Brawley Geothermal Development) was subject to the CEC's licensing jurisdiction. On December 5, 2011, the CEC dismissed CURE's complaint, finding that CURE failed to provide evidence that both the project and the North Brawley Geothermal Development were a single project or that East Brawley would generate 50 megawatts or greater of capacity that would make it subject to CEC jurisdiction. CURE filed a petition for writ of mandate in Alameda County Superior Court on January 4, 2012, challenging the Commission's compliance with the Warren-Alquist Act (Public Resources Code Section 25000 et seq.) in making the decision that the Brawley projects are not subject to CEC jurisdiction. A decision is not expected to be issued from the Superior Court until sometime in the fall of 2012.

Response 1-8: All comments provided as part of this comment letter were considered by the County and have been responded to in this FEIR.

Response 1-9: The comment is noted.

Response 1-10: The comment is noted.

Response 1-11: The commenter is referred to Response 1-4. The mitigation measures identified in Section 4.3, Air Quality, and Section 4.4, Biological and Natural Resources, are feasible and are based on programs and standards recommended by appropriate agencies (e.g., Imperial County Air Pollution Control District, California Department of Fish and Game). The commenter provides no evidence in this comment as to why these mitigation measures would not be considered feasible.

Response 1-12: The commenter is referred to Response 1-4.

Response 1-13: The commenter asserts the following project components were not included in the project description:

"1. a wastewater pond at the BWWTP with a storage capacity of 5 million gallons"

The commenter is describing the treatment upgrades that the City of Brawley implemented in 2011 at the Brawley Wastewater Treatment Plant (BWWTP) and which are not a part of this project.

"2. an additional water source to meet the project's water demand during summer heat conditions, consisting of a system for conveying and cycling cooling tower blowdown between the Applicant's adjacent North Brawley facility and the Project"

This comment is unclear and may be suggesting that this project is a component of the North Brawley facility. The proposed project has a will-serve letter from the IID regarding the ability to provide water supply to the project for the interim water needs, until the BWWTP is online with tertiary treatment capabilities. The project's analysis assumes the construction of a water conveyance system to convey water from IID to the project (DEIR, p. 3.0-17). These two sources will supply water to the project year-round. The commenter is referred to Response 1-5 regarding the suggestion that the project is simply an expansion of the North Brawley facility.

"3. installation of piping over the New River…"

Refer to Response 1-4. In addition, project infrastructure and facilities crossing the New River to serve the two wells proposed on the west side of the river would utilize an existing crossing to accommodate the extension of these infrastructure needs.

"4. footings to support the pipes on either side of the New River"

Refer to Response 1-4. In addition, project infrastructure and facilities crossing the New River to serve the two wells proposed on the west side of the river will utilize an existing crossing to accommodate the extension of these infrastructure needs. The pipeline would be placed underground and would not require footings.

"5. a substation to be located west of the power plant"

The commenter is referred to pages 3.0-14, -16, and -25 of the DEIR, which describe the substation proposed for the project and associated construction time frames. Further, the commenter is referred to Response 1-4, which provides additional information regarding the substation.

"6. a transmission line up to 5 miles in length"

The commenter is referred to pages 3.0-14, -16, and -25 of the DEIR, which describe the transmission line proposed for the project. Further the commenter is referred to Response 1-4, which provides additional information regarding the transmission line.

"7. a stormwater retention basin near the power plant"

The commenter is referred to page 3.0-24 of the DEIR, which describes the drainage requirements for the project site. Further, the retention basin is part of the power plant project design and is shown on Figure 3.0-5.

"8. a communications tower proposed for the power plant site"

A communications tower was previously proposed for the project site; however, this is not a component of the currently proposed project.

"9. improvements to the Best Canal to accommodate widening of Best Road for access to the Project power plant"

The commenter is referred to page 3.0-23 of the DEIR. The enclosure for the Best Canal has not yet been designed. The project proponent would be required to confer with the IID and to process drawings/plans that depict the improvements for the proposed project's canal cover (see Response C-2). Once the project proponent is ready to submit drawings/plans, they can be submitted for a Planning Phase Review along with the appropriate fee required by the IID. If design of IID facilities is required, the IID would be conducting the design. The outcome of the Planning Phase Review is a letter to the project proponent indicating the impacts to IID facilities, design fees, and preliminary construction cost. If the project proponent wishes to continue, deposits need to be made and the process continues. As part of the Planning Phase Review, various forms are required to be completed per Section III of IID's Developer Guide. In addition, if an encroachment will be made on IID facilities, an Encroachment Permit Application will be required.

"10. a complete description of the activities proposed for the project geothermal well field, including the redrilling and testing of production wells over the course of the Project's operational life"

Draft EIR pages 3.0-14 through -18 describe proposed operation of the well field, and Draft EIR page 4.3-16 specifically notes that well flow tests would occur one well at a time. The commenter is also referred to Response 1-88. The following text changes are made the Draft EIR to clarify that the project includes redrilling and testing as generally described in Draft EIR Table 3.0-2.

In Draft EIR Table 3.0-2 (first row, last column), the following text changes are made:

> Well pads include all the equipment necessary to operate a well. During development, any additional drilling/redrilling would occur from the well pads. Well pads also include containment basins for drilling and maintenance of the wells, as well as sand separation systems.

On Draft EIR page 3.0-18, the following text changes are made to the last paragraph:

> The well field would be located between Rutherford Road on the north, Dietrich Road on the east, the New River on the west, and just north of Shank Road on the south. Access to the well pads and pipelines would be from Best Road, Baum Road (not a county road), Groshen Road, Kershaw Road, Rutherford Road, Ward Road, and Willis Roads. Additionally, private farm roads and portions of IID rights-of-way for vehicular use may be used for access. Encroachment permits for ingress/egress and irrigation canal and drain crossings would be obtained from Imperial County Public Works and IID as applicable. Access to farmland would be coordinated with landowners to

minimize impacts to farming operations. Well pads and pipelines would be along the edges of fields. New access roads would be constructed or improved only as needed to safely accommodate traffic required for well pad construction, well drilling/redrilling (only one well would be typically flow tested at a time), and maintenance of wells and roads. Road widths to well pads would typically be no less than 10 feet. The disturbed lands, except for possibly the power plant site, would be returned to agricultural use once the wells are abandoned. Specifically, the pipelines will be removed and the well pads reclaimed.

Response 1-14: The commenter is referred to Responses 1-4 and 1-13. As noted in Response 1-13, the project does not include a communication tower, so no avian collision impacts with a tower would occur. As identified in the September 2011 East Brawley Geothermal Development Project Biological Resources Evaluation (updated biological resource evaluation of the project) in **Appendix A** of this Final EIR, the canals in the project area are highly modified, and the covering of the canals (covering of Best Canal for project access) near the power plant was not identified as having habitat value that could support special-status species (see East Brawley Geothermal Development Project Biological Resources Evaluation page 2.0-8 and Figure 5). The commenter is referred to Responses 1-13, 1-54, and 1-68 for air pollutant projections and consideration of well drilling/redrilling.

Response 1-15: The proposed project does not include a diesel power generator; therefore, one is not included in the project description and was not evaluated in the DEIR. Thus, unlike CURE's characterization of the proposed project, the East Brawley project and the North Brawley facility are not identical from an engineering standpoint.

Response 1-16: The commenter is referred to Response 1-4.

Response 1-17: The commenter is referred to Response 1-4. The commenter is also referred to Figure 3.0-5 in this document depicting the location of the project's proposed facilities. A description of access roads is provided in Table 3.0-2 on page 3.0-15 of the Draft EIR; however, since release of the Draft EIR the applicant has determined they will utilize existing access roads and will not require the construction of new access roads. The network of existing access roads in and around the project site provides sufficient access to areas designated for construction of proposed project facilities. Table 3.0-2 in the Draft EIR has been modified to reflect this updated description of the proposed project (see Response 1-23). Additionally, the potential environmental impacts associated with implementation of the proposed project are addressed in Sections 4.1 through 4.14 of the DEIR.

Response 1-18: The commenter is referred to Response 1-4, which provides a more detailed project description and updated Figure 3.0-5 as included in Section 4.0 of this document. As noted in Response 1-17, the project does not proposed new access roads and will instead utilize existing roads in the project site. The network of existing access roads in and around the

project site provides sufficient access to areas designated for construction of proposed project facilities. The proposed well pads would consist of approximately 2.5 acres, which would provide sufficient space for construction and maintenance activities (see Draft EIR Table 3.0-2). The proposed electrical substation site would consist of 0.5 acres and would also have adequate space for construction and maintenance activities (see Draft EIR Table 3.0-2). In addition, the Draft EIR does generally describe anticipated construction activities in the Draft EIR Project Description on pages 3.0-25 and -26. While the exact locations for construction staging are not known at this time, they would be placed within the proposed disturbance areas of each of the improvements. This information does not create any additional impacts beyond what is presented in the DEIR.

Response 1-19: The figure, contained in Appendix J of the DEIR, to which the commenter refers, describes the area for which a Phase I Environmental Site Assessment was performed in support of some of the parcels included in the project site as part of the DEIR. This figure and associated location description do not describe the project site as a whole and are therefore not inconsistent with the maps and descriptions of the project site contained in the DEIR.

Response 1-20: The reader is referred to Response 1-19. A complete and consistent description of the project's boundaries is shown on Figure 3.0-2 and provided in Section 3.0, Project Description, of the DEIR. In addition, an updated version of Figure 3.0-5 has been included in the FEIR (see Section 4.0) further depicting the development footprint for all aspects of the proposed project analyzed in the DEIR. This information does not create any additional impacts beyond what is presented in the DEIR.

Response 1-21: The commenter is referred to page 3.0-1 of the DEIR, second full paragraph, which accurately describes the project boundaries. In addition, an updated version of Figure 3.0-5 has been included in the FEIR (see Section 4.0) further depicting the development footprint for all aspects of the proposed project analyzed in the DEIR. This information does not create any additional impacts beyond what is presented in the DEIR.

Response 1-22: The commenter is correct. The following revisions have been made to Section 4.9 of the DEIR on page 4.9-7:

> …30-year life of the project. Approximately ~~18~~ 9 miles of ~~either single pipeline or combined production and injection~~ pipeline route would be built.

This information does not create any additional impacts beyond what is presented in the DEIR.

Response 1-23: The commenter is misconstruing statements made in the DEIR. DEIR page 3.0-1 describes developed roads in and around the project's location. Page 3.0-15 of the Project Description in the DEIR states that there may be the need for new access roads to be built to access the project site. The other two statements regarding access roads describe the potential for

access roads to be developed if necessary for the project. Since release of the DEIR, the project proponent has determined that no new access roads are necessary to implement the proposed project and that the project will utilize existing access roads in the project area. It has been determined by the project applicant that the network of existing access roads in and around the project site provides sufficient access to areas designated for construction, operation and maintenance of proposed project facilities. Table 3.0-2 in the Draft EIR has been modified to reflect this updated description of the proposed project.

Draft EIR page 3.0-15, the following text changes are made to the row associated with "Access Roads":

~~Access Roads~~	~~Access roads would be no less than 10 feet wide.~~	~~Access roads would extend from existing County roads to the well pads. Existing farm roads would be used to the extent practical. Access roads developed for exploration would be used for any wells and pads that are used for development. Where new pads are created, new access roads would be developed.~~	~~Access roads are used during development to construct the production wells and install equipment. During utilization, access roads are used for accessing wells for maintenance.~~

Response 1-24: The commenter is referred to Response 1-69.

Response 1-25: The commenter is referred to Response 1-4. The commenter does not provide any description of how the baseline is inaccurate or any evidence to support the assertion that the environmental baseline is inaccurate and incomplete.

Response 1-26: The commenter does not provide any evidence that the physical environmental conditions in the vicinity of the proposed project and the environmental setting are not described in sufficient detail. Without specific requests for additional information regarding the physical environmental conditions or setting, the response cannot address the commenter's statement. However, the commenter is referred to Section 3.0, Project Description, and Section 4.0, Introduction to the Environmental Analysis and Assumptions Used, in the DEIR for information regarding the existing conditions and setting in the area of the proposed project. The commenter is also referred to Response 1-4.

Response 1-27: The commenter is referred to Section 3.0 Project Description, Section 4.3, Air Quality, Section 4.4, Biological and Natural Resources, and Section 4.6, Geology and Soils, of the DEIR for information regarding the environmental setting and surrounding land uses associated with the proposed project. This information does not create any additional impacts beyond what is presented in the DEIR. The commenter is also referred to Responses 1-28 through 1-47, which address the commenter's

more specific comments about surrounding land uses, air quality, biological resources, geological resources, and soil contamination.

Response 1-28: The comment is noted. The DEIR provides adequate disclosure as required under CEQA.

Response 1-29: The commenter does not provide any specific statements as to the adequacy of the proposed project DEIR's description of the environmental context. Each section of the DEIR contains a description of the environmental setting conditions associated with the environmental issue area under evaluation. Land use conditions in the project area are specifically identified on DEIR pages 4.9-1 through -3.

Response 1-30: The North Brawley geothermal facility is located approximately 1.5 miles west of the proposed project and is identified as an existing facility in the vicinity of the project on DEIR pages 4.1-3 and -6, 4.3-26, 4.10-19, 4.12-12, and 4.13-10.

Response 1-31: The commenter does not provide any statements as to the adequacy of the proposed project DEIR. The fact that the DEIR does not specifically identify the large cattle feed and slaughterhouse operations located in the project area does not render the DEIR inadequate. DEIR page 4.7-4 identifies the Superior Cattle Feeders LLC site and Brawley Beef LLC sites as being on the list of sites in the immediate vicinity of the proposed project (0.25 miles to 3 miles from the project site) that have hazardous material concerns. These sites were determined to not pose a significant environmental threat to the project site. Implementation of a geothermal power plant would not affect the use of the adjacent properties as cattle slaughter and packing operations. DEIR page 4.9-7 notes that the proposed project would not result in a long-term impact to agricultural uses in the project area and identifies mitigation measures MM 4.9.2a and MM 4.9.2b to address potential land use conflicts during site construction.

Response 1-32: 649 East Rutherford Road is approximately 2.5 miles northeast of the power plant site. 352 East Shank Road is located approximately .75 miles south of the project, not .25 mile. 54555 Kershaw Road is approximately 1.75 miles north of the project. Wiest Lake is approximately 2.25 miles northeast of the power plant site. These projects are not included in the proposed project's "surrounding" land use. Nevertheless, the DEIR generally describes the project and its surrounding vicinity as having agricultural land uses, which include cattle rearing and slaughterhouses. The commenter is referred to Response 1-31.

CEQA Guidelines Section 15125 provides in relevant part: "An EIR must include a description of the environment in the vicinity of the project, as it exists before the commencement of the project, from both a local and regional perspective. The description shall be no longer than is necessary to an understanding of the significant effects of the proposed project and its alternatives. [¶] (a) Knowledge of the regional setting is critical to the assessment of environmental impacts. Special emphasis should be placed on environmental resources that are rare or unique to that region and would be affected by the project."

Additionally, the commenter is referred to page 4.0-1 of the DEIR, which describes the baseline environmental conditions that were assumed for the proposed project analysis generally. The environmental setting conditions of the project site and the surrounding area are provided in the technical sections of the DEIR (Sections 4.1 through 4.14). Moreover, page 3.0-4 of the DEIR describes the current and surrounding land uses of the proposed project, including the following language:

> *Due west of the project is the Brawley Wastewater Treatment Plant (BWWTP). South of the project site is actively cultivated farmland. The New River runs west of the project site, beyond the agricultural land. The Del Rio Country Club and the City of Brawley are southwest of the project area. Best Road aligns north-south along the eastern side of the plant site. The plant site is bordered to the north by Field Road, on the east by the concrete-lined Best Lateral, on the south by an Imperial Irrigation District (IID) drain, and on the west by a dirt road that parallels the southwest- to northeast-trending tracks of the Union Pacific Railroad.*

Given that the power plant location would have the most intense construction and land use impacts and therefore resource impacts, the surrounding land uses to describe the existing conditions for the baseline analysis were premised off of the power plant site. However, as described above, each technical section in the DEIR analyzes the baseline conditions that are specific to the resource area (i.e., watershed, air basin) for an accurate impact assessment of direct and indirect impacts as well as cumulative impacts. The commenter is also referred to Response 1-31 and 1-162.

Response 1-33: 57 Shank Road is located approximately 1 mile southwest of the proposed power plant facility. The commenter is also referred to Response 1-31.

Response 1-34: The commenter is referred to page 4.2-16 of the DEIR. The project proposes to remove 188.75 acres (6 percent of the project site) of actively cultivated farmland from agricultural production for a period of approximately 30 years. The remaining 2,844.5 acres that the project area covers will remain under agricultural production. It is unclear how the proposed project will impact existing cattle feedlots and slaughterhouse operations within a 3-mile radius of the project. The commenter is referred to Response 1-5 regarding water supply infrastructure. Additionally, to the extent the commenter suggests that the EIR's discussion of odor impacts should also consider odors from feedlots, the EIR is not required to analyze the significant effects of the environment on the proposed project (*Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal.App.4th 455, 473).

Response 1-35: The commenter states the DEIR does not provide a table with ambient air background concentrations of pollutants. As the commenter suggests, ambient air quality concentrations are not required under CEQA. Nonetheless, the commenter is referred to FEIR Section 4.0, Minor Revisions to the DEIR, that updates Section 4.3 by including Table 4.3-2, Ambient Air Quality Monitoring Data. While the commenter provides the yearly average

of days in which PM_{10} (particulate matter between 2.5 and 10 microns) standards were exceeded throughout the entire Salton Sea Air Basin between the years 2007 and 2009, the following text added to DEIR Section 4.3, page 4.3-6 reflects pollutant concentrations and days in which ozone, PM_{10}, $PM_{2.5}$ (particulate matter smaller than 2.5 microns), carbon monoxide, and nitrogen oxide standards were exceeded between the years 2008 and 2010. As opposed to depicting statistics averaged across the entire Salton Sea Air Basin, which is not representative of pollutant concentration in the project vicinity, the following text relies on measurements from the closest air pollutant monitoring stations to the project site. The Salton Sea Air Basin is in attainment for SO_2 (state and federal) and unclassified for lead and H_2S (state). In 2010, concentrations for SO_2 were 0.004 parts per million (ppm) (High) and 0.00 ppm (Annual Average) for the high at the City of Calexico monitoring station. No monitoring data was available for lead or H_2S.

The following text has been added to DEIR Section 4.3, page 4.3-6:

> The nearest ambient air quality monitoring station to the proposed project area is the Westmorland–1st Street monitoring station for ozone, located approximately 6 miles to the northwest of the project area, and the Brawley–220 Main Street monitoring station for particulate matter, located just over 2 miles south of the project in Brawley. **Table 4.3-2** summarizes historical occurrences of pollutant levels for the monitoring stations, based on the last three years of available data (i.e., 2008–2010). The number of days for which state and federal ambient air quality standards have been exceeded during this same monitoring period are also presented. As depicted, there have been no days during which measured concentrations of carbon monoxide or nitrogen dioxide exceeded federal or state ambient air quality standards during the last three years of available data. The state standard for PM_{10} was exceeded on 61-plus days in 2008 and on 90 days in 2009, but on only 47-plus days in 2010. The state standard for ozone was exceeded on 23 days in 2009 but only on 7 and 5 days in 2008 and 2010, respectively.

TABLE 4.3-2
AMBIENT AIR QUALITY MONITORING DATA

Pollutant Standards	2008	2009	2010
Ozone			
Max 1-hour concentration (ppm)	0.102	0.150	0.089
Max 8-hour concentration (ppm) (state/federal)	0.89/0.88	0.87/0.87	0.77/0.77
Number of days above state 1-hr standard	2	8	0
Number of days above state/federal 8-hour standard	7/6	23/7	5/2
Respirable Particulate Matter (PM_{10})			
Max 24-hour concentration (μg/m3) (state/federal)	138/137	196.4/196.4	105.9/61.6
Number of days above state/federal standard	61.1/0	90/18.8	47.9/0
Fine Particulate Matter (PM2.5)			

Pollutant Standards	2008	2009	2010
Max 24-hour concentration (μg/m3) (state/federal)	32.7/32.7	26.6/26.6	16.2/16.2
Number of days above state/federal standard	0	–	–
Carbon Monoxide (CO)			
Max 8-hr concentration (ppm)	6.34	7.46	5.61
Number of days above state/federal 8-hour standards	0/0	0/0	0/0
Nitrogen Dioxide (NO_2)			
Max 1-Hour concentration (ppm)	0.146	0.122	0.141
Annual concentration (ppm)	0.012	0.010	–
Number of days above state standard	0	0	0

Source: California Air Resources Board. 2011. Air Quality and Emissions. http://www.arb.ca.gov/adam/index.html
Based on ambient monitoring data obtained from the Westmorland-1st Street monitoring station for ozone and the Brawley–220 Main Street monitoring station for particulate matter.
– Insufficient or no data currently available to determine the value.

Response 1-36: The commenter is referred to Response 1-35 for a listing of existing ambient air pollutant concentrations as identified by the California Air Resources Board. The commenter is referred to pages 4.3-6 through -7 of the DEIR for a table listing the ambient air quality standards.

Response 1-37: DEIR pages 4.4-1 through -22, as well as Appendix E, provide an extensive description of biological resources and habitat conditions in the project area. Since release of the Draft EIR, additional biological resource technical evaluation of the project was conducted that further supports the impact conclusions of the DEIR and has been included as **Appendix A** to this document (East Brawley Geothermal Development Project Biological Resources Evaluation, September 2011). This comment provides no technical information that counters the conclusions of the DEIR.

Response 1-38: The commenter is referred to Responses A-1 regarding biological resources near proposed Well Site 44-15 and **Appendix A** for the updated biological resource evaluation of the project area. Proposed Well Site 45-15 is adjacent to the City of Brawley Wastewater Treatment Plant in desert scrub habitat similar to the proposed plant site (see Figure 5 of the East Brawley Geothermal Development Project Biological Resources Evaluation). The minimal loss of desert scrub habitat was not considered a significant impact in the DEIR given its abundance in the region.

Response 1-39: As identified in the East Brawley Geothermal Development Project Biological Resources Evaluation in **Appendix A** (see Figure 5 and page 2.0-8), the canals and ditches in the project area have minimal habitat value with the exception of two sites identified in Figure 5 of the evaluation that could support habitat for special-status species (e.g., Yuma clapper rail). The project proposes well sites (27-10 and 11-15) and pipelines near the northern feature, while a portion of the project features (existing Well Site 18-15 and pipelines east of the well site) near the southern feature have already been constructed. The project applicant does not anticipate placing any project features within the habitat areas.

However, the following mitigation measure is added to ensure no impacts to these habitat areas and associated special-status species occurs.

The following mitigation measure is added to DEIR page 4.4-32:

MM 4.4.1c Project pipelines shall be placed within existing roadway features or other disturbed areas outside of irrigation ditches and canals (with the exception of required crossing points). New pipelines associated with Well Sites 27-10, 11-15, and 18-15 shall be sited 100 feet outside of dense reed and cattail areas identified in Figure 5 of the East Brawley Geothermal Development Project Biological Resources Evaluation (September 2011), and construction exclusion fencing shall be established in these areas to avoid impacts.

Timing/Implementation: Prior to construction-related disturbance to water features

Enforcement/Monitoring: County of Imperial Planning and Development Services Department

Response 1-40: Since release of the Draft EIR, additional biological resource technical evaluation of the project was conducted that further supports the impact conclusions of the DEIR and has been included as **Appendix A** to this document (East Brawley Geothermal Development Project Biological Resources Evaluation, September 2011). The evaluation provides a further description of habitat conditions along the New River (see page 2.0-9 of the East Brawley Geothermal Development Project Biological Resources Evaluation). The New River has functions as a corridor for several species. The project will not result in physical changes in the New River or changes the flow of the New River in excess of annual variations. See DEIR pages 4.4-31, 4.4-32, 4.4-34, and 4.8-19 and -20. Corridor functions of the New River would not be disturbed by this project. This additional information does not alter the conclusions of the DEIR.

Response 1-41: Since release of the Draft EIR, additional biological resource technical evaluation of the project was conducted that further supports the impact conclusions of the DEIR and has been included as **Appendix A** to this document (East Brawley Geothermal Development Project Biological Resources Evaluation, September 2011). The evaluation provides a further description of wetland and riparian habitat conditions in the project area that could be impacted by the project (see Figures 4 and 5 and pages 2.0-8 and -9 of the East Brawley Geothermal Development Project Biological Resources Evaluation). This additional information does not alter the conclusions of the DEIR. Though the Brawley Bypass Wetland Mitigation Project and the New River Wetlands Project are in the vicinity of the project, the project will not result in any impacts to these resources. The conclusions of the DEIR are not altered. The commenter is referred to

Response 1-120, which further documents that the project would not substantially alter New River flows which would impact these features.

Response 1-42: The following additional text is added to page 4.6-3 of the DEIR, beneath the third paragraph, to refine the discussion of seismic conditions:

> The Brawley Seismic Zone is a structural depression that lies between the San Andreas fault to the northeast and the Imperial fault to the southwest. The Brawley Seismic Zone was first recognized because of the number of earthquake swarms produced from 1973 through 1979.[1]
>
> The swarm sequences and individual event clusters in the 1979 Imperial County earthquake aftershock sequence defined lineation transverses to the strike of the Imperial fault.[2] Two types of earthquake swarms occur in the Brawley seismic zone. Swarms that occur in the southern end of the seismic zone near the town of Brawley tend to occur in pairs, nucleating on the Imperial fault to the south and propagating away from it into the seismic zone. Swarms occurring in the northern part of the seismic zone nucleate within the seismic zone and do not occur in pairs.[3] Analysis of these swarms suggests they are triggered by creep events on the Imperial fault. The blind faulting controlling the geothermal resource geometry does not extend into recent sediments and therefore is not considered a potential source of ground rupture. Following the 1940 Imperial County earthquake, swarm activity in the Brawley seismic zone ceased until the mid-1970s, most likely because of the drop in regional stress after the Mw 6.9 event.
>
> The Brawley seismic zone is characterized by earthquake swarms, generally less than magnitude 3 or 4. CGS fault parameters for the Brawley Seismic Zone indicate a slip rate of 1 inch per year and a maximum Mw of 6.4.

Response 1-43: Seismic activity in the vicinity of the project site and its potential impacts are thoroughly reviewed and analyzed in Section 4.6, Geology and Soils, of the DEIR. Mitigation measure MM 4.6.2 has been included in the DEIR to address potential seismic hazards associated with development of the proposed project prior to the project's design and construction phase in accordance with CBC standards. The specific earthquake faults listed in the commenter's comment, while not specifically called out in the DEIR, are included in the overall analysis of the 24 major faults and fault zones located within 100 miles of the project site, including the Brawley Fault Zone and Imperial Fault Zone evaluated in the DEIR.

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[1] Johnson, C. E., and D. P. Hill. 1982. "Seismicity of the Imperial Valley, in The Imperial Valley, California, Earthquake of October 15, 1979." United States Geological Survey Professional Paper 1254, p. 15–24.

[2] Ibid.

[3] Hutton, L. K., L. M. Jones, E. Hauksson, and D. D. Given. 1991. "Seismotectonics of Southern California." In D.B. Slemmons, E. R. Engdahl, M. D. Zoback, and D. D. Blackwell, eds. *Neotectonics of North America*. Boulder, CO: Geological Society of America, Decade Map Vol. 1, p. 133–151.

Response 1-44: The commenter is referred to Response E-2. As stated on page 4.7-5 of the DEIR, at the time of the site visit in September 2008 and November 2008 to evaluate hazardous materials, cleaning of the property was ongoing. Additionally, the following mitigation measure is included on page 4.7-20 of the DEIR to ensure that proper remediation of any potentially hazardous materials has been carried out prior to any ground-disturbing activities occurring on the project site (though the potential for this impact is considered low):

MM 4.7.1d Before excavation within the areas proposed to be graded for development, the applicant shall prepare a Health and Safety Plan (HSP) to minimize the risk of exposure of workers to residual agricultural chemicals in soil. The plan shall describe the chemicals potentially contained in the soil and potential routes of exposure; incorporate construction safety measures (including appropriate personal protective equipment and procedures) for excavation and remediation or disposal activities; establish procedures for the safe storage and use of hazardous materials at the project site, if necessary; provide emergency response procedures; and designate personnel responsible for implementation of the HSP. The HSP shall be submitted to the Imperial County Public Health Department for review and approval prior to the issuance of a grading permit.

Timing/Implementation: *Prior to the issuance of a grading permit*

Enforcement/Monitoring: *Imperial County Planning and Development Department and Public Health Department*

Response 1-45: The commenter is referred to Responses E-2 and 1-44. With the implementation of these mitigation measures (in addition to those identified in the DEIR in Section 4.7), potential contaminants from the proposed project site will have been removed and residual contaminants properly remediated in accordance with local, state, and federal requirements.

Response 1-46: The commenter is referred to Responses E-2 and 1-44. Implementation of these additional mitigation measures, including preparation of a Phase II ESA, will ensure that baseline soil conditions will be properly assessed and remediated by local, state and federal requirements prior to demolition of construction activities occurring on the project site. These measures will further ensure that workers on the project site will be protected from exposure during project construction.

Response 1-47: The commenter makes general statements as to the adequacy of the DEIR without providing specific information as to the inadequacy of the document. The commenter is referred to Responses 1-25 through 1-46.

Response 1-48: Geothermal production has been identified as a unique resource that does not conflict with agricultural development. The Imperial County General Plan Geothermal/Transmission Element establishes that the County of Imperial supports and encourages the full, orderly, and efficient development of geothermal resources, while at the same time preserving and enhancing, where possible, agricultural, biological, human, and recreational resources. Imperial County evaluated the impacts of geothermal development on agriculture because of the expansion of the geothermal overlay zone in the Master Environmental Impact Report (MEIR) dated December 1981. The MEIR concluded that while enlargement of the geothermal overlay zone would result in a loss of arable land, it would not result in a significant loss of agricultural acreage in production or interfere with agricultural activities if appropriate mitigation was implemented.

Additionally, the commenter is referred to Response 1-34. The proposed project will temporarily convert 188.75 acres (6 percent of the project site) of actively cultivated farmland to geothermal uses. This represents .003 percent (512,163 acres) of total agricultural lands within Imperial County. It is unclear how the proposed project will indirectly impact surrounding agricultural uses while maintaining 94 percent of the project site as active agricultural lands.

DEIR page 4.9-7 notes that the proposed project would not result in a long-term impact to agricultural uses in the project area and identifies mitigation measures MM 4.9.2a and MM 4.9.2b to address potential land use conflicts during site construction.

Response 1-49: It is unclear how the proposed project will indirectly impact surrounding agricultural uses while maintaining 94 percent of the project site as active agricultural lands.

DEIR page 4.9-7 notes that the proposed project would not result in a long-term impact to agricultural uses in the project area and identifies mitigation measures MM 4.9.2a and MM 4.9.2b to address potential land use conflicts (which may also be considered indirect impacts of the project) during site construction. The commenter is referred to Responses 1-34 and 1-48.

Response 1-50: The commenter is referred to Responses 1-23 and 1-48. The proposed project will not create new access roads. The use of existing access roads in the area of the project site for construction, operation, and maintenance activities would not prohibit continued agricultural operations adjacent to the project site resulting in significant indirect impacts to agricultural resources. As identified on DEIR page 4.12-12, the proposed project would generate 84 daily trips. This is an insignificant number of trips to support well maintenance and plant activities, and would not result in indirect impacts on agricultural resources in the project vicinity. The commenter is also referred to Response 1-18 regarding the ability to accommodate project construction within disturbed areas, which is not expected to result in substantial indirect impacts to agricultural operations.

Response 1-51: The transmission line, substation, and water pipelines are part of the proposed improvements for the project that would be occurring in disturbed or developed areas (e.g., within existing roadways), all of which have been evaluated in the DEIR. The commenter is also referred to Response 1-4.

Response 1-52: The commenter is referred to Response I-48. In addition, the County will require the project applicant to enter into an agreement between the County and the applicant outlining the terms and conditions of the CUP. As required by a similar agreement on the North Brawley Geothermal project, the applicant (Permittee) shall prepare and implement a plan for when the operation of the plant site and other permitted facilities has ceased, that all facilities shall be dismantled, and the land involved be made compatible with the surrounding uses (in this case agricultural land). A Bond, Letter of Credit, or other acceptable surety, or other forms of security acceptable to the County, in the amount of $1,000,000, in addition to any amount set by the California Division of Oil, Gas and Geothermal Resources, shall be filed with the County that guarantees restoration of the land at the plant site to its condition prior to development. This will ensure that the project's impacts on conversion of farmland are less than significant.

The commenter's comment that "once farmland is used for urban development, it is essentially lost as an agricultural resource" is taken out of context. The DEIR further states the project is consistent with the County's land use designation of A-2-G regarding conversion of agricultural land for geothermal use and that this was anticipated in the County's General Plan. Because the project site would be returned to agricultural use and the proposed project does not propose substantial acreage of Prime Farmland that would impair existing and future agricultural operations, impacts to the loss of agricultural land are considered less than cumulatively significant. The commenter is also referred to Response 1-162.

Response 1-53: While the comment does not provide evidence to support this assertion, it is understood that this comment is an introductory comment; further elaboration is forthcoming in subsequent comments, which are addressed in Responses 1-54 through 1-93. The air quality impact analysis was prepared by Environmental Management Associates, Inc. (2010), and updated in January 2012, using methodologies and assumptions recommended within the various guidelines of the Imperial County Air Pollution Control District (ICAPCD) (see **Appendix C**). Regional and local air quality conditions are presented, along with pertinent air quality standards and regulations. Mitigation measures are recommended, as necessary, to reduce significant air quality impacts.

Response 1-54: During the preparation of the DEIR, there was not an accurate method for calculating $PM_{2.5}$. Since release of the DEIR, additional air quality modeling and analysis to respond to the commenter's concerns was conducted using CalEEMod and is provided in **Appendix C**. The CalEEMod program calculates emissions for both particulate matter with

aerodynamic radius less than 10 microns (PM_{10}) and particulate matter with aerodynamic radius less than 2.5 microns ($PM_{2.5}$). The CalEEMod program calculates $PM_{2.5}$ emissions for each generating source using available emissions factors, such as USEPA AP 42 for fugitive dust or the conservative assumption that $PM_{2.5}$ emissions equal PM_{10} emissions (for combustion particulates). As the ICAPCD does not identify significance thresholds for $PM_{2.5}$, the significance threshold used by the South Coast Air Quality Management District is applied to $PM_{2.5}$ emissions from project construction activities (CEQA Guidelines Section 15064.7 [lead agencies may consider thresholds or adopted recommendations by other agencies provided the thresholds are supported by substantial evidence]). The following updated emissions for construction and operation including $PM_{2.5}$ have been identified (see revised DEIR air quality emission Tables 4.3-5, 4.3-6, and 4.3-7). These tables provide the winter and summer unmitigated and mitigated daily air pollution emissions (calculated by CalEEMod or other methods identified in **Appendix C** for each of the project activities) which have been summed by applicable activities across the 12 identified time periods. These tables also compare the daily air pollution emissions summed by activities across all applicable time periods against the ICAPCD daily emission thresholds. No significant $PM_{2.5}$ emission impacts from construction or operation are expected. The commenter is also referred to Response D-1.

TABLE 4.3-5
MAXIMUM ESTIMATED AIR POLLUTANT EMISSIONS FROM CONSTRUCTION ACTIVITIES[1]

~~Source~~	~~ROG[2]~~	~~NO_x~~	~~CO~~	~~SO_2~~	~~PM_{10}~~
	~~Tons per Year~~				
~~Site Construction 2010[1]~~	~~0.10~~	~~0.76~~	~~0.44~~	~~0.00~~	~~1.33~~
~~Site Construction 2011[1]~~	~~5.61~~	~~6.66~~	~~14.57~~	~~0.01~~	~~1.93~~
~~Site Construction 2012[1]~~	~~3.34~~	~~5.94~~	~~14.40~~	~~0.01~~	~~0.34~~
~~Tons per Pad~~					
~~Well Pad Construction~~	~~0.03~~	~~0.28~~	~~0.15~~	~~0.00~~	~~0.07~~

~~[1] Assumes construction begins November 1, 2010, and ends January 30, 2012, and assumes BWWTP construction begins December 1, 2011, and ends October 31, 2012.~~
~~[2] Reactive organic gases (ROG) are non-methane organic compound emissions that are assumed to be precursors to the formation of secondary photochemical oxidant air pollutants in the atmosphere, including ozone.~~
~~Source: EMA 2010, p. 6~~

Power Plant Site Preparation & All Well Pad Activities (Early through Mid January 2012)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	44.32	330.94	195.14	0.36	236.88	38.57
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**
Summer Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	44.45	330.85	196.31	0.36	236.88	39.57
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**
Winter Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	33.43	317.11	205.25	0.36	99.90	21.56
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	33.56	317.02	206.42	0.36	99.89	21.55
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Power Plant Grading & All Well Pad Activities (Late January through March 2012)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	52.33	392.95	230.03	0.43	231.69	39.91
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**

Summer Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	52.51	392.85	231.68	0.43	231.69	39.61
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**

Winter Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	36.75	374.40	246.51	0.43	99.19	22.69
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Summer Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	36.93	374.30	248.16	0.43	99.18	22.68
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Power Plant Construction A – Foundation Work & All Well Pad Activities (April through Mid June 2012)

Winter Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	45.90	326.06	212.42	0.38	222.93	33.65
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**

Summer Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	46.27	325.64	216.04	0.38	222.91	33.64
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**

Winter Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	36.35	318.47	223.01	0.38	96.37	19.59
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Summer Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	36.72	318.05	226.63	0.38	96.34	19.57
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Power Plant Construction B – Mechanical Work, Well Field Construction & All Well Pad Activities (Mid June through Late June 2012)

Winter Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	94.27	484.97	347.98	0.57	235.87	45.59
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Summer Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	94.64	484.55	351.60	0.57	235.85	45.58
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Winter Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	43.89	464.26	329.40	0.57	106.59	29.81
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	44.26	463.84	333.02	0.57	106.56	29.79
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Power Plant Construction B – Mechanical Work, Well Field Construction, WWTP Site Prep, & All Well Pad Activities (Early July 2012)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	100.19	534.33	371.61	0.62	244.55	48.83
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Summer Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	100.58	533.91	375.36	0.62	244.53	48.82
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Winter Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	46.38	510.21	358.47	0.62	110.85	31.51
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	46.77	509.79	362.22	0.62	110.82	31.49
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Power Plant Construction B – Mechanical Work, Well Field Construction, WWTF Grading, & All Well Pad Activities (Mid July 2012)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	100.73	536.69	375.87	0.62	247.08	52.46
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Summer Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	101.12	536.27	379.62	0.62	247.06	52.45
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Winter Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	46.36	509.96	358.76	0.62	111.78	32.87
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	46.75	509.54	362.51	0.62	111.75	32.85
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Power Plant Construction B – Mechanical Work, Well Field Construction, WWTF Construction, & All Well Pad Activities (Late July 2012)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	97.99	508.25	362.86	0.60	237.52	48.10
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Summer Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	98.39	507.83	366.75	0.60	237.50	48.09
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Winter Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	45.15	485.68	345.19	0.60	107.80	30.88
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	45.55	485.26	349.08	0.60	107.77	30.86
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Power Plant Construction B – Mechanical Work, Well Field Construction & All Well Pad Activities (August 2012)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	94.27	484.97	347.98	0.57	235.87	45.59
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Summer Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	94.64	484.55	351.60	0.57	235.85	46.58
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Winter Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	43.89	464.26	329.40	0.57	106.59	29.81
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Summer Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	44.26	463.84	333.02	0.57	106.56	29.79
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Power Plant Construction B – Mechanical Work, Well Field Construction, Coating, & All Well Pad Activities (September 2012)

Winter Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	96.75	488.47	350.56	0.57	236.24	46.89
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Summer Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	97.13	488.04	354.27	0.57	236.22	46.88
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Winter Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	46.37	467.76	331.98	0.57	106.96	30.11
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Summer Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	46.75	467.33	335.69	0.57	106.93	30.09
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Power Plant Construction B – Mechanical Work, Well Field Construction, Paving, & All Well Pad Activities (October 2012)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	97.72	503.19	359.74	0.59	238.00	48.16
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Summer Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	98.11	502.76	363.52	0.59	237.98	48.15
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Winter Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	44.77	478.89	340.27	0.59	107.97	30.63
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	45.16	478.46	344.05	0.59	107.94	30.61
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Power Plant Construction B – Mechanical Work, Well Field Construction, & All Well Pad Activities (November 2012 through March 2013)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	94.27	484.97	347.98	0.57	235.87	46.59
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Summer Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	94.64	484.55	351.60	0.57	235.85	46.58
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Winter Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	43.89	464.26	329.40	0.57	106.59	29.81
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	44.26	463.84	333.02	0.57	106.56	27.79
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Power Plant Construction B – Mechanical Work, Well Field Construction, & All Well Pad Activities (April through May 2013)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	94.27	484.97	347.98	0.57	235.87	46.59
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Summer Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	94.64	484.55	351.60	0.57	235.85	46.58
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Winter Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	43.89	464.26	329.40	0.57	106.59	29.81
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	44.26	463.84	333.02	0.57	106.56	27.79
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Notes: Mitigation for the well pad site preparation, well pad grading, and drill rig assembly and well drilling and testing CalEEMod models assumed that the off-site unpaved roads to the project would be watered (stabilized) at least three times daily. All construction activity CalEEMod models assumed that the construction contractor would use diesel powered construction equipment using engines with certified NOX emissions rated as Tier 2 or better to reduce NOx emissions.
As ICAPCD does not identify significance thresholds for $PM_{2.5}$, the significance threshold used by the South Coast Air Quality Management District is applied to $PM_{2.5}$ emissions from project construction activities.
Source: EMA 2012. "Updated Air Pollutant Emissions Assessment, East Brawley Project Construction, Imperial County, California" January 29, 2012. (See Appendix C.)

TABLE 4.3-6
SUMMARY OF PROJECTED POWER GENERATION AIR POLLUTANT EMISSIONS BEFORE ABATEMENT BY EMISSION SOURCE (TONS PER YEAR)

Emission Source	$PM_{2.5}$	PM_{10}	SO_2	CO	NO_x	ROC[1]	H_2S	NH_3	C_6H_6[1]
	Tons per Year								
High Pressure Separator	0.00	0.00	0.00	0.00	0.00	48.87	12.79	1.53	48.87
RTO Unit/Scrubber NCG Abatement System Emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sand Separators NCG Emissions	0.00	0.00	0.00	0.00	0.00	2.27	0.45	57.13	2.27

Emission Source	$PM_{2.5}$	PM_{10}	SO_2	CO	NO_x	ROC[1]	H_2S	NH_3	C_6H_6[1]
	Tons per Year								
Injection Filters NCG Emissions	0.00	0.00	0.00	0.00	0.00	0.05	0.01	1.32	0.05
NCG Pipeline Condensate Drains Emissions	0.00	0.00	0.00	0.00	0.00	0.003	0.0007	0.08	0.003
North Cooling Tower Emissions	0.32	11.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
South Cooling Tower Emissions		11.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OEC Isopentane Emissions	0.00	0.00	0.00	0.00	0.00	24.82	0.00	0.00	0.00
Emergency Standby Diesel Fire-Water Pump Engine	0.00	0.0011	0.0001	0.0071	0.06	0.0017	0.00	0.00	0.00
Emergency Standby Diesel Generator Engine	0.00	0.0059	0.0002	0.103	0.11	0.003	0.00	0.00	0.00
Total	**0.32**	**22.63**	**0.00**	**0.10**	**0.17**	**76.02**	**13.25**	**60.08**	**51.20**
ICAPCD Rule 207.C.2.a Significance Threshold	**10[2]**	**25**	**25**	**25**	**25**	**25**	**--**	**--**	**--**
Significant	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**

[1] ROC – reactive organic compound, H_2S – hydrogen sulfide, NH_3 – ammonia, C_6H_6 – benzene. Benzene is also listed as a ROC.
[2] As ICAPCD does not identify significance thresholds for $PM_{2.5}$, the significance threshold used by the South Coast Air Quality Management District is applied to $PM_{2.5}$ emissions from project construction activities.
Source: EMA 2010, Appendix B. $PM_{2.5}$ emission projections sourced from EMA memorandum, "PM_{10} and $PM_{2.5}$ Emissions from East Brawley Project Cooling Towers," January 29, 2012.

TABLE 4.3-7
SUMMARY OF PROJECTED POWER GENERATION AIR POLLUTANT EMISSIONS AFTER ABATEMENT BY EMISSION SOURCE (RTO OPERATING) (TONS PER YEAR)

Emission Source	$PM_{2.5}$	PM_{10}	SO_2	CO	NO_x	ROC[1]	H_2S	NH_3	C_6H_6[1]
	Tons per Year								
High Pressure Separator	0.00	0.00	0.00	0.00	0.00	1.54	0.40	0.05	1.54
RTO Unit/Scrubber NCG Abatement System Emissions	0.00	2.12	0.57	0.00	4.02	0.95	0.25	0.00	0.95
Sand Separators NCG Emissions	0.00	0.00	0.00	0.00	0.00	2.27	0.45	57.14	2.24
Injection Filters NCG Emissions	0.00	0.00	0.00	0.00	0.00	0.05	0.01	1.32	0.05

Emission Source	$PM_{2.5}$	PM_{10}	SO_2	CO	NO_x	ROC[1]	H_2S	NH_3	C_6H_6[1]
	Tons per Year								
NCG Pipeline Condensate Drains Emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00
North Cooling Tower Emissions	0.32	11.32	0.00	0.0	0.00	0.00	0.00	0.00	0.00
South Cooling Tower Emissions		11.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OEC Isopentane Emissions	0.00	0.00	0.00	0.00	0.00	24.82	0.00	0.00	0.00
Emergency Standby Diesel Fire-Water Pump Engine	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.00
Emergency Standby Diesel Generator Engine	0.00	0.01	0.00	0.10	0.11	0.00	0.00	0.00	0.00
Total	**0.32**	**24.76**	**0.57**	**0.11**	**4.20**	**29.64**	**1.11**	**58.60**	**4.82**
ICAPCD Rule 207.C.2.a Significance Threshold	**10[2]**	**25**	**25**	**25**	**25**	**25**	**--**	**--**	**--**
Significant	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**

[1] ROC – reactive organic compound, H_2S – hydrogen sulfide, NH_3 – ammonia, C_6H_6 – benzene. Benzene is also listed as a ROC.
[2] As ICAPCD does not identify significance thresholds for $PM_{2.5}$, the significance threshold used by the South Coast Air Quality Management District is applied to $PM_{2.5}$ emissions from project construction activities.
Source: EMA 2010, p. 9. $PM_{2.5}$ emission projections sourced from EMA Memorandum, "PM_{10} and $PM_{2.5}$ Emissions from East Brawley Project Cooling Towers," January 29, 2012.

Response 1-55: The commenter is referred to Responses D-1 and 1-54. The East Brawley PM_{10} cooling tower emissions stated in the Draft EIR (24.76 tons/year) were conservatively calculated using the U.S. EPA AP-42 methodology by assuming that all particulate emissions would be PM_{10}.

The Reisman and Frisbie methodology was used to conservatively calculate realistic PM_{10} and $PM_{2.5}$ emissions from the East Brawley Project cooling towers (see **Appendix D** for detailed description of this analysis). Using the particle size distribution test data and formulas provided in Reisman and Frisbie, the percent of the total mass emissions of particulate matter that would be equal to or smaller than PM_{10} (8.25 percent) and $PM_{2.5}$ (0.11 percent), respectively, were calculated. From these percentages the ratio of $PM_{2.5}$ to PM_{10} was calculated as 0.0129 (1.29 percent), a very conservative $PM_{2.5}$ emission rate of 0.32 tons per year is calculated from the Draft EIR's PM_{10} emission rate. Assuming instead that the 24.76 tons per year represent total particulate matter emissions, the more realistic PM_{10} and $PM_{2.5}$ emission rates from the project's cooling towers would be 2.04 tons per year and 0.03 tons per year, respectively.

Response 1-56: The commenter is referred to Responses D-1, 1-54, 1-55, and 1-68.

Response 1-57: The Imperial County Air Pollution Control District Rules and Regulations (January 2011) do not recognize either NH_3 or H_2S as precursors to PM_{10} (or $PM_{2.5}$) [see ICAPCD Rule 101 (Definitions) – "Precursor" (pages 101-29 and 101-30)]. Any conversion assumptions of H_2S and/or NH_3 to particulate matter for the project are speculative; there are no accepted conversion rates for H_2S and/or NH_3 to particulate matter. In addition, the estimated emissions of ammonia and hydrogen sulfide are low, and the DEIR already includes mitigation measures MM 4.3.3a and MM 4.3.3b addressing both particulate matter emissions and hydrogen sulfide as part of operations. See also Response 1-255.

Response 1-58: The commenter is referred to Response 1-57. The California Energy Commission decision approving the Salton Sea Unit 6 geothermal power project in Imperial County (02-AFC-2, pg. 7), which is a similar facility to the proposed project from the standpoint of using geothermal brine, stated that CEC staff could not quantify the amount of particulate formed by the conversion of NH_3 or H_2S. The CEC decision went on to state, "For purposes of CEQA, the Commission needs more than a mere possibility that this chemical reaction might take place as a result of project operations in a way that could contribute to PM_{10} violations and thus create a significant impact." See also Response 1-255.

Response 1-59: The commenter is correct that the DEIR relies on the state ambient air quality standard for H_2S as a significance threshold for odor impacts (see page 4.3-26 of the DEIR). However, this is the appropriate threshold for odor impacts. According to the document, *Hydrogen Sulfide: Evaluation of Current California Air Quality Standards with Respect to Protection of Children* (California Air Resources Board and California Office of Environmental Health Hazard Assessment 2001, found at http://www.oehha.ca.gov/air/pdf/oehhah2s.pdf), "The existing California state-wide ambient air quality standard (CAAQS) for H_2S of 0.03 ppm (30 ppb, 42 mg/m^3), averaged over a period of 1 hour and not to be equaled or exceeded, protects against nuisance odor ("rotten egg smell") for the general public." According to this joint authored CARB and California Office of Environmental Health Hazard Assessment (OEHHA) document, the 42 mg/m^3 odor standard for H_2S was based on rounding of the geometric mean odor threshold of 0.029 parts per million (ppm) (range = 0.012 - 0.069 ppm; geometric SD = 0.005 ppm) measured in adults. The standard was reviewed by the Department of Health Services and was not changed.

According to another OEHHA document, *Chronic Toxicity Summary: Hydrogen Sulfide*, (undated), found at http://oehha.ca.gov/air /chronic_rels/pdf/7783064.pdf, H_2S odor detection thresholds for individuals were reported to be log-normally distributed in the general population, with a geometric standard deviation of 4.0, i.e., 68 percent of the general population would be expected to have a detection threshold for hydrogen sulfide between 2.5 and 40 mg/m^3 (2 and 32 ppb). Sources of variation included age, sex, medical conditions, and smoking. Training and alertness of the subject in performing the test also affected the results.

This document further cites the difference between a detection threshold under laboratory conditions and the levels at which an odor could be recognized or at which it was perceived as annoying. Analysis of various laboratory and sociological studies suggested that a level at which an odor could be recognized was typically a factor of 3 greater than the threshold for detection, while the level at which it was perceived as annoying was typically a factor of 5 greater than the threshold. Annoyance was characterized both in terms of aesthetic or behavioral responses and by physiological responses such as nausea and headache. Therefore, although at 10 mg/m^3, for example, 50 percent of the general population would be able to detect the odor of H_2S under controlled conditions, only 5 percent would find it annoying at this level. At 50 mg/m^3, 50 percent would find the odor annoying. On this basis, the use of 10 mg/m^3 (8 ppb) as an odor threshold for H_2S is likely to be detectable by many people under ideal laboratory conditions, but it is unlikely to be recognized or found annoying by more than a few.

Therefore, the state ambient air quality standard for H_2S as a significance threshold for odor impacts (42 mg/m^3) is an appropriate threshold for odor impacts (CEQA Guidelines Section 15064.7 [lead agencies may consider thresholds or adopted recommendations by other agencies provided the thresholds are supported by substantial evidence]). CARB, which enforces the standard for H_2S, has concluded, "The existing California state-wide ambient air quality standard (CAAQS) for H_2S of 0.03 ppm (30 ppb, 42 mg/m^3), averaged over a period of 1 hour and not to be equaled or exceeded, protects against nuisance odor ("rotten egg smell") for the general public" (CARB and California OEHHA 2001). As identified in Draft EIR Appendix D (Assessment of Potential Health Risks from Benzene and Hydrogen Sulfide Emissions from the East Brawley Regenerative Thermal Oxidizer Unit and Caustic Scrubbing System), the highest concentration for the project at an area residence would be for one hour period and would be at 25.82 mg/m^3.

It is also important to note that the project area consists of intensive agricultural and other operations and conditions that currently generate odors (e.g., Brawley Wastewater Treatment Plant, cattle feedlots, natural odors from the Salton Sea) that would be difficult to distinguish from project operations.

Response 1-60: The commenter is referred to Response 1-59.

Response 1-61: The California Energy Commission used an odor threshold of 10 mg/m^3 for H_2S emissions for assessing odor impacts to the cities of Calipatria and Westmorland as a result of the Salton Sea 6 Geothermal power plant. As the initial commissioning of this power plant was projected to surpass 10 mg/m^3, the California Energy Commission proposed to mitigate H_2S odors by providing a written notification to the cities of Calipatria and Westmorland and to the Sonny Bono Wildlife Refuge indicating when initial commissioning activities for the Salton Sea 6 Geothermal power plant would start. The letter stated the expected duration of the initial

commissioning and noted that nuisance odors may occur during the initial commissioning period.

As stated in Response 1-59, the OEHHA document, *Chronic Toxicity Summary: Hydrogen Sulfide*, cites the difference between a detection threshold under laboratory conditions and the levels at which an odor could be recognized or at which it was perceived as annoying. Analysis of various laboratory and sociological studies suggested that a level at which an odor could be recognized was typically a factor of 3 greater than the threshold for detection, while the level at which it was perceived as annoying was typically a factor of 5 greater than the threshold. Annoyance was characterized both in terms of aesthetic or behavioral responses and by physiological responses such as nausea and headache. Therefore, although at 10 mg/m^3 50 percent of the general population would be able to detect the odor of H_2S under controlled conditions, only 5 percent would find it annoying at this level. On this basis, the use of 10 mg/m^3 (8 ppb) as an odor threshold for H_2S is likely to be detectable by many people under ideal laboratory conditions, but it is unlikely to be recognized or found annoying by more than a few.

Therefore, the state ambient air quality standard for H_2S as a significance threshold for odor impacts (42 mg/m^3) is an appropriate threshold for odor impacts (CEQA Guidelines, Section 15064.7 [lead agencies may consider thresholds or adopted recommendations by other agencies provided the thresholds are supported by substantial evidence]). CARB, which enforces the standard for H_2S, has concluded, "The existing California state-wide ambient air quality standard (CAAQS) for H_2S of 0.03 ppm (30 ppb, 42 mg/m3), averaged over a period of 1 hour and not to be equaled or exceeded, protects against nuisance odor ("rotten egg smell") for the general public" (CARB and California OEHHA 2001). The highest concentration for the project at an area residence would be for one hour period and would be at 25.82 mg/m^3.

Response 1-62: The commenter states that the air quality section of the DEIR is inadequate because it fails to disclose information necessary to evaluate the significance of the project's construction emissions. While the comment does not provide evidence to support this assertion, it is understood that the comment is an introductory comment and further elaboration is forthcoming in subsequent comments, which are addressed in Responses 1-63 through 1-64. The air quality impact analysis was prepared by Environmental Management Associates, Inc. (2010) using methodologies and assumptions recommended within the various guidelines of the ICAPCD. Regional and local air quality conditions are presented, along with pertinent air quality standards and regulations. Mitigation measures are recommended, as necessary, to reduce significant air quality impacts. The commenter is also referred to **Appendix C** that contains updated air quality modeling and analysis supporting the conclusions of the DEIR.

Response 1-63: DEIR pages 4.3-14 through -17 provide an extensive description of anticipated construction activities for the proposed project. Since release

of the DEIR, additional air quality modeling and analysis to respond to CURE concerns was conducted using CalEEMod and is provided in **Appendix C**. Response 1-54 provides updated daily emissions for construction. As identified in the CalEEMod modeling results in Response 1-54, project construction emissions for ROG and PM_{10} would be reduced below ICAPCD thresholds if Tier 2 construction equipment and routine watering of the project site during construction were employed. The following changes are made to mitigation measures MM 4.3.2a and b to ensure that this impact addressed.

Draft EIR page 4.3-17, the following text change was made to item a of mitigation measure MM 4.3.2a:

a. Water exposed soil with adequate frequency <u>(three times daily at a minimum)</u> for continued moist soil.

Draft EIR page 4.3-17, the following measure is added to mitigation measure MM 4.3.2b:

<u>e. The project shall utilize construction and well re-drilling equipment that meets or exceeds Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in the California Code of Regulations.</u>

The above mitigation will reduce construction emissions for ROG and PM_{10} below ICAPCD thresholds. However, NO_x will still exceed ICAPCD thresholds. As noted in EMA's "Air Quality Impact Analysis of NO_x Emissions from Well Pad and Power Plant Construction, East Brawley Geothermal Project, Imperial County, California" (November 2011) (see **Appendix C**), the proposed project construction activities would not exceed state or federal air quality standards for ozone precursors (NO_x). The analysis modeled the air pollutant emissions for the construction of wells and the power plant construction (identified by EMA as the combined construction activity with the highest construction emissions). The high first-high maximum modeled annual NO_x concentration of 20.74 µg/m^3 is below the California NO^2 ambient air quality standards (AAQS) (57 µg/m^3) and the National AAQS (100 µg/m^3), even with the addition of the assumed annual background NO_2 concentration of 15.1 µg/m^3. The highest modeled high first-high 1-hour NO_X concentration of 153.64 g/m^3 is also below the 1-hour NO_2 California AAQS of 339 µg/m^3, also even with the addition of the assumed 1-hour background concentration of 90.6 µg/m^3. Recent EPA guidance directs that the modeled 1-hour NO_X (NO_2) concentrations should follow the form of the standard based on the 98th percentile of the annual distribution of daily maximum 1-hour NO_2 concentrations averaged across the number of years modeled. The "Tier 2" 8th high annual daily maximum modeled 1-hour NO_2 concentration of 90.26 µg/m^3, when added to the assumed 1-hour background NO_2 concentration of 90.6 µg/m^3, does not exceed the National AAQS of 188 µg/m^3 (see Air Quality Impact Analysis of NO_x Emissions from Well Pad and

Power Plant Construction, East Brawley Geothermal Project, Imperial County, California in **Appendix C**).

Response 1-64: The commenter is referred to Response 1-54, where the requested information is provided. Mitigation is still required as identified in the DEIR (mitigation measures MM 4.3.2a and MM 4.3.2b). As identified in Response 1-63, the proposed project construction activities would not exceed state or federal air quality standards for ozone precursors.

Response 1-65: The commenter is referred to **Appendix C** of this FEIR for output data files of the updated construction emissions model and **Appendix D** for the original DEIR model data. The commenter is also referred to Responses 1-54 and 1-63.

Response 1-66: DEIR page 4.3-16 states, "Only one well is typically flow tested at a time (Thomas 2010)." The applicant has reconfirmed that only one well would be flow tested at one time (e-mail from Charlene Wardlow, Ormat, Inc., August 27, 2011). In addition, page 4.3-26 of the DEIR states, "the concentrations of H_2S measured in the geothermal fluids in the North Brawley geothermal area are low (EMA 2010, p. 16), and H_2S emissions during drilling and flow testing would be short term and temporary (about 20 days)." The commenter is also referred to Responses 1-59 and 1-61.

Response 1-67: The air quality impact analysis in the DEIR evaluates all project-related emissions (see DEIR pages 4.3-12 through -27). As noted in Response 1-54, since release of the DEIR, additional air quality modeling and analysis to respond to CURE concerns was conducted using CalEEMod and is provided in **Appendix C**. This analysis considers all project operational emissions and confirms the conclusions of the DEIR analysis.

Response 1-68: The commenter is referred to Response 1-54 and **Appendix C**. In addition to the emission sources identified in DEIR Table 4.3-7, the following air pollutant emissions would also occur associated with day-to-day activities (worker commute trips and on-site equipment—activities not subject to ICAPCD Permit 207.C.2.a and the associated thresholds utilized by ICAPCD for power plant emissions). Mitigation measures MM 4.3.3a and MM 4.3.3b have been identified to address operational power plant emissions.

The emissions in the table below constitute the total ongoing day-to-day emissions associated with facility operations, including secondary mobile sources. As identified in the table, no significant air quality impacts (from exceeding the ICAPCD thresholds noted below) result from these activities.

Occasional well re-drilling and testing during the life of the project would be a temporary activity and generate following maximum emissions similar to construction activities based on EMA Recalculation of Tier 2 NO_x and ROG Air Pollutant Emissions Incorrectly Calculated by CalEEMod for the East Brawley Project Construction Activities Attachment A (see **Appendix C**). As noted in Response 1-63, the proposed project construction activities would not exceed state or federal air quality

standards for ozone precursors (NO_x) (including well drilling activities in combination with other plant construction activities).

ROG: 26.26 pounds per day

NO_x: 188.60 pounds per day

CO: 121.91 pounds per day

SO_2: 0.21 pounds per day

PM_{10}: 28.15 pounds per day

$PM_{2.5}$: 8.98 pounds per day

H2S: 6.9 pounds over a six hour flow test

TABLE 3.0-1
FACILITY OPERATIONAL EMISSIONS

Power Plant & BWWTP Operations						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	2.30	12.40	16.29	0.02	56.86	5.92
ICAPCD Threshold	55	55	550	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Summer Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	2.50	12.68	18.44	0.02	56.86	5.93
ICAPCD Threshold	55	55	550	150	150	55
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: As ICAPCD does not identify significance thresholds for $PM_{2.5}$, the significance threshold used by the South Coast Air Quality Management District is applied to $PM_{2.5}$ emissions from project construction activities.
Source: EMA 2012. "Supplemental Air Pollutant Emissions Assessment, East Brawley Project Operations, Imperial County, California," January 29, 2012. (See Appendix C.)

This information does not create any additional impacts beyond what is presented in the DEIR.

Response 1-69: The total particulate matter emissions from project operations are shown above and in Response 1-54. The level of detail requested in terms of emissions from road dust and wind erosion is not reasonably feasible or necessary. Total fugitive dust emissions result from the entirety of all dust-

generating activities, including road dust and wind erosion. Separating out each activity (generation of road dust and erosion from wind), and studying them exhaustively, will result in an imprecise analysis because the entire picture of fugitive dust emissions may be obscured.

Quantifiable particulate matter emissions are not released during the operation of sand separators. The commenter is referred to pages 4.3-19 and -21 of the DEIR for a disclosure of projected sand separator-associated particulate matter emissions both before and after the implementation of mitigation. Particulate matter emissions are projected at 22.63 tons per year before mitigation and 24.76 tons per year after mitigation. Particulate matter emissions increase after mitigation due to the use of the regenerative thermal oxidizer (RTO) unit and the caustic scrubber system which is used to abate the combustible noncondensible gas (NCG) air pollutant emissions. The RTO unit would remove by thermal oxidation essentially all of the ammonia and a minimum of 98 percent of the methane (CH_4), benzene (C_6H_6), and hydrogen sulfide (H_2S) in the geothermal NCG delivered to the RTO unit. Some particulate matter emissions would be generated from the scrubber, resulting from the dissolved solids in the caustic scrubbing liquid which would be entrained in the gases emitted from the scrubber stack. The RTO/scrubber system represents Best Available Control Technology (BACT) for removal of the H_2S and C_6H_6 in the NCG.

The commenter is referred to Impact 4.3.3 of the DEIR, which addresses emissions from fugitive isopentane sources like valves, connections, seals, and tubes under the headings "Other Fugitive Emissions Sources" and "Fugitive Isopentane Emissions." The commenter is also referred to Impact 4.7.3 of Section 4.7, Hazardous Materials/Public Health, of the DEIR for a discussion of the potential for accidental releases of isopentane.

Isopentane is an organic compound with a variety of uses, ranging from an ingredient in cosmetics to a component in geothermal power plants. This solvent is extremely flammable. Its tendency to evaporate makes it useful for dissolving compounds, since it is easily evaporated away. Isopentane smells like gasoline and does not dissolve in water, but floats on top of it. Isopentane is used in geothermal plant processes as geothermal plants tap into heat energy deep in the earth and convert it to electricity. Hot water from the geothermal energy heats liquid isopentane and turns it into a gas. This gas then drives a turbine and generator to generate the power plant's electricity. The annual fugitive emissions of isopentane from the project without mitigation are estimated at about 25 tons. An off-site consequence analysis has been prepared for the project (see Appendix J of the DEIR) that addresses the potential hazards associated with a release of isopentane from the power plant site.

Response 1-70: The commenter is referred to Response 1-68 above. Total fugitive dust emissions are the whole of all dust-generating activities. Separating out each activity, and studying them exhaustively, will result in an imprecise analysis. The commenter provides no evidence to support the stated emissions.

Response 1-71: A sand separator at the surface of the production well, consisting of multiple hydro cyclones, is used to separate suspended solids prior to entry to the brine gathering system. The hydro cyclones use pressure energy from the flow stream to achieve cyclonic separation of solids. The change in flow direction forces the mixture to spin in a radial vortex pattern. This vortex flow is accelerated as the internal diameter is reduced over the length of the cone. Solids that exit through the apex collect into an accumulation chamber, where they are periodically purged, while the overflow discharges continually. The most significant point, however, is that there is likely no PM_{10} emissions from sand separators, as the sand is completely saturated/wet and there is no pressurized spray or any way that the saturated sand would be emitted. The separator removes the particles from the water so that they are not emitted into the atmosphere. See also Response 1-251. Additional information on the sand separators was provided to the APCD.

The commenter is referred to pages 4.3-19 and -21 of the DEIR for a disclosure of projected sand separator-associated noncondensible gas emissions both before and after the implementation of mitigation. As depicted on these pages, emissions projected to result from project sand separators have been added together with all other stationary emissions sources.

Response 1-72: As explained in Response 1-71, resultant particulate matter emissions are not released during the operation of sand separators, and no testing for particulate emissions is needed.

Response 1-73: As stated on pages 4.3-18 and -19 of the DEIR, each OEC unit would have minute leaks of the motive fluid (isopentane) from valves, connections, seals, and tubes, which would be released either to the atmosphere or into the geothermal fluid or circulating cooling water lines. Isopentane would also be discharged to the atmosphere from OEC unit vapor recovery units (through which air leaked into the isopentane condensers is discharged to recover isopentane vapors) and during OEC unit maintenance activities. The annual fugitive emissions of isopentane from the project without mitigation are estimated at about 25 tons based on inventory losses at similar facilities. Mitigation measure MM 4.3.3b addresses these emissions. The commenter is also referred to Response 1-54.

The commenter is referred to Impact 4.7.3 in Section 4.7 of the DEIR for a discussion on the potential for accidental releases of isopentane. As stated under Impact 4.7.3, in the event of a hazardous material leak or spill, the Imperial County Fire Department would respond to manage the emergency.

Response 1-74: The commenter is referred to Impact 4.3.3 of the DEIR. As required by CEQA, the project has been analyzed for its contribution of air pollutants. The commenter is referred to Response 1-35 for ambient air pollutant concentrations in the project area. The air quality impact analysis was prepared by Environmental Management Associates, Inc. (2010) using methodologies and assumptions recommended in the various guidelines of the ICAPCD, specifically ICAPCD Rule 207, which addresses stationary

source emissions like the proposed power plant. The ICAPCD provides quantitative criteria in the form of thresholds to help in the assessment of environmental impacts, and these criteria were used for this analysis. The assessment of ozone emissions in combination with existing ambient concentrations is not a requirement under the ICAPCD criteria.

As stated in the discussion under Impact 4.3.3 of the DEIR, the project would result in a less than significant impact with regard to operational ozone emissions with adherence to ICAPCD Rule 207.C.2.a, which requires offsets for facility emissions of each regulated air pollutant in excess of 137 pounds per day. Mitigation measure MM 4.3.3b of the DEIR mandates that the proposed project be required to fulfill its obligations mandated in ICAPCD Rule 207.C.2.a in order to mitigate project air pollutants associated with ozone in excess of 137 pounds per day with the purchase of necessary emission offset credits from one or more entities prior to the initiation of plant operations. Implementation of mitigation measure MM 4.3.3b would ensure compliance with ICAPCD Rule 207.C.2.a.

According to the ICAPCD, offsets are actual emission reductions sufficient to offset emission increases from a new or modified emissions unit (ICAPCD Rules and Regulations, January 2011).

Response 1-75: The air quality impact analysis was prepared by Environmental Management Associates, Inc. (2010) using methodologies and assumptions recommended in the various guidelines of the ICAPCD, specifically ICAPCD Rule 207, which addresses stationary source emissions like the proposed power plant. The ICAPCD provides quantitative criteria in the form of thresholds to help in the assessment of environmental impacts, and these criteria were used for this analysis. The assessment of reactive organic gas (ROG) emissions in combination with existing ambient concentrations is not a requirement under the ICAPCD criteria. The commenter is also referred to Responses 1-69 and 1-74 above regarding limiting ROC emissions.

Response 1-76: As stated in the discussion under Impact 4.3.3 of the DEIR, the project would result in a less than significant impact in regard to operational ozone emissions with adherence to ICAPCD Rule 207.C.2.a, which requires offsets for facility emissions of each regulated air pollutant in excess of 137 pounds per day. Mitigation measure MM 4.3.3b of the DEIR mandates that the proposed project be required to fulfill its obligations mandated in ICAPCD Rule 207.C.2.a in order to mitigate project air pollutants associated with ozone in excess of 137 pounds per day with the purchase of necessary emission offset credits from one or more entities prior to the initiation of plant operations. Implementation of mitigation measure MM 4.3.3b would ensure compliance with ICAPCD Rule 207.C.2.a.

Since 1993, Health and Safety Code Sections 40709 and 40709.5 have required local air quality management districts/air pollution control districts to collect information about the cost of offset transactions from stationary source owners who purchase offsets as required by district New Source Review programs. State law also requires districts to adopt emission reduction credit banking programs. Districts are required to

collect specific information about offset transactions including the price paid in dollars per ton, the pollutant traded, the amount traded, and the year of the transaction. Districts are also required to annually publish this information without revealing the identity of the parties involved with the transaction. According to the ICAPCD, offsets are actual emission reductions sufficient to offset emission increases from a new or modified emissions unit (ICAPCD Rules and Regulations, January 2011) as they provide for no net increase in emissions pursuant to Section 40918 of the Health and Safety Code.

Response 1-77: As stated on page 4.3-21 of the DEIR, ICAPCD Rule 207.C.2.a requires offsets for facility emissions of each regulated air pollutant in excess of 137 pounds per day. As seen in Table 4.3-7 of Section 4.3 of the DEIR, even with implementation of the RTO unit and scrubber system, the power plant would emit 29.64 tons per year (161 pounds per day) of ROG, which is in excess of 137 pounds per day, so offsets would be required for these excess project emissions at a rate of 1.2 to 1.0. As stated on page 4.3-21 of the DEIR, the ICAPCD maintains a list of entities that own eligible ROG emission offset credits. Upon issuance of the Authority to Construct for the project from the ICAPCD and pursuant to ICAPCD Rule 207.C.2.a (which establishes these emission thresholds), the applicant will contact and purchase the necessary ROG emission offset credits from one or more of these entities prior to initiation of plant operations and on an annual basis thereafter, as required by mitigation measure MM 4.3.3b.

As stated under Responses 1-74 and 1-76, the ICAPCD considers that offsets are actual emission reductions sufficient to offset emission increases from a new or modified emissions unit (ICAPCD Rules and Regulations, January 2011). As stated on page 4.3-21 of the DEIR, implementation of the offset mitigation would reduce the net emissions of ROG in the Salton Sea Air Basin to a less than significant level, because of the 1.2/1.0 offsets.

Response 1-78: As stated on page 4.3-26 of the DEIR, minimal H_2S emissions would be released during operation of the project power plant, as the majority of the gas would be injected back into the geothermal reservoir via the injection wells. Air quality modeling conducted for the project shows that power plant emissions of H_2S from the scrubber stack would not produce hydrogen sulfide concentrations in excess of the state ambient air quality (odor) standard at any occupied residence. H_2S would also be emitted during well drilling and flow testing. However, the concentrations of H_2S measured in the geothermal fluids in the North Brawley geothermal area are low, and H_2S emissions during drilling and flow testing would be short term and temporary.

While the discussion of possible odor impacts in the DEIR does not specifically name NH_3 as a potential odor nuisance, page 4.3-20 of the DEIR states that projects which have the potential to emit regulated air pollutants must comply with ICAPCD rules and regulations. ICAPCD Rule 407 states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause

nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public (ICAPCD Rules and Regulations, January 2011).

Finally, unlike the feedlots in the vicinity of the project site, the ammonia emitted from the 46 sand separators is distributed throughout the approximately 2.5-square-mile well field at approximately half-mile intervals. Thus, the ammonia emitted from each sand separator (amounting to less than 7 pounds per day) would have a negligible potential to create a significant odor.

The commenter is also referred to Responses 1-59 and 1-61.

Response 1-79: Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

While the discussion of possible odor impacts in the DEIR does not specifically name NH_3 as a potential odor nuisance, page 4.3-20 of the DEIR states that projects which have the potential to emit regulated air pollutants must comply with ICAPCD rules and regulations. The air quality impact analysis was prepared using methodologies and assumptions recommended in the various guidelines of the ICAPCD. The ICAPCD does not have a quantifiable threshold for odor impacts because, as stated above, the ability to detect odors varies considerably among the population and overall is quite subjective. The proposed project would be subject to ICAPCD Rule 407, which states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public (ICAPCD Rules and Regulations, January 2011). This rule does not apply to odors emanating from agricultural operations necessary for the raising of animals.

As noted by the commenter, the vicinity surrounding the project is currently subject to substantial odors due to cattle feedlots in the area, which emit NH_3. As stated on page 4.3-27 of the DEIR, the proposed project's regenerative thermal oxidizer (RTO) unit would remove

essentially all of the ammonia and a minimum of 98 percent of methane, benzene, and hydrogen sulfide in the geothermal NCG delivered to the unit. Therefore, the addition of odors resulting from the project's contribution of 59 tons per year of NH_3 emissions would not be a concern on a cumulative basis considering the existing ambient odor atmosphere.

The commenter is also referred to Responses 1-59 and 1-61.

Response 1-80: This comment is noted. The commenter is referred to Response 1-35 for a depiction of the ambient air quality monitoring data for the project vicinity.

Response 1-81: The air quality impact analysis was prepared by Environmental Management Associates, Inc. (2010) using methodologies and assumptions recommended in the various guidelines of the ICAPCD, specifically ICAPCD Rule 207, which addresses stationary source emissions like the proposed power plant. The ICAPCD provides quantitative criteria in the form of thresholds to help in the assessment of environmental impacts, and these criteria were used for this analysis. The assessment of H_2S emissions in combination with existing ambient concentrations is not a requirement under the ICAPCD criteria. The commenter is also referred to Response 1-78 above.

In terms of the consideration of H_2S emissions from all project components, the commenter is referred to Impact 4.3.3 of the DEIR, which addresses H_2S emissions associated with the proposed high pressure separator, sand separator noncondensible gas (NCG) emissions, injection filter NCG emissions, NCG pipeline condensate drain emissions, OEC isopentane emissions, emergency standby diesel fire-water pump engine, and emergency standby diesel generator engine. The projected H_2S emissions are projected at 13.25 tons per year before mitigation and 1.11 tons per year after mitigation.

In regards to anticipated concentrations, the state ambient air quality standard for H_2S is 42 mg/m^3. As identified in Draft EIR Appendix D (Assessment of Potential Health Risks from Benzene and Hydrogen Sulfide Emissions from the East Brawley Regenerative Thermal Oxidizer Unit and Caustic Scrubbing System), the highest concentration for the project at an area residence would be for one hour period and would be at 25.82 mg/m^3, which is well below the state ambient air quality standard.

Response 1-82: Page 4.3-26 of the DEIR states, "H_2S emissions during drilling and flow testing would be short term and temporary (about 20 days)." This statement has possibly been interpreted by the commenter to mean that the flow testing would last about 20 days when in fact it is stating that the well drilling and flow testing *together* would last 20 days per well during the construction phase of the project. This correct statement is also made clear by footnote 5 on page 13 of Appendix D of the DEIR, which states, "This estimate assumes an average of approximately 6 hours of throttled steam flow per well test as observed during flow tests of the existing East Brawley wells with an average 1.7 x 105 ppm CO_2 and 51 ppm CH_4 in the steam."

DEIR page 4.3-16 states, "Only one well is typically flow tested at a time (Thomas 2010)." The applicant has reconfirmed that only one well would be flow tested at one time (e-mail from Charlene Wardlow, Ormat, Inc., August 27, 2011).

Lastly, page 4.3-16 of the DEIR states, "Some hydrogen sulfide would be emitted to the atmosphere if the wells are flow tested once drilling is complete. The amount of hydrogen sulfide emitted to the air would be small, because a well flow test is short in duration (EMA 2010, p. 7). Assuming that the geothermal fluid contains 70 ppm of hydrogen sulfide and that all of the hydrogen sulfide in the geothermal fluid is released to the atmosphere upon flashing (the change of fluid into steam), a well flow test conducted at rate of 500,000 pounds per hour would emit hydrogen sulfide at a rate of about 35 pounds per hour (EMA 2010, p. 7)." However, more recent production well flow test data from the North Brawley well field, which was used in the calculation of air pollutant emissions for the East Brawley air permit application, indicates that the average production well hydrogen sulfide concentration in the total brine is about 2.3 ppm. This means that the hydrogen sulfide emissions from a 500,000 pounds per hour flow test would be only 1.15 pounds per hour, not the previously supposed rate of 35 pounds per hour projected in the DEIR, and would last about 6 hours.

The commenter is referred to FEIR Section 4.0, Minor Revisions to the DEIR. The following text has been revised in DEIR Section 4.3, page 4.3-16:

> Some hydrogen sulfide would be emitted to the atmosphere if the wells are flow tested once drilling is complete. The amount of hydrogen sulfide emitted to the air would be small, because a well flow test is short in duration (EMA 2010, p. 7). Assuming that the geothermal fluid contains ~~70~~ 2.3 ppm of hydrogen sulfide and that all of the hydrogen sulfide in the geothermal fluid is released to the atmosphere upon flashing (the change of fluid into steam), a well flow test conducted at rate of 500,000 pounds per hour would emit hydrogen sulfide at a rate of about ~~35~~ 1.15 pounds per hour (~~EMA 2010, p. 7~~ EMA 2011, *Air Pollutant Emissions from East Brawley Projects Well Flow Test*, September 2011). Only one well is typically flow tested at a time (Thomas 2010). Therefore, H_2S emissions resulting from well testing activities associated with the project would never exceed more than 6.9 pounds per day.

The following text has been revised in DEIR Section 4.3, page 4.3-26:

> The amount of hydrogen sulfide emitted to the air would be small, because a well flow test is short in duration (EMA 2010, p. 7). Assuming that the geothermal fluid contains ~~70~~ 2.3 ppm of hydrogen sulfide and that all of the hydrogen sulfide in the geothermal fluid is released to the atmosphere upon flashing (the change of fluid into steam), a well flow test conducted at rate of 500,000 pounds per hour would emit hydrogen sulfide at a rate of about ~~35~~ 1.15 pounds per hour (~~EMA 2010, p. 7~~ EMA 2011, *Air Pollutant Emissions from East Brawley Projects Well Flow Test*, September 2011). Only one well is typically flow tested

at a time (Thomas 2010). Therefore, H_2S emissions resulting from well testing activities associated with the project would never exceed more than 6.9 pounds per day.

Response 1-83: Section 15088.5 of the CEQA Guidelines states the following:

> *(a) A lead agency is required to recirculate an EIR when significant new information is added to the EIR after public notice is given of the availability of the draft EIR for public review under Section 15087 but before certification. As used in this section, the term "information" can include changes in the project or environmental setting as well as additional data or other information. New information added to an EIR is not "significant" unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative) that the project's proponents have declined to implement. "Significant new information" requiring recirculation include, for example, a disclosure showing that:*
>
> *(1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.*
>
> *(2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.*
>
> *(3) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponents decline to adopt it.*
>
> *(4) The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded. (Mountain Lion Coalition v. Fish and Game Com. (1989) 214 Cal.App.3d 1043)*

None of these instances has materialized in regard to the proposed project. As stated in CEQA Guideline Section 15088.5(b), "recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR."

Response 1-84: While the comment does not provide evidence to support this assertion, it is understood that the comment is an introductory comment and further elaboration is forthcoming in subsequent comments. The air quality impact analysis was prepared using methodologies and assumptions recommended in the various guidelines of the ICAPCD. The commenter is

referred to Impact 4.3.5 of Section 4.3 of the DEIR for a discussion of hazardous air pollutant (HAP) emissions resulting from the proposed project. As noted under Impact 4.3.5, HAP emissions are accounted from various project components including high pressure separator emissions, RTO unit/scrubber NCG abatement system emissions, sand separator NCG emissions, injection filter NCG emissions, NCG pipeline condensate drain emissions, the north cooling tower, the south cooling tower, OEC isopentane emissions, the emergency standby diesel generator, and the emergency standby diesel fire-water pump.

Response 1-85: The short-term (acute) effects of the H_2S and benzene emissions were modeled using the *unabated* H_2S and benzene emissions from the high pressure separators, which are 96.4 percent and 95.3 percent, respectively, of the project's unabated emissions of H_2S and benzene (see Appendix B of Appendix D [Air Quality Assessment] of the DEIR).

The long-term health risks from H_2S and benzene were modeled using the hourly averages of the annual emissions from *both* the high pressure separators (emitted through the cooling towers) and the RTO unit/scrubber, which are 58.1 percent and 51.7 percent, respectively, of the project's total emissions of H_2S and benzene (see Appendix B of Appendix D [Air Quality Assessment[of the DEIR). While the RTO unit/scrubber and the cooling towers are located in close proximity on the power plant site, the rest of the project's annual H_2S and benzene emissions (from the 46 sand separators and the 64 injection filters) are scattered around the approximately 2.5-square-mile well field, each emitting less than 1.0 percent and 0.02 percent, respectively, of the benzene emitted by the project. Further, no wells (and thus no sand separators or injection filters) are located within 0.25 miles (1,320 feet) of Residence 4, the residence with the highest modeled cancer risk. Thus, the benzene emissions from the sand separators and injection filters and drain have a negligible potential to appreciably add to the modeled cancer risk at Residence 4 from the RTO unit/scrubber and cooling tower benzene sources located on the power plant site. See also Response 1-270.

Response 1-86: The values stated by the commenter are incorrect, and the incremental health risks from the project at nearby residences would not exceed regulatory significance thresholds for cancer risks. See Responses 1-85 and 1-270.

Response 1-87: The project's emissions of carcinogenic compounds and other hazardous air pollutants have been appropriately calculated and adequately mitigated. See Responses 1-89 and 1-270.

Response 1-88: The commenter is referred to Response 1-82.

Response 1-89: Diesel particulate matter (diesel PM) would be emitted to the atmosphere from the construction equipment, drill rig engines, and vehicle and truck traffic associated with construction of the geothermal power plant, the associated geothermal well field and pipelines, and the Brawley Wastewater Treatment Plant. Diesel PM from these sources has been

estimated using the California Emission Estimator Model (CalEEMod) (version 2011.1) and other air pollutant emission factors (EMA 2012, "Equipment and Vehicle Exhaust and Fugitive PM_{10} and $PM_{2.5}$ Air Pollutant Emissions from the East Brawley Project," January 30, 2012; see **Appendix C**).

Diesel PM has been designated as a toxic air contaminant by the California Air Resources Board (see DEIR page 4.3-9), with the potential for creating increased cancer health risks from lifetime exposure through inhalation. Because diesel PM emissions associated with construction are short term (construction of the power plant and BWWTP are estimated at only 15 months), it is not meaningful to evaluate lifetime cancer risks from such short-term construction projects (construction is anticipated to be limited to 1.5 years in duration).

During operations, small quantities of diesel PM would be emitted to the atmosphere from the testing of the emergency generator diesel engine and the emergency fire water pump diesel engine located on the geothermal power plant site (see DEIR Table 4.3-6 and Table 4.3-7). In addition, vehicle and truck traffic associated with the geothermal power plant and BWWTP operations would produce small quantities of PM (2.34 pounds per day of PM_{10} and 0.49 pounds per day of $PM_{2.5}$)(EMA 2012, "Equipment and Vehicle Exhaust and Fugitive PM_{10} and $PM_{2.5}$ Air Pollutant Emissions from the East Brawley Project," January 30, 2012; see **Appendix C**). However, unlike the diesel PM produced by the power plant diesel engines, the vehicle and truck traffic diesel PM emissions would be distributed over a wide area (throughout the approximately 2.5-square-mile well field and on the public roads beyond). The drilling or redrilling of new geothermal wells over the life of the project would also produce diesel PM emissions, although these diesel PM emissions each would be short term (estimated at 20 days per well for well drilling and flow testing), intermittent (with no schedule or expected number of wells that would be drilled over the life of the project), and would also be distributed throughout the approximately 2.5-square-mile well field area, at approximately half-mile intervals with potential emissions consisting of 6.36 pounds per day of PM_{10} and 5.85 pounds per day of $PM_{2.5}$. In addition, the use of black-start generators is not proposed for the project.

Thus, only the diesel PM emissions from the two stationary diesel engines were evaluated for their potential cancer risk in a supplemental health risk assessment (EMA 2012, "East Brawley Geothermal Project – Assessment of Potential Cancer Risks from Diesel Particulate Matter Emissions from Emergency Diesel Engines," January 30, 2012; see **Appendix C**). This assessment confirmed that the maximum total project cancer risk at the maximally exposed residential receptor, at 0.985 cancers per million population was only slightly higher than the 0.980 cancers per million population calculated from benzene alone, and still below the generally accepted project cancer risk of one in one million.

Response 1-90: The commenter is referred to Response 1-89.

Response 1-91: The commenter is referred to Responses 1-85, 1-89, and 1-270. The City of Brawley WWTP is not a substantial source of air toxics that pose a public

health threat. The combination of emissions from the project and the North Brawley facility health risk would be less than significant at any of the sensitive receptors because the two power plants (where the air toxic emissions are concentrated) are approximately 1.7 miles apart. The commenter provides no countering analysis that there would be a cumulative health risk.

Response 1-92: The measurement of odor is complex, as it is based on several different compounds to which there is a range of sensitivities in the human population. The air quality impact analysis was prepared using methodologies and assumptions recommended in the various guidelines of the ICAPCD. The ICAPCD does not have a quantifiable threshold for odor impacts because the ability to detect odors varies considerably among the population and overall is quite subjective. The proposed project would be subject to ICAPCD Rule 407, which states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public (ICAPCD Rules and Regulations, January 2011). This rule does not apply to odors emanating from agricultural operations necessary for the raising of animals.

The commenter is referred to page 4.3-26 of the DEIR for a discussion of odor impacts resulting from the proposed power plant, the geothermal well field during drilling and testing activities, and the tertiary treatment of wastewater. In addition, as stated on pages 4.9-3 and -4 of the DEIR, the purpose of Title 9, the Land Use Ordinance for the County of Imperial, is to provide comprehensive land use regulations for all unincorporated areas of Imperial County, including the establishment of zoning areas. These regulations are adopted to promote and protect the public health, safety, and general welfare through the orderly regulation of land uses throughout the unincorporated areas of the county. The geothermal plant site is currently zoned A-2-G and is primarily defined as suitable for agricultural uses (limited) and agricultural-related compatible uses. Permitted uses in the A-2-G zone include oil, gas, and geothermal exploration.

The purpose of these regulations is to facilitate the beneficial use of the geothermal resource for the general welfare of the people of Imperial County and the State of California, to protect the resource from wasteful or detrimental uses, and to protect people, property, and the environment from detriments that might result from the improper use of the resource. It is the intent of these regulations to integrate, to the extent possible, Imperial County's regulations with those of other governmental agencies that regulate geothermal resource exploration and development. The regulations ensure that no gap in the protection of the public health, safety, and general welfare occurs as the result of changes in the regulations or enforcement policies of the other agencies.

From the perspective of cumulative odor impacts, the vicinity surrounding the project is currently subject to substantial odors due to cattle feedlots in the area. In addition, the project is located 14 miles south of the Salton Sea,

which is also a source of substantial odors resulting from fermenting algae giving off H_2S gas. Therefore, the addition of odors resulting from the project's contribution of 59 tons per year of NH_3 emissions would not be a concern on a cumulative basis considering the existing ambient odor atmosphere. The commenter is also referred to Responses 1-59 and 1-61.

Response 1-93: The commenter is referred to Responses 1-59, 1-61, and 1-92. CEQA does not require the EIR to discuss violations at other facilities in its discussion of direct and indirect project impacts.

Response 1-94: As stated under the Impact 4.4.1, impacts to endangered, threatened, and other listed species are considered significant. Mitigation measure MM 4.4.1b identifies enforceable mitigation that will be implemented should it be determined that willow flycatcher are present on site or will be affected by construction activities. Therefore, the mitigation is not deferred.

Response 1-95: Since release of the Draft EIR, an additional biological resources technical evaluation of the project was conducted and has been included as **Appendix A** to this document (East Brawley Geothermal Development Project Biological Resources Evaluation, September 2011). The scope of the technical evaluation covered all of the project components including 28 well pads, pipeline routes, the water conveyance structures, utility line corridors and substations, New River overcrossing, and wastewater retention basin adjacent to the power plant site. The findings of the recent study are consistent with the studies used in preparation of the Draft EIR, except the identification of two sites shown in Figure 5 of the evaluation that provide marginal habitat for special-status species (e.g., Yuma clapper rail).

Response 1-96: As stated in Response I-95, an additional biological resources technical evaluation of the project site was conducted in July 2011. The scope of the additional study included the footprint of all project facilities and a 500-foot buffer around each facility.

Response 1-97: The ORNI 19, LLC Biological Resources Survey (October 2010) identifies the specifics of the methodologies utilized during the studies. The methodologies utilized in the studies are sufficient to support the study's findings and do meet the definition of "substantial evidence" under CEQA Guidelines Section 15384. It is noted that the report and its underlying survey did not include the entire project area, though due to the homogeneity of the project area, it was sufficient for the purposes of disclosure of potential impacts and to generate performance standards for mitigation measures. This decision was based on findings in the CNDDB providing support for the conclusion that there was no reason to believe that there would be different species in the unsurveyed areas.

Additional studies were conducted in July of 2011 to verify the findings of the previous study (see **Appendix A**). The scope of the technical evaluation covered all of the project components including 28 well pads pipeline routes, the water conveyance structures, utility line corridors and substations, New River overcrossing, and wastewater retention basin

adjacent to the power plant site. The findings of the recent study are consistent with the studies used in preparation of the Draft EIR, except the identification of two sites illustrated in Figure 5 of the evaluation that provide marginal habitat for special-status species (e.g., Yuma clapper rail).

Therefore, the EIR conclusions are supported by substantial evidence.

Response 1-98: The SR 78/111 Brawley Bypass project encompasses larger and more diverse habitat areas than the East Brawley geothermal project including alkali playas and iodine bush dominated wetlands. A greater diversity of common wildlife and plants would therefore be expected for the bypass project. The differences in diversity of common species identified in the two projects do not reflect on the adequacy of the studies undertaken for the geothermal project.

Response 1-99: The comment is incorrect. Impact 4.4.1 states that the project could result in significant impacts to endangered, threatened, rare, proposed, and candidate species. Specifically, this discussion includes impacts to southwestern willow flycatcher and identifies mitigation measures to reduce these potential impacts to less than significant. Impact 4.4.2 identifies impacts that could occur to species of special concern, fully protected species, and other non-listed special-status species including American badger. Implementation of mitigation measures MM 4.4.2a through MM 4.4.2d ensures that these impacts are reduced to less than significant. Impact 4.4.3 identifies impacts to burrowing owl, and mitigation measure MM 4.4.3 ensures that these impacts are reduced to a less than significant level.

In addition, as identified under the Methodology subsection in DEIR Section 4.4, the conclusions of the DEIR were based on multiple sources of information and not limited to the surveys undertaken specifically for the DEIR.

Response 1-100: Since release of the DEIR, additional site-specific biological resource analysis of the project area has been conducted and is provided in **Appendix A** (East Brawley Geothermal Development Project Biological Resources Evaluation). The field review and technical analysis provided in **Appendix A** was adequate to determine the potential for presence of special-status species in the project area. As noted in the appendices of this document, resources and databases of the California Department of Fish and Game and U.S. Fish and Wildlife Service were consulted. Based on these consultations, there was no reason to believe that certain special-status species or their habitats were present in the project area. CEQA does not require the County to perform focused surveys prior to project approval and particularly when no species or habitat is known to occur in the project area, the need for focused surveys is not justified. The level of detail of the studies and the methodology employed in determining the conclusions of the EIR are adequate under CEQA.

Response 1-101: In surveys conducted subsequent to the circulation of the DEIR (see **Appendix A**), potential marginal habitat that could support Yuma clapper rail was identified in the project area, though the project will not

result in significant impacts to these marginal habitat areas. Though this habitat does occur within the project area, the project itself will not result in a significant impact to the species. Mitigation has been included to ensure that all impacts to Yuma clapper rail are minimized to a less than significant level.

Text on DEIR pages 4.4-7 through -8 is modified as follows:

> The CNDDB (CDFG 2010) identified the occurrence of special-status wildlife species, the Yuma clapper rail, within 1 mile of the project site (**Figure 4.4-1**)~~.; however, t~~The project site does ~~not~~ contain marginal suitable habitat to support the Yuma clapper rail ~~due to the lack of dense cattails (*Typha* sp.) or Phragmites (*Phragmites* sp.) (Barrett's Biological Surveys 2010, p. 15)~~ (PMC 2011).

Text on DEIR page 4.4-15 (part of Table 4.4-2) is modified as follows:

Rallus longirostris yumanensis Yuma clapper rail	FE; MNBMC	ST	Freshwater marshes containing dense stands of cattails (*Typha* spp.) and bulrushes (*Scirpus* spp.). Prefers mature stands along margins of shallow ponds with stable water levels. Generally in freshwater and alkali marshes dominated by stands of emergent vegetation interspersed with areas of open water and drier, upland benches. Nests probably on dry hummocks (small natural mound) or in small shrubs among dense cattails or bulrushes along the edges of shallow ponds in freshwater marshes with stable water levels.	No	~~No suitable habitat within project site~~. Marginal habitat on site in two locations. No recorded occurrences within 5 miles of project site.

Text on DEIR page 4.4-22 is added as follows:

> The **Yuma clapper rail** is a federally endangered and state threatened species. The clapper rail requires regenerating marsh for foraging and mature stands of cattail and bulrush for nesting. Regenerating marsh borders the open water and provides the birds with prey—usually crayfish, small fish, beetles, and isopods. Mature cattail and bulrush stands provide materials for nest building and cover for the nests. These stands grow near areas of open water and drier upland habitat. The rail nests on dry hummocks (small natural mounds) or in small shrubs among dense cattails or bulrushes along the edges of shallow ponds in freshwater marshes with stable water levels from mid-March to July. Females lay 6–7 eggs, which they incubate for 23–28 days.

Text on DEIR page 4.4-32 is added as follows:

Yuma Clapper Rail

The Yuma clapper rail is a federally endangered and state threatened species. As identified in the East Brawley Geothermal Development Project Biological Resources Evaluation (see Figure 5 and page 2.0-8), the canals and ditches in the project area have minimal habitat value, with the exception of two sites identified in Figure 5 of the evaluation. The project proposes well sites (27-10 and 11-15) and pipelines near the northern feature, while a portion of the project features (existing Well Site 18-15 and pipelines east of the well site) near the southern feature have already been constructed. The project applicant does not anticipate placing any project features within the habitat areas. However, the following mitigation measures ensure no impacts to these habitat areas and associated special-status species occur.

The following mitigation measure is added to the DEIR on page 4.4-33:

MM 4.4.1c Project pipelines shall be placed within existing roadway features or other disturbed areas outside of irrigation ditches and canals (with the exception of required crossing points). New pipelines associated with Well Sites 27-10, 11-15, and 18-15 shall be sited 100 feet outside of dense reed and cattail areas identified in Figure 5 of the East Brawley Geothermal Development Project Biological Resources Evaluation (September 2011), and construction exclusion fencing will be established in these areas to avoid impacts.

Timing/Implementation: Prior to construction-related disturbance to water features

Enforcement/Monitoring: County of Imperial Planning and Development Services Department

Implementation of the above mitigation measures (**MM 4.4.1a** ~~and~~ through **MM 4.4.1b~~b~~c**) would reduce potential impacts to endangered, threatened, rare, proposed, and candidate status species, as well as plant species, identified by the California Native Plant Society to a level that is considered **less than significant** by requiring protocol surveys.

Response 1-102: There is a typographic error in the text. Consistent with Figure 4.4-1, the 2010 CNDDB search identified non-special-status species recorded occurrences within 1 mile of the project.

Page 4.4-7 of the DEIR has been revised as follows:

The CNDDB (CDFG 2010) identified the occurrence of special-status wildlife species, the Yuma clapper rail, within ~~1~~ 5 miles of the project site (~~**Figure 4.4-1**~~);

The commenter references pages 14-15 of a letter written by Scott Cashen. Mr. Cashen states that clapper rails were detected 1.5 miles south of the project's proposed New River crossing and cites an EIR prepared by Caltrans and the Federal Highway Administration in 2001 for the State Route 78/111 Brawley Bypass Project (Cashen letter, p. 14). An updated CNNDB database search was undertaken as an element of the East Brawley Geothermal Development Project Biological Resources Evaluation (see **Appendix A** Figure 6 and page 2.0-12), which accurately reflects the project site's biological conditions.

Response 1-103: A review of the Best Road Wetland Mitigation Site Habitat mitigation and Monitoring Annual Report (Caltrans 2011) determined that Yuma clapper rail does not occur within the mitigation site. The commenter does not provide sufficient information to determine where additional Yuma clapper rail detections have occurred in the project vicinity to determine their relevance to the proposed project. As identified in Response 1-101, the potential for Yuma clapper rail to occur within the project area is acknowledged. Based on information from CNDDB that Yuma clapper rail was not identified in the immediate vicinity of the project site as noted in Response 1-102, and because no project components would be placed within Yuma clapper rail habitat areas, it was not necessary for the County to perform focused surveys for this species.

Response 1-104: The commenter is referred to Responses 1-101 and 1-103. Recirculation of the DEIR is not warranted.

Response 1-105: The DEIR discusses the potential for mountain plover to occur in various places including pages 4.4-7, -12, -21, and -33. On page 4.4-33, the DEIR identifies that the project could result in impacts to foraging mountain plovers and identifies mitigation measures MM 4.4.2c and MM 4.4.2d that will ensure construction-related impacts to foraging plovers are minimized and will be less than significant. Given that the DEIR discusses impacts to mountain plovers and identifies mitigation to ensure impacts to foraging plovers are minimized to a less than significant level, no additional surveys are warranted. Foraging habitat (agricultural fields) exists in the project area for the mountain plover, and this habitat condition would not be adversely impacted given that the agricultural operations surrounding the well sites would continue.

Response 1-106: The commenter is referred to Response 1-105. Furthermore, the commenter references pages 15-16 of a letter written by Scott Cashen. Mr. Cashen states that mountain plovers were documented approximately 1 mile from the project site during surveys conducted for the State Route 78/111 Brawley Bypass Project and cites an EIR prepared by Caltrans and the Federal Highway Administration in 2001 for that project (Cashen letter, p. 16). An updated CNNDB database search was undertaken as an element of the East Brawley Geothermal Development Project Biological Resources Evaluation (see **Appendix A** Figure 6 and page 2.0-12), which accurately reflects the project site's biological conditions.

Response 1-107: The commenter is referred to Response 1-105.

Response 1-108: The DEIR discusses the potential for white-faced ibis to occur in various places including pages 4.4-1, -2, -3, -4, -7, -15, -21, and -33. On page 4.4-33, the DEIR identifies that the project could result in impacts to foraging white-faced ibis and identifies mitigation measures MM 4.4.2c and MM 4.4.2d that will ensure construction-related impacts to foraging white-faced ibis are minimized and will be less than significant. The DEIR could not call the habitat occupied since there was no documentation in the CNDDB of occupation. The DEIR assumes presence and presents mitigation. Given that the DEIR discusses impacts to mountain plovers and identifies mitigation to ensure impacts to foraging plovers are minimized to a less than significant level, no additional surveys are warranted.

Response 1-109: The commenter is referred to Response 1-108.

Response 1-110: The commenter refers to the technical report prepared by Scott Cashen to describe the potential ferruginous hawk overwintering behavior at the project site. In turn, Scott Cashen has relied on the species account from the 2005 California Wildlife Habitat Relationships System Database to identify the site as foraging habitat. This model is based upon life history accounts developed for the California Wildlife Habitat Relationships (CWHR) System originally published in Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White, eds. 1988–1990, *California's Wildlife. Vol. I–III,* California Department of Fish and Game, Sacramento. A more current life history account of ferruginous hawk can be found in Cal Partners in Flight Bird Conservation Plans (CalPIF 2000). In this publication, it is identified that ferruginous hawks can forage in former grasslands converted to certain types of cover crops; however, data supporting this behavior is lacking for California. In addition, the publication states that it is premature to rely on agricultural lands for long-term viability in winter. This description is consistent with the information presented in the DEIR. In addition, minimal agricultural habitat will be disturbed through project implementation since project facilities are primarily being constructed on existing farm roads. No addition surveys or analyses are warranted.

Response 1-111: The commenter is referred to Response 1-110.

Response 1-112: As identified on page 4.4-8 of the DEIR, the project site is outside the known distribution of desert pupfish. This finding is further corroborated by the distribution map below prepared with data from the desert pupfish (*Cyprinodon salinus*) distribution in California as of 2002 (Data Basin Dataset) credited to the California Department of Fish and Game, Department of Wildlife and Fisheries Conservation Biology, University of California, Davis. Because no project components will be constructed or operated in areas supporting pupfish, and no part of the project would result in a potentially significant indirect impact to pupfish or its habitat, no impacts are expected to desert pupfish. No additional surveys are warranted.

Response 1-113: The commenter is referred to Response 1-112.

Response 1-114: The commenter is referred to Response 1-112.

Response 1-115: The commenter's statement is consistent with information presented in the DEIR on pages 4.4-1, -12, and -21.

Response 1-116: The commenter is correct in stating that canals and ditches provide suitable nesting habitat when they are adjacent to quality foraging habitat. The DEIR is revised as follows.

On DEIR page 4.4-12, the following text changes are made to the table:

Athene cunicularia hypugaea Western burrowing owl	MNBMC	CSC	Lives in dry, open areas with no trees and short grass (grasslands and shrublands) up to 5,300 feet with low perches and small mammal burrows. Found on golf courses, cemeteries, airports, vacant lots, university campuses, pastures, and prairie dog towns. It hunts by walking, hopping, or running along the ground, or by flying from a low perch. They nest in burrows, often dug by a mammal, typically ground squirrels. Burrow can be several meters long, with numerous twists and turns. Resident year-round. Breeds March to August.	Yes	~~Marginally~~ ~~s~~Suitable nesting habitat is present within project site along canal/ditch banks and dirt roadways.

Response 1-117: Canals and ditches provide suitable nesting habitat when they are adjacent to quality foraging habitat and are considered potential habitat. In the findings of both the ORNI 19, LLLC Biological Resources Survey (October 2010) and the subsequent East Brawley Geothermal Development Project Biological Resources Evaluation (September 2011) (see **Appendix A**), burrowing owls are located in several locations within the project area (see Figure 7 of the Biological Resources Evaluation). As stated in the DEIR, burrowing owls favor the agriculturally dominated area of the Imperial Valley, and the subsequent biological resources evaluation confirmed their existence in the project area. The CDFG has strict protocols in place to mitigate construction impacts on burrowing owl. Mitigation measures MM 4.4.2c and MM 4.4.3 have been included in the DEIR to ensure impacts to burrowing owl are less than significant.

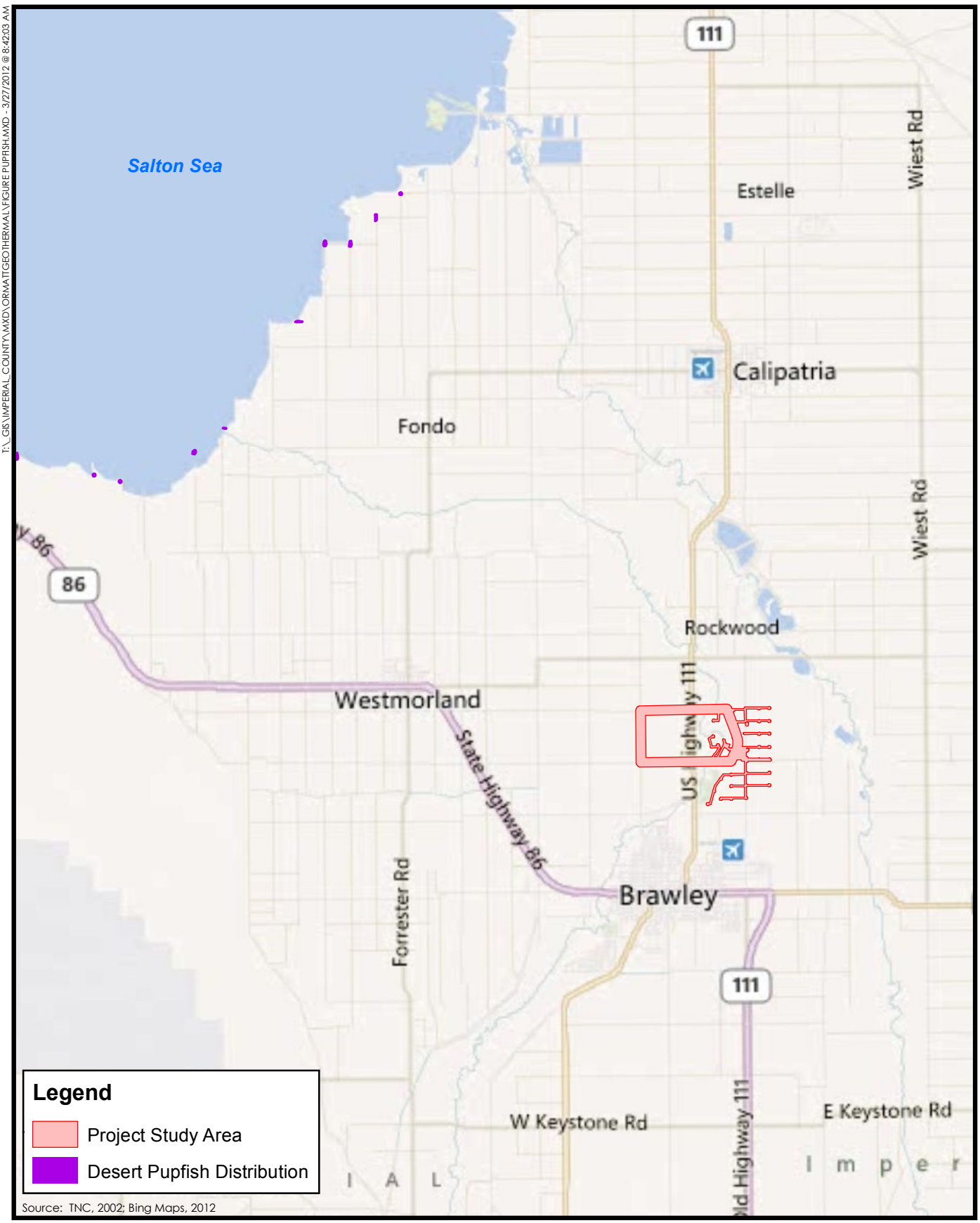

Figure 3.0-1
Desert Pupfish Distribution

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Response 1-118: Findings of the recent evaluation (East Brawley Geothermal Development Project Biological Resources Evaluation [September 2011] see **Appendix A**) support the impact analyses and the appropriateness of the mitigation for burrowing owl. Prior to site construction, the entire project site will require a survey for the presence of burrowing owl. Mitigation measures MM 4.4.2c, MM 4.4.2d, and MM 4.4.3 ensure impacts to nesting owls and owls within burrows are minimized and reduced to a less than significant level. Since preparation of the DEIR, the CDFG has issued a new Staff Report on Burrowing Owl Mitigation (CDFG 2012). The information from this staff report will direct compliance with the CDFG's burrowing owl mitigation protocol. No addition surveys are warranted. Recirculation is not warranted.

DEIR page 4.4-36, mitigation measure MM 4.4.3 is amended as follows:

MM 4.4.3 Mitigation and surveys will be consistent with recommendations in the Staff Report on Burrowing Owl Mitigation (CDFG 2012). Surveys shall be undertaken during the nesting and wintering season for the burrowing owl to determine the type of site use (i.e., nesting activity, etc.) that is occurring within and adjacent to the project construction areas.

Response 1-119: Changes in flow and water level conditions in the New River and the Salton Sea are addressed on DEIR pages 4.4-31 and -32 and 4.8-19 and -20. This includes specific details on flow conditions along the New River at the international border with Mexico (150 to 200 cubic feet per second [cfs]/108,400 to 145,000 acre feet per year [AFY]) and at its discharge point with the Salton Sea (600 cfs/430,000 AFY). As noted in Response 1-112, the desert pupfish is not located within the New River in the project vicinity.

As identified in these sections of the DEIR, changes in flow and water level conditions are considered negligible, and no significant impacts to these water features are expected. Adequate flows would remain to support existing riparian vegetation that provides potential habitat for southwestern willow flycatcher and other species located within the New River corridor downstream of the WWTP discharge. This conclusion is supported by flow information cited in the DEIR, as well as review of historic aerials (1970 to 1996) of the project area prior to construction the existing wastewater treatment and its associated discharge that show the existence of the riparian habitat that would remain after the project utilizes the wastewater effluent (see **Figures 3.0-2** through **3.0-4**). The commenter is also referred to Responses C-12, 1-356, 1-357, and 1-378.

Response 1-120: The commenter is referred to Responses 1-119 and 1-356. No technical analysis of flow changes from the proposed Seeley wastewater treatment plant was available at the time of the preparation of this document.

Response 1-121: The commenter is referred to Response 1-119.

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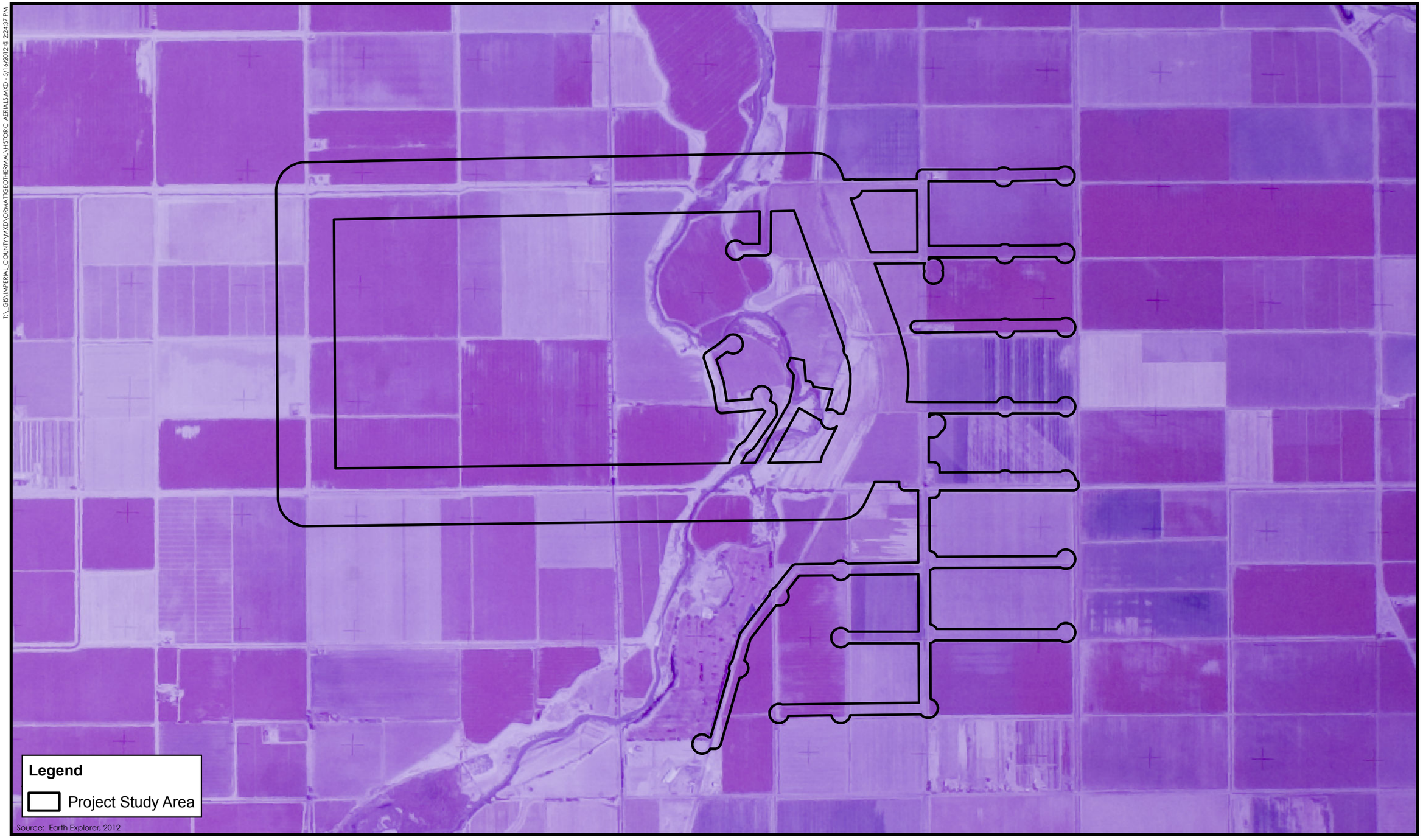

Figure 3.0-2
New River in Project Study Area - June 1970

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Figure 3.0-3
New River in Project Study Area - October 1979

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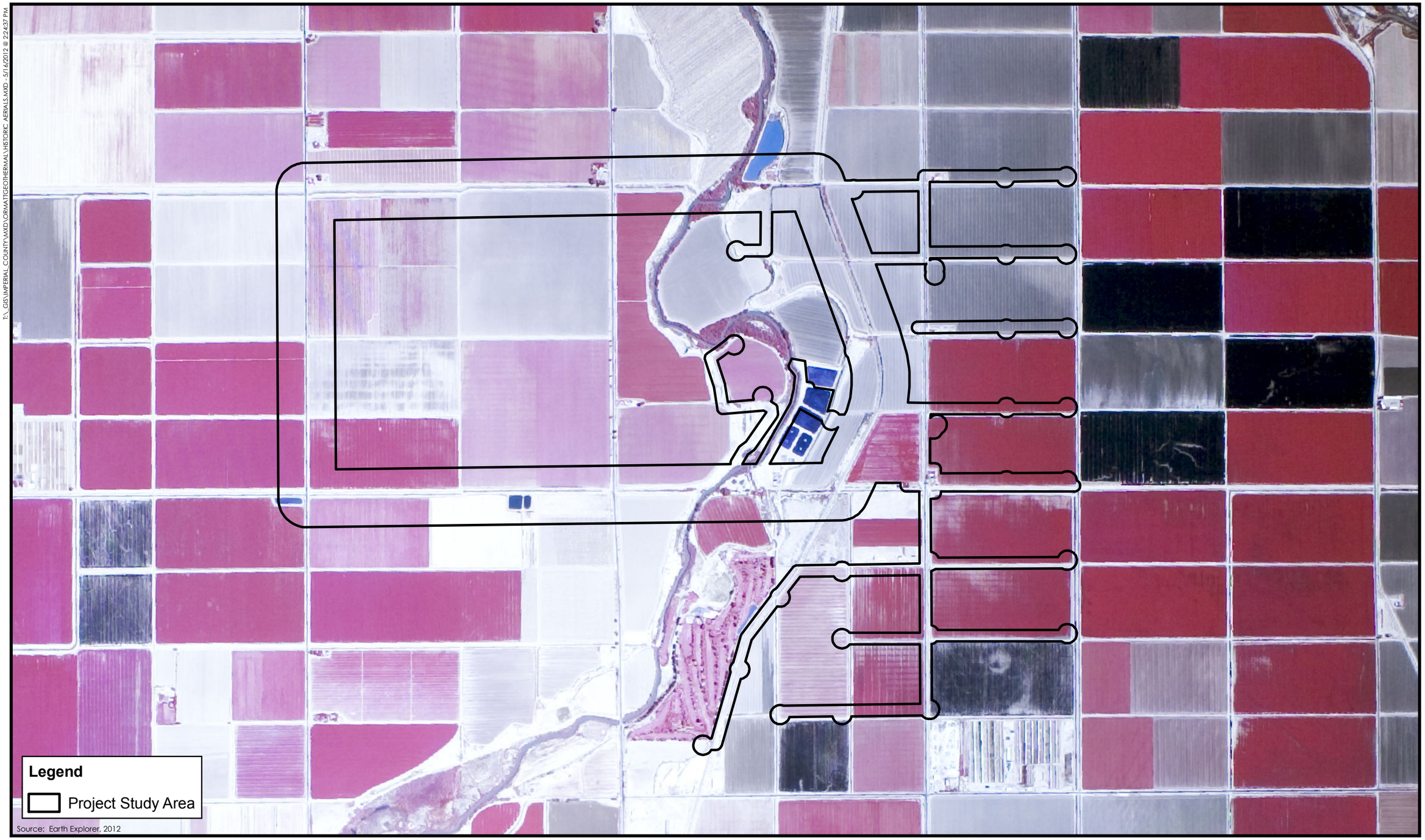

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Figure 3.0-4
New River in Project Study Area - June 1996

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Response 1-122: The commenter is referred to Responses 1-119 and C-12.

Response 1-123: The commenter is referred to Response 1-119.

Response 1-124: The commenter is referred to Responses 1-119.

Response 1-125: The commenter provides no countering analysis that demonstrates habitat impacts from the reduction of flows and the minor water elevation change would be within the seasonal fluctuation in surface elevation (see DEIR pages 4.8-19 and -20). The habitat conditions along the shoreline of the Salton Sea currently experiences and has adjusted to the seasonal water level fluctuations that the project's effect would be within. It should be noted that utilization of the City of Brawley Wastewater Treatment Plant effluent would reduce an existing source of salinity for the Salton Sea. Since the project would not discharge any water to the New River, there is no potential for it to contribute to increases in selenium discharges to the Salton Sea.

Response 1-126: The commenter is referred to Response 1-125.

Response 1-127: The commenter is referred to Response 1-125.

Response 1-128: The commenter is referred to Response 1-125.

Response 1-129: The commenter is referred to the discussion in DEIR Section 4.6, Geology and Soils, page 4.6-12, under Impact 4.6.2. The DEIR indicates that the project site and its proposed features have the potential to experience ground shaking during earthquakes along the Brawley and Imperial faults. Mitigation measure MM 4.6.2 has been included in the DEIR, requiring that additional site-specific geotechnical investigations be performed prior to design and construction of the proposed project. Specific seismic design requirements associated with construction of the proposed project will be addressed at this time in accordance with California Building Code standards.

DEIR page 4.6-12, mitigation measure MM 4.6.2, is amended as follows:

MM 4.6.2 Prior to design and construction of the proposed project, site-specific geotechnical investigations, <u>including areas underlying the proposed power plant, well field, water pipelines, transmission lines, and river crossings,</u> shall be performed, including subsurface exploration and laboratory testing. If any potential seismic hazards exists for the potential for ground-shaking through the geotechnical investigations, measures such as regrading, grout injection, or deep dynamic compression shall be incorporated into the site design and implemented during project construction to reduce potential hazards to a less than significant level, in accordance with CBC standards.

Response 1-130: The commenter is referred to DEIR pages 4.6-12 through -13, which discuss the County requirements for participation in the County Subsidence and Monitoring and Detection Program as a condition of project approval. Additionally, the commenter is referred to Responses 1-42, 1-129, and 1-319.

Response 1-131: The commenter is referred to DEIR pages 4.6-12 through -13, which discuss the County requirements for participation in the County Subsidence and Monitoring and Detection Program as a condition of project approval. Additionally, the commenter is referred to Responses 1-42, 1-129, and 1-319.

Response 1-132: The commenter is referred to page 10 of the Geotechnical Report located in Appendix H of the DEIR, where the applicant's consultant concludes that "it is our judgment that the site soils are non-liquefiable." In addition, the commenter is referred to Appendix C of the Geotechnical Report regarding Liquefaction Evaluation. In this report it is documented that the project site was in an area affected by the 1979 Imperial Valley earthquake, and while damage associated with liquefaction was noted in the recent alluvium of the New River and Alamo River floodplains throughout the Brawley area, no liquefaction damage was noted for the project site, or for the adjacent fields that are on intermediate-age lake deposits. In addition, it was determined that while liquefaction occurred at two locations (Westmoreland and Superstition Hills) during two previous earthquakes (1981 and 1994 respectively) at a distance of 6 miles north of the project site, these areas are located in recent river floodplain deposits, whereas the project site is located in older lacustrine (lake) deposits. The commenter is referred to DEIR page 4.6-12, which discusses compliance with CBC construction standards, and page 4.6-13, which discusses the County requirements for participation in the County Subsidence and Monitoring and Detection Program as a condition of project approval. Additionally, the commenter is referred to Responses 1-42, 1-129, and 1-319.

Response 1-133: As discussed in Response 1-132, the DEIR concluded that project soils are non-liquefiable, thus brine spills are not foreseeable. Nonetheless, the project will be required to prepare a Spill Prevention Control and Countermeasure (SPCC) Plan in accordance with U.S. Code of Federal Regulations, Title 40, Part 112 (40.CFR.112). The SPCC Plan will address the potential for brine spills to impact the project area. Additionally, the project will be required to prepare a Hazardous Materials Business Plan as required by DEIR mitigation measure MM 4.7.1a.

Response 1-134: The commenter is referred to Responses 1-132 and 1-133.

Response 1-135: The commenter states that the DEIR incorrectly describes the liquefaction potential at the power plant site. The commenter is referred to DEIR pages 4.6-12 through -13 wherein it discusses the depth at which groundwater was encountered as well as geologic conditions in the project area that based on the geotechnical evaluation the potential for this impact is very low. The DEIR further identifies that compliance with CBC construction standards and the County requirements for participation in the County Subsidence and Monitoring and Detection Program as a condition of project approval. Additionally, the commenter is referred to Responses 1-42, 1-132, and 1-319.

Response 1-136: The commenter is referred to Responses E-2 and 1-44 that include mitigation for potential soil contamination encountered.

Response 1-137: The commenter is referred to Responses E-2 and 1-44.

Response 1-138: The commenter is referred to Responses E-2 and 1-44.

Response 1-139: While the comment does not provide evidence to support this assertion, it is understood that the comment is an introductory comment and further elaboration is forthcoming in subsequent comments. The DEIR provides an adequate analysis of water supply impacts consistent with the *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412 (*Vineyard*) court decision.

Response 1-140: While the comment does not provide evidence to support this assertion, it is understood that the comment is an introductory comment and further elaboration is forthcoming in subsequent comments. The DEIR provides an adequate analysis of water supply impacts consistent with the *Vineyard* decision. Furthermore, the commenter is referred to Responses C-4 through C-9 and 1-5 regarding adequacy of the project's WSA and alternative sources. The DEIR provides an adequate analysis of water supply impacts consistent with the *Vineyards* court decision.

Response 1-141: The commenter is referred to Responses C-4 through C-9 and 1-5 regarding adequacy of the project's WSA and alternative sources as well as **Appendix B** containing correspondence from the IID confirming water supply availability for the project. DEIR pages 3.0-19 through -24 provide a detailed description of proposed water supply needs and facilities that are further refined in the information provided in Response 1-4. The commenter provides no information as to how this description is inaccurate.

Response 1-142: DEIR Figure 3.0-5 and revised DEIR Figure 3.0-5 provided in Section 4.0 clearly identify the pipeline connection to both the Brawley Wastewater Treatment Plant and the proposed freshwater pipeline connection that were utilized for the analysis of project impacts in the DEIR. The pipeline necessary to interconnect the propose project with the BWWTP is approximately 4,200 feet in length. The commenter provides no evidence that the DEIR failed to consider any impacts from these facilities. The commenter is also referred to **Appendix A** containing further biological resources analysis of the project area that identifies biological resources in the project area and pages 4.3-15 through 4.3-17 of the DEIR for a discussion of air quality construction impacts and mitigation measures.

Response 1-143: The commenter is referred to Response 1-4 regarding a refined description of improvements to the City of Brawley Wastewater Treatment Plant. These improvements would be within the existing wastewater treatment plant site and would not result in any natural resource or erosion impacts. Any potential construction water quality impacts from the wastewater treatment plant would be addressed through mitigation measure MM 4.8.1. Construction air quality impacts associated with the wastewater treatment plant improvements have been addressed in the DEIR (see DEIR page 4.3-15 as well as the updated analysis provided in Response

1-54 and **Appendix C**). Project construction water needs would be temporary and would not exceed project operational water demands; thus, no construction water supply demands would occur. The commenter states that the DEIR indicates ground disturbance activities due to the BWWTP expansion may cause erosion and related water quality degradation, however on page 6.0-30, these types of potential impacts are related to the proposed project, not the BWWTP.

Response 1-144: The commenter states that the DEIR fails to identify likely water supply sources and follows up with a description of the project's proposed plan for water supply. The commenter is referred to Responses C-1 through C-7. The commenter does not provide specific evidence to back up the assertion that the DEIR cannot reasonably conclude the identified water sources are likely to materialize. Additionally, it is understood that the comment is an introductory comment and further elaboration is forthcoming in subsequent comments.

Response 1-145: The commenter is referred to Responses C-1 through C-7 and 1-4. The commenter provides no countering evidence that these water sources would not be considered "likely." For an EIR's water supply analysis to be adequate, CEQA does not require that the water supply source be "assured." The *Vineyard* decision simply requires that "the future water supplies identified and analyzed must bear a likelihood of actually proving available" or else the agency must consider and evaluate alternative waters supplies (Vineyard 40 Cal.4th at p. 432). The documentation in the EIR has met and exceeded these requirements of CEQA. As indicated in **Appendix B**, the IID identified to the County in writing on May 4, 2011, "IID can supply raw Colorado River water" under the IID Interim Water Supply Policy for Non-Agricultural Projects. Thus, IID's verification demonstrates that it is more than merely likely that water will actually prove available; it is virtually certain water will be available. Thus, the EIR complies with the court's direction in *Vineyard*. (See also *Clover Valley Foundation v. City of Rocklin* (2011) 197 Cal.App.4th 200, 249 [water agency's letter to City certifying it has sufficient water to serve project qualifies as substantial evidence to support determination under *Vineyard* that the project will have adequate water supply]). This determination of water supply is in addition to the Water Supply Assessment conclusions provided in the Draft EIR (see Draft EIR Appendix K).

It is acknowledged that while the IID has sufficient water supply for the project, additional approval for water supply beyond 5,000 acre-feet annually would require action by the IID Board of Directors (see **Appendix B**). The IID has indicated that it cannot enter into a contract with the applicant for water until the County's CEQA process has concluded. Therefore, once the IID has approved such contract, the applicant will be required to provide a copy of the contract demonstrating it has legal right to the full water supply required for the project prior to commencement of operations.

Response 1-146: The commenter is referred to Responses C-1 through C-7 and 1-145. The DEIR impact analysis includes project water supply features (improvements to the City of Brawley Wastewater Treatment Plant and pipeline connections to the WWTP and IID facilities; see DEIR Figure 3.0-5).

Response 1-147: Of the IWSP's 25,000 acre-feet per year, the IID has approved the allocation of 800 acre-feet per year to the Hudson Ranch I Project and 609 acre-feet per year for the Black Rock 1, 2, and 3 geothermal power project. The IID recognizes having a currently available balance of IWSP water in the amount of 24,200 acre-feet year, as noted in the May 10, 2011, letter from the IID to Imperial County. McCabe Ranch II and Rancho Los Lagos are residential projects, which would be classified as municipal water users. Should said residential projects be supplied by the IID, their apportionments would be outside of and separate from the IWSP, as in the case of existing apportionments for cities within Imperial County. The cumulative impact section of the EIR addresses other projects being permitted in Imperial County. The commenter is also referred to Responses 1-145, 1-146 and 1-162.

Response 1-148: The commenter is summarizing previously stated concerns and is referred to Responses 1-140 through 1-147.

Response 1-149: As stated on page 4.13-10 of the DEIR, upgrades to the BWWTP in order to provide 4,369 acre-feet per year of tertiary treated water to the project are "expected in 2014." The project applicant has previously completed an MOU and is currently in the process of finalizing the Development and Operation & Maintenance Agreements with the City of Brawley regarding system upgrades the applicant will provide to the BWWTP in order to upgrade the treatment facility, resulting in the ability to treat water to a tertiary level to confirm this timing. In the interim, the IID has indicated that it will provide water to the project under its IWSP and that an adequate annual supply of water for nonagricultural projects exists to provide this service. The commenter is also referred to Response 1-145, which identifies that the project is nearly certain to obtain all of its water supply from the IID.

Response 1-150: The commenter is referred to Response 1-149 regarding system upgrades the project applicant will provide to the BWWTP in order to upgrade the treatment facility and provide water for the project. It is acknowledged that ultimate project timing may differ from that currently described in the DEIR. However, this timing does not ultimately undermine the likelihood of the water supply identified for the proposed project.

Response 1-151: The commenter is correct that utilizing reclaimed water from the BWWTP would require approval from the State Water Resources Control Board Division of Water Rights for cessation of effluent discharges to the New River, which will evaluate the environmental and beneficial use impacts to the New River and may approve, modify, or deny the request. Should it modify the request to limit the amount of effluent that can be removed from the New River or deny the request, the project can still obtain water supply from IID for the entire project (see Response 1-145 and **Appendix B**). The following text changes are made to DEIR page 3.0-26, above "City of Brawley":

State Water Resources Control Board

Approval from State Water Resources Control Board Division of Water Rights to stop effluent discharges to the New River

Response 1-152: Impacts to the changes in flow and water level conditions in the New River and the Salton Sea are addressed on DEIR pages 4.4-31 and -32 and 4.8-19 and -20. As identified in these sections of the DEIR, changes in flow and water level conditions are considered negligible, and no significant impacts to these water features are expected.

Response 1-153: The commenter is referred to Responses 1-149 through 1-152.

Response 1-154: As identified in Responses 1-144 through 1-150, the proposed water supply sources for the project are considered very "likely" and there is no need to consider alternative water sources as required under the *Vineyard* court decision. Nonetheless, DEIR Section 6.0, Alternatives, includes an analysis of alternative water supply options for the proposed project.

Response 1-155: The commenter is referred to Responses 1-140 through 1-150 as well as **Appendix B** containing correspondence from the IID confirming water availability to serve the project.

Response 1-156: The commenter is referred to page 4.13-5 of the DEIR, wherein it states the BWWTP has an existing design capacity of 5.9 mgd, currently operates at 3.9 mgd, and does not currently provide tertiary treated water or does not currently reclaim treated wastewater. Pages 4.13-9 and -10 of the DEIR provide a discussion about improvements proposed for the BWWTP (see also Response 1-4). As stated in the DEIR, upgrades to the BWWTP associated with the proposed project would not increase the previously planned capacity of the existing Brawley Wastewater Treatment Plant. While the BWWTP may currently operate at less than its planned capacity, providing improvements for the plant to reach its planned capacity does not constitute a growth-inducing impact, as all growth in the City of Brawley and in Imperial County would continue to be regulated by their general plans (which considered the environmental effects of growth under the general plan EIRs and subsequent environmental review documents) and land use regulations as well as subject to environmental review under CEQA. Additionally, proposed upgrades to the BWWTP would provide tertiary treated water, allowing the outflow to be utilized for the proposed project's plant operations. Therefore, the BWWTP upgrades would not increase the design capacity of the existing BWWTP or cause potentially significant urban growth impacts. In addition, the use of tertiary treated water from the BWWTP for the proposed project would reduce the project's long-term need for water supply from IID sources.

Response 1-157: The commenter is referred to Response 1-156.

Response 1-158: The commenter does not provide any evidence to support the assertions and only provides summaries of CEQA case law. Response to specific concerns regarding the DEIR cumulative impact analysis is provided in the responses below.

Response 1-159: Impacts to the changes in flow and water level conditions in the New River and the Salton Sea are addressed on DEIR pages 4.4-31 and -32 and 4.8-19 and -20. As identified in these sections of the DEIR, changes in flow and water level conditions are considered negligible, and no significant impacts to these water features are expected. The cumulative impact analysis on DEIR pages 4.8-19 and -20 specifically factors in the impact of other anticipated projects known at the time of DEIR preparation and included the following detailed analysis of potential changes in Salton Sea conditions (see DEIR page 4.8-19). The commenter is also referred to Response 1-162.

> *Currently, about 1.3 million acre-feet flow into the Salton Sea each year and 80 percent of this total comes from Imperial Valley. As shown in **Table 4.8-2**, these projects would have a total water demand of 13,788.5 acre-feet per year. In addition, as described above, these projects could divert an additional 9,344 acre-feet per year through the conversion of irrigated agricultural land. Therefore, the proposed project in combination with other planned projects in the cumulative area could divert up to 23,132.5 acre-feet per year (13,788.5 + 9,344 = 23,132.5) from the Salton Sea. This amount represents 3 percent of the sea's current total inflows. Furthermore, given a total surface area of 376 square miles and a total volume of 7.5 million acre-feet, the diversion of 23,132.5 acre-feet per year is estimated to reduce the surface elevation of the Salton Sea by 1.2 inches. In comparison, the Salton Sea surface elevation fluctuates annually by approximately 12 inches, reaching its maximum annual elevation between March and June and its minimum elevation between October and November as a result of irrigation practices. Given this seasonal fluctuation, a drop in surface elevation of 1.2 inches is considered to be negligible and would not result in significant impacts on habitat areas.*

Response 1-160: DEIR pages 4.8-18 and -19 specifically note, as part of the cumulative impact analysis, water transfers out of the valley to urban users such as San Diego County associated with the QSA. This information does not change the DEIR conclusions of the project's contribution to cumulative loss of flows to the Salton Sea. The commenter provides no countering analysis that demonstrates an adverse impact to the Salton Sea.

Response 1-161: The commenter misconstrues the cumulative impact analysis provided in the DEIR and states that the DEIR ignores information vital to the County's assessment of the project's impacts. As noted in Response 1-160, existing water transfers are considered and are part of the project baseline analysis, which is also included in the cumulative project analysis.

Response 1-162: CEQA Guidelines Section 15130, subdivision (b), provides the following guidance regarding the analysis of cumulative impacts in an EIR:

> *The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects*

> *attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.*

One allowable approach is the use of a "list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency" (Guidelines Section 15130, subd. (b)(1)(A)). When utilizing the "list" approach, "factors to consider when determining whether to include a related project should include the nature of each environmental resource being examined, the location of the project and its type" (Guidelines Section 15130, subd. (b)(2)).

In determining whether "future" projects on a list are "probable," the County must consider whether such projects appear foreseeable at the time of EIR preparation (*City of Antioch v. City Council of the City of Pittsburg* (1986) 187 Cal.App.3rd 1325, 1337). Such determination requires a careful, case-by-case judgment as to whether particular possible future projects are truly "reasonably foreseeable" and thus deserve inclusion in a cumulative impacts analysis. For this EIR, the County consulted the files of its own Planning Department and consulted the planning departments of other land use agencies in the county and included other renewable energy projects for which an application for entitlements had been received at the time of the DEIR preparation. As new applications are submitted constantly, and the analysis in the DEIR necessarily relies on a reasonably fixed set of data about those projects, the list of projects used for any cumulative impacts analysis can never be said to be perfectly accurate; the information to be included in such a list is a constantly moving target. In interpreting CEQA, the courts of the state have recognized that some flexibility is required and that perfection is not expected of an EIR.

The commenter is referred to Table 4.0-1 on page 4.0-2 of the DEIR for a list of proposed and approved projects within the cumulative study area of the proposed project that were known at the time of preparation of the DEIR. It should be noted that DEIR page 4.0-6 is not intended to be an all inclusive list of projects in the County of Imperial and City of Brawley. Several of the projects identified by the commenter (Black Rock 1, 2, and 3, CHAR Hudson Ranch Geothermal Development Project, West Chocolate Mountains Renewable Energy Project [solar farm], IV Solar Company and Ram Power) are included in DEIR Table 4.0-1. North Brawley Geothermal, Niland Gas Turbine Plant, and Sun Eco Biofuel projects current exist and are part of the baseline condition and not the cumulative setting. The North Brawley Geothermal project is specifically identified as an existing facility in the vicinity of the project on DEIR pages 4.1-3 and -6, 4.3-26, 4.10-19, 4.12-12, and 4.13-10.

It is acknowledged that since preparation of the Draft EIR, the County has received applications for additional projects (several of which are solar projects). Of the projects noted by the commenter that are not listed in

Table 4.0-1 and are not already part of the existing setting conditions, LADWP Niland Solar Energy Project and Energy Source Solar II are over 20 miles from the project site, and Calipatria Solar Farm I and II, Midway Solar Farm I and II, and Calipatria Solar Farm I and I are over 5 miles from the project site and are not within the same watershed (New River). Thus, the cumulative contribution of these projects to the proposed project is limited. The following analysis is provided that demonstrates that the consideration of these projects would not change the cumulative impact analysis provided in the DEIR (based on the analysis provided in DEIR pages 5.0-7 through -21):

- **Aesthetics** – As noted above, the additional projects identified by the commenter are over 5 miles from the project and would not contribute to the alteration of project area viewshed conditions because they would be barely visible from the area of potential effect identified for aesthetic resources, or more likely, they would not be visible at all.

- **Agricultural Resources** – The projects identified by the commenter would contribute to the further use of agricultural lands for nonagricultural uses. However, these solar projects are ultimately temporary uses and are required through design and conditioning to mitigate agricultural use conflicts and reclaim the site for eventual agricultural use (consistent with General Plan provisions). It should be noted that unlike solar projects, the proposed project retains over 90 percent of the overall project site in active agricultural operation and would have no conflicts on agricultural operations.

- **Air Quality** – The solar projects identified have minimal operational air quality emissions. The proposed project already identified a potentially cumulatively considerable impact to air quality and identified mitigation measures MM 4.3.3a and MM 4.3.3b to offset its contribution to cumulative operational impacts and mitigation measures MM 4.3.2a and MM 4.3.2b for construction emissions. Thus, consideration of these solar projects would not alter the conclusions of the DEIR.

- **Biological Resources** – As noted above, the additional projects identified by the commenter are over 5 miles from the project and would not contribute to impacts to species located adjacent to the New River. However, it is acknowledged that these solar projects could contribute to other species impacts (e.g., burrowing owl, southwestern willow flycatcher, and Yuba clapper rail), as well as sensitive habitats (wetlands and riparian habitats). The proposed project already identified a potentially cumulatively considerable impact to biological resources and identified mitigation measures MM 4.4.1 through MM 4.4.5 that include offset requirements for the loss of habitat. Thus, consideration of these solar projects would not alter the conclusions of the DEIR.

- **Cultural Resources** – It is acknowledged that these solar projects could contribute to cultural and paleontological resource impacts. The proposed project already identified a potentially cumulatively considerable impact and identified mitigation measures MM 4.5.1a, MM 4.5.1b, and MM 4.5.2 that would address the proposed project's contribution to this impact. Moreover, these solar projects are very likely subject to the same type of mitigation measures, as these are fairly standard for most ground-disturbing projects. Thus, consideration of these solar projects would not alter the conclusions of the DEIR.

- **Geology and Soils** – As noted above, the additional projects identified by the commenter are over 5 miles from the project and would not contribute to impacts to geologic conditions in the project area. However, it is acknowledged that these solar projects could contribute to geologic stability impacts. The proposed project already identified a potentially cumulatively considerable impact and identified mitigation measures MM 4.6.2 and MM 4.6.6 that would address the proposed project's contribution to this impact. Thus, consideration of these solar projects would not alter the conclusions of the DEIR.

- **Hazardous Materials and Public Health** – As noted above, the additional projects identified by the commenter are over 5 miles from the project and would not contribute to impacts relating to hazardous conditions or risks in the project area. The proposed project did not identify any cumulatively considerable impacts. The additional projects identified by the commenter do not support any change to this conclusion.

- **Hydrology and Water Quality** – As noted above, the cumulative project analysis already includes several of the projects identified by the commenter. DEIR pages 5.0-12 and -13 specifically address cumulative impacts to the Salton Sea and identify that the project would have a less than cumulatively considerable impact (note: Calipatria Solar Farm I and II, Midway Solar Farm I and II, and Calipatria Solar Farm I and I are not within the New River watershed and would not contribute to any impacts on this water feature). The consideration of these projects could increase the total water diversion from the Salton Sea (which consists of total surface area of 376 square miles and a total volume of 7.5 million acre-feet) to 47,400 acre-feet annually (assuming approximately 4,600 acres of solar development), which could increase one additional inch beyond what the DEIR identified. As described on DEIR page 5.0-13, the Salton Sea surface elevation fluctuates annually by approximately 12 inches, reaching its maximum annual elevation between March and June and its minimum elevation between October and November as a result of irrigation practices. Given this seasonal fluctuation, a drop in surface elevation of 2.2 to 1.2 inches is considered to be negligible and would not result in significant impacts on habitat areas. Project

cumulative drainage and water quality impacts would be addressed through implementation of mitigation measures MM 4.8.1 and MM 4.8.2. Consideration of the additional projects identified by the commenter would not change this conclusion.

- **Land Use and Planning** – As noted above, the additional projects identified by the commenter are over 5 miles from the project and would not contribute to impact to land use issues in the project area. The proposed project did not identify any cumulatively considerable impacts and this conclusion does not change with the consideration of the additional projects identified by the commenter.

- **Noise** – As noted above, the additional projects identified by the commenter are over 5 miles from the project and would not contribute to noise impacts in the project area. The proposed project did not identify any cumulatively considerable noise impacts, and consideration of the additional projects identified by the commenter would not change this conclusion.

- **Public Services** – As noted above, the additional projects identified by the commenter are over 5 miles from the project and would not contribute to impacts to public service impacts in the project area, given the lack of public service demand of the proposed project and projects identified by the commenter. The proposed project did identify one potentially cumulatively considerable impact associated with fire protection that would be mitigated by implementation of mitigation measures MM 4.7.1a, MM 4.7.1b, and MM 4.11.1.2. The conclusion that this impact is significant but mitigable would not change with the consideration of the additional projects identified by the commenter.

- **Transportation and Circulation** – As noted above, the additional projects identified by the commenter are over 5 miles from the project and would not contribute to impact to transportation impacts in the project area. The proposed project did not identify any cumulatively considerable impacts, and consideration of the additional projects identified by the commenter would not change this conclusion.

- **Utilities** – The proposed project did not identify any cumulatively considerable impacts associated with utility services, and consideration of these additional projects would not contribute to this impact in a way that would alter the conclusions of the DEIR. As specifically noted in the WSA in Appendix K of the DEIR, there is adequate water supply to serve the project under current and future year conditions (20 years). The solar projects identified by the commenter would actually reduce water demands currently generated by agricultural operations on those sites.

- **Climate Change and Greenhouse Gases** – These additional solar projects would further contribute (in addition to the project) to the

County's share of helping to meet the state's Renewable Energy Portfolio Standards and AB 32–related efforts to reduce greenhouse gas emission reductions.

Response 1-163: The commenter does not provide any evidence to support the assertions and only provides summaries of CEQA case law regarding valid mitigation measures supported by substantial evidence. Responses to specific concerns regarding mitigation measures are provided below.

Response 1-164: The air quality impact analysis was prepared using methodologies and assumptions recommended within the various guidelines of the ICAPCD. The commenter is referred to page 23 of the ICAPCD 2007 CEQA Air Quality Handbook, which is the source of mitigation measures MM 4.3.2a and MM 4.3.2b. As noted by ICAPCD's comment letter on the DEIR (Letter D), ICAPCD requires that the project comply with the standard mitigation measures for construction equipment listed in its CEQA Handbook. Furthermore, as stated in the DEIR, the Imperial County Planning and Development Services Department will have responsibility for enforcing compliance with these mitigation measures. The commenter is referred to Response D-1 regarding modifications to mitigation measure MM 4.3.2a.

Response 1-165: As stated on page 4.3-17 of the DEIR, mitigation measures MM 4.3.2a and MM 4.3.2b shall be implemented throughout project construction, and it will be the responsibility of the Imperial County Planning and Development Services Department to ensure monitoring and enforcement. The air quality impact analysis was prepared using methodologies and assumptions recommended within the various guidelines of the ICAPCD. The commenter is referred to page 23 of the ICAPCD 2007 CEQA Air Quality Handbook, which is the source of mitigation measures MM 4.3.2a and MM 4.3.2b. As noted by ICAPCD's comment letter on the DEIR (Letter D), ICAPCD requires that the project comply with the standard mitigation measures for construction equipment listed in its CEQA Handbook. If the project is approved by the County, a mitigation monitoring and reporting program would be adopted as part of the proposed project, thus providing the County with an enforcement mechanism to ensure implementation and compliance with these mitigation measures as required by CEQA Guidelines Section 15097. The commenter is referred to Response D-1 regarding modifications to mitigation measure MM 4.3.2a that includes removal of the term "where feasible."

Draft EIR page 4.3-18, the following text change is made to mitigation measure MM 4.3.2b:

MM 4.3.2b The following construction equipment control measures shall be implemented at the project site during all construction activities, ~~when feasible~~:

Response 1-166: As stated on page 4.3-17 of the DEIR, mitigation measures MM 4.3.2a and MM 4.3.2b shall be implemented throughout project construction, and it will be the responsibility of the Imperial County Planning and Development Services Department to ensure monitoring and

enforcement. A mitigation monitoring and reporting program will be adopted as part of project approval to ensure implementation and enforcement of adopted mitigation measures identified in the EIR.

Response 1-167: The measurement of odor is complex, as it is based on several different compounds to which there is a range of sensitivities in the human population. The air quality impact analysis was prepared using methodologies and assumptions recommended in the various guidelines of the ICAPCD. The ICAPCD does not have a quantifiable threshold for odor impacts because the ability to detect odors varies considerably among the population and overall is quite subjective. The proposed project would be subject to ICAPCD Rule 407, which states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public (ICAPCD Rules and Regulations, January 2011). Furthermore, there are few residents in the vicinity of the project, and though odors could result during construction activities, these impacts are anticipated to be temporary and short term. The commenter is referred to Responses 1-59 and 1-61 regarding odor concerns.

In terms of HAPs generated during construction, the air quality impact analysis was prepared using methodologies and assumptions recommended in the various guidelines of the ICAPCD. Mitigation measures MM 4.3.2a and MM 4.3.2b of the DEIR, sourced from page 23 of the ICAPCD 2007 CEQA Air Quality Handbook, would ensure fugitive dust (PM_{10} and $PM_{2.5}$) control measures are incorporated into the project plans to reduce the emissions of fugitive dust during construction activities and that diesel-powered equipment is regulated to the highest efficiency.

Response 1-168: DEIR page 4.3-16 states, "Only one well is typically flow tested at a time (Thomas 2010)." The applicant has reconfirmed that only one well would be flow tested at one time (e-mail from Charlene Wardlow, Ormat, Inc., August 27, 2011).

Of the 23 recommended regulations for controlling fugitive dust at construction sites provided by the commenter, the implementation of fugitive PM_{10} control measures as part of mitigation measure MM 4.3.2a, in addition to the requirements of ICAPCD Regulation VIII, directly address several of the recommended measures. The fourteenth and nineteenth bulleted measures are not appropriate as project features are already connected by existing paved roadways (power plant site and well sites), and the project does not involve approval of a tentative map. The comment also includes repetitive measures regarding the covering and stabilization of soils after ground disturbance that is already addressed in mitigation measure MM 4.3.2a.

In addition, requirements associated with implementation of a stormwater pollution and prevention plan (SWPPP) required by mitigation measure MM 4.8.1 of the DEIR will further implement best management practices at the project site, reducing fugitive dust impacts. The project's required

mitigation measures ensure that the project's fugitive dust emissions are reduced to a less than significant level. However, the following changes are made to mitigation measure MM 4.3.2a to incorporate measures that are not already addressed suggested by the commenter

Draft EIR page 4.3-18, the following items are added to mitigation measure MM 4.3.2a:

a. Water exposed soil with adequate frequency (three times daily at a minimum) for continued moist soil.

f. While clearing forms, use single-stage pours where allowed; use water spray to clear forms; use sweeping and water spray to clear forms; use vacuum to clear forms; and avoid use of high pressure air to blow soil and debris from the form.

g. For large areas of disturbed land, prevent access by fencing, ditches, vegetation, berms or other barriers; install perimeter wind barriers.

h. Pave project driveways as early as possible; install gravel pads and wheel cleaning features for construction equipment; and limit site access.

i. All materials shall be covered in haul trucks and wetted; where appropriate, use bedliners in bottom-dumping haul vehicles.

j. Remove the accumulation of mud or dirt from roadways at least once every 24 hours when construction is occurring.

k. Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. Complaints shall be responded to and resolved with 24 hours.

l. Prior to power plant operation, the applicant shall demonstrate that all disturbed ground surfaces have been treated to minimize fugitive dust emissions.

m. Gravel pads will be installed at all construction access points.

n. The construction contractor shall designate a person or persons to monitor compliance with this mitigation measure to ensure minimization of fugitive dust emissions.

o. Areas of excavated or disturbed soils where construction activities have ceased for more than 15 days will be covered or treated with a dust suppressant.

p. Construction activities that typically generate significant amounts of fugitive dust emissions will be discontinued when wind speeds are greater than 20 miles per hour.

Response 1-169: The commenter is referred to Response 1-168 where appropriate measures recommended by the commenter have been added to mitigation measure MM 4.3.2a. 68. The project's required mitigation measures ensure that the project's fugitive dust emissions are reduced to a less than significant level.

Response 1-170: Mitigation measure MM 4.3.2b of the DEIR, sourced from page 23 of the ICAPCD 2007 CEQA Air Quality Handbook, would ensure diesel-powered construction equipment is regulated to the highest efficiency feasible in order to reduce impacts from diesel PM to a less than significant level. Measures to ensure this include the use of alternative-fueled or catalyst-equipped diesel construction equipment, including all off-road and portable diesel-powered equipment, the minimization of idling time either by shutting equipment off when not in use or reducing the time of idling to 3 minutes at a maximum, limiting the hours of operation of heavy-duty equipment and/or the amount of equipment in use, and the replacement of fossil-fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set). When implemented, these requirements will mitigate temporary public health impacts from construction emissions of diesel PM to a less than significant level.

Response 1-171: As stated in Response 1-170, mitigation measure MM 4.3.2b of the DEIR, sourced from page 23 of the ICAPCD 2007 CEQA Air Quality Handbook, would ensure diesel-powered construction equipment is regulated to the highest efficiency feasible in order to reduce impacts from diesel PM. This impact would be less than significant with the implementation of mitigation measure MM 4.3.2b. However, the following changes are made to mitigation measure MM 4.3.2b to incorporate measures that are not already addressed. Comment-suggested measures that have been addressed or are not appropriate for the project include worker carpooling (addressed in mitigation measure MM 4.3.2a), use of electrical equipment and alternative fuels (addressed in mitigation measure MM 4.3.2b), use of lower emission construction equipment (has been added to mitigation measure MM 4.3.2b in Response 1-63), and placement of construction away for being adjacent to sensitive receptors (none existing with the project site features or immediately adjacent to them).

Draft EIR page 4.3-18, the following changes are made to mitigation measure MM 4.3.2b:

b. Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 3 ~~5~~ minutes at a maximum.

e. The project shall utilize construction and well redrilling equipment that meets or exceeds Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in the California Code of Regulations.

f. Provide for on-site meals for construction workers by arranging a lunch wagon to visit the construction site.

g. Suspend construction activities when the Imperial County Air Pollution Control District issues a Health Advisory Alert pursuant to District Rule 608.

h. The construction contractor will be required to ensure that construction equipment is properly maintained.

Response 1-172: This comment does not provide evidence to support the assertion. The commenter is referred to the "EMA 2012 PM_{10} and $PM_{2.5}$ Emissions from East Brawley Project Cooling Towers Memorandum" provided in **Appendix C**. The East Brawley PM_{10} cooling tower emissions stated in the Draft EIR (24.76 tons/year) were conservatively calculated using the AP-42 methodology by assuming that all particulate emissions would be PM_{10}. Using the $PM_{2.5}$ to PM_{10} ratio of 0.0129 (1.29 percent) calculated above, a very conservative $PM_{2.5}$ emission rate of 0.32 tons per year is calculated from the Draft PM_{10} EIR emission rate. Assuming instead that the 24.76 tons per year represent total particulate matter emissions, the more realistic PM_{10} and $PM_{2.5}$ emission rates from the East Brawley Project cooling towers would be 2.04 tons per year and 0.03 tons per year, respectively. As noted in Response 1-68, the combined emissions from all project operations would not exceed any ICAPCD thresholds.

Response 1-173: These suggestions by the commenter are noted. The air quality impact analysis was prepared by Environmental Management Associates, Inc. (2010) using methodologies and assumptions recommended in the various guidelines of the ICAPCD, specifically ICAPCD Rule 207, which addresses stationary source emissions like the proposed power plant. The ICAPCD provides quantitative criteria in the form of thresholds to help in the assessment of environmental impacts, and these criteria were used for this analysis. The DEIR was completed in compliance with CEQA Guidelines. The proposed project is not required to consider hybrid systems including evaporative pre-cooling of the inlet air using sprays or the introduction of a wet-assist heat exchanger/surface condenser. The commenter is referred to Response 1-6 as to why dry cooling is not feasible for this project.

As stated in the discussion under Impact 4.3.3 of the DEIR, the project would result in a less than significant impact in regard to operational emissions with adherence to ICAPCD Rule 207.C.2.a, which requires offsets for facility emissions of each regulated air pollutant in excess of 137 pounds per day. Mitigation measure MM 4.3.3b of the DEIR mandates that the proposed project be required to fulfill its obligations mandated in ICAPCD Rule 207.C.2.a in order to mitigate project air pollutants in excess of 137 pounds per day with the purchase of necessary emission offset credits from one or more entities prior to the initiation of plant operations. Implementation of mitigation measure MM 4.3.3b would ensure compliance with ICAPCD Rule 207.C.2.a.

According to the ICAPCD, offsets are actual emission reductions sufficient to offset emission increases from a new or modified emissions unit (ICAPCD Rules and Regulations, January 2011). The commenter is also

referred to updated air quality analysis and modeling provided in **Appendix C** that support the conclusions of the DEIR.

Responses 1-174: Mitigation measure MM 4.4.3 in the DEIR includes performance standards to ensure that burrowing owls are not killed during construction through avoidance of occupied burrows, offsets of loss burrowing and foraging habitat at a 2:1 ratio, and passive relocation of owls if required consistent with California Department of Fish and Game guidance. Since release of the DEIR, additional site-specific biological resource analysis of the project area has been conducted and is provided in **Appendix A**. Pages 2.0-14 and -15 and Figure 7 of **Appendix A** specifically identify the location of burrowing owls in the project area. The proposed project would not result in the substantial loss of burrowing owl habitat, as minimal loss of agricultural lands would occur from project development (see revised DEIR Figure 3.0-5 in Section 4.0). The mitigation measure is consistent with California Department of Fish and Game guidelines for addressing impacts to burrowing owls.

Response 1-175: Mitigation measure MM 4.4.3 sets forth the ratio of compensation of lost burrow and foraging habitat at 2:1. This mitigation measure includes performance standards consistent with California Department of Fish and Game (CDFG) guidelines and CEQA Guidelines Section 15124.6(a)(1)(B). This mitigation measure also requires that permanent protection will occur in a location and configuration acceptable to CDFG. This measure will be enforceable by the Mitigation Monitoring and Reporting Program.

Response 1-176: Mitigation measures MM 4.4.1a and MM 4.4.1b (as well as newly added MM 4.4.1c; see Response 1-30) consist of performance standards to ensure that, prior to project construction activities, the potential for the species to occur in the project area is identified and avoidance mitigation implemented to avoid any impact. Use of performance standards is consistent with CEQA Guidelines Section 15124.6(a)(1)(B).

Response 1-177: Through the adoption of mitigation measures MM 4.4.1a, MM 4.4.1b, and MM 4.4.1c (newly added; see Response 1-39), the County will commit to actions that will ensure protection of the southwestern willow flycatcher via avoidance of its habitat through a 0.5-mile buffer during breeding season. In addition, the proposed project does not include any proposed facilities within the New River that could directly impact this species.

Response 1-178: The commenter is referred to Responses 1-176 and 1-177 as well as to additional biological resource analysis provided in **Appendix A**.

Response 1-179: Mitigation measure MM 4.4.1a specifically calls for surveys in the project area where suitable southwestern willow flycatcher habitat occurs. The commenter is referred to Responses 1-176 and 1-177 as well as to additional biological resource analysis provided in **Appendix A**.

Response 1-180: Comment noted. Commenter's concerns regarding riparian habitat impacts are responded to below.

Response 1-181: Since release of the DEIR, additional project area biological resource analysis has been conducted and is provided in **Appendix A**. Figure 5 of **Appendix A** identifies the location of riparian habitat, while Table 1 of **Appendix A** identifies that the project area contains approximately 24 acres of such habitat. The 1:1 mitigation ratio under mitigation measure MM 4.4.4a is a performance standard consistent with CEQA Guidelines Section 15124.6(a)(1)(B). The commenter is also referred to Response 1-39 regarding new mitigation measure MM 4.4.1c, which requires the placement of pipelines 100 feet outside of riparian habitat areas that may provide habitat for the Yuma clapper rail.

Response 1-182: The commenter is referred to Response 1-181. The commenter provides no explanation as to how a 1:1 replacement ratio results in a net loss of riparian habitat. The 1:1 replacement ratio is consistent with the CEQA requirements of proportionality of mitigation to impacts as provided under CEQA Guidelines Section 15126.4(a)(4)(B).

Response 1-183: Since release of the DEIR, additional project area biological resource analysis has been conducted and is provided in **Appendix A**. Figures 4 and 5 of **Appendix A** identify the location of wetland habitats. Mitigation measure MM 4.4.5 requires that if any waters of the U.S. would be lost or disturbed, they shall be replaced or rehabilitated on a no-net-loss basis in accordance with the USACE mitigation guidelines. This performance standard is consistent with CEQA Guidelines Section 15124.6(a)(1)(B).

Response 1-184: The commenter is referred to Response 1-183. CEQA does not require that a wetland delineation be performed prior to project approval as long as the environmental impacts associated with the project, including to wetlands, are adequately evaluated in the EIR. Procedural or substantive requirements beyond those explicitly required in the statutes or guidelines should not be imposed. (*Dry Creek Citizens Coalition v. County of Tulare* (1999) 70 Cal.App.4th 20, 36.) If necessary, a wetland delineation would be performed as part of the Clean Water Act Section 404 permitting process. The County is not required to comply with federal procedures to comply with CEQA.

Nonetheless, DEIR pages 4.4-38 and 4.4.-39 identify the impact of the project on wetlands and waters of the U.S. as potentially significant and propose MM 4.4.5, which would reduce the impact to a less than significant level. Moreover, the September 2011 Biological Resources Evaluation for the project consulted the National Wetland Inventory and the National Hydrology Database maps to determine previously identified surface waters in the biological survey area (see Figure 4 of the Biological Resources Evaluation in **Appendix A**).

Response 1-185: The County did not piecemeal the proposed project, well exploration, and the North Brawley project. These activities had their own separate environmental review under CEQA. The North Brawley facility and the proposed project are located over 1.5 miles from one another and are independently operated by the same owner. Neither facility is reliant on the other in order to operate. The commenter is referred to Response 1-7

regarding CEC determinations on the relationship between the project and the North Brawley facility.

Response 1-186: The DEIR does identify proposed well drilling and testing as part of the project and evaluates the associated impacts (see DEIR pages 3.0-13 through -22 as well as pages 4.3-14 through -26). As stated in Response 1-82, H_2S emissions resulting from well drilling/testing activities associated with the project would never exceed more than 6.9 pounds per day. The commenter is also referred to Response 1-54.

Response 1-187: As stated in Responses 1-82 and 1-186, H_2S emissions resulting from well drilling/testing activities associated with the project would never exceed more than 6.9 pounds per day. The commenter is also referred to Response 1-54 for calculations of pollutant emissions associated with the project drill rig "construction" (drilling).

Response 1-188: The commenter is referred to Responses 1-7 and 1-185.

Response 1-189: The commenter's assertions are incorrect. The two described projects are owned and operated by the same entity under separate LLCs, but do not share transmission and water supply infrastructure. In addition, inferring that projects sharing the same geothermal complex equates to interdependency is unreasonable. For example, just because solar projects in the same general vicinity share sun or wind turbine projects in the same vicinity share wind does not make these similar project examples interdependent. The commenter is referred to Responses 1-7 and 1-185.

Response 1-190: While this comment does not provide evidence to support the assertion, it is understood that this comment is an introductory comment and further elaboration is forthcoming in subsequent comments. The commenter is referred to Appendix K of the DEIR for a copy of the project's WSA.

Response 1-191: The commenter is referred to Responses C-4 through C-9. In addition, as stated on page 3.0-22 of the DEIR, no landscaping is proposed as part of the project. Construction water would be provided on a temporary basis during construction activities from existing onsite agricultural wells or purchased through the IID. This construction water demand is temporary and would not exceed the project's operational water demands.

Response 1-192: Several existing agricultural wells located on the project site, or water purchased directly from the IID would provide a source of water for construction-related activities and the project's requirement to reduce fugitive dust emissions during construction. In addition, it is anticipated that the project's construction contractor will provide water trucks on-site to spray water for dust control purposes. Project construction water demands would be less than project operations; thus, no new water supply impacts are expected.

Response 1-193: The commenter is referred to Responses C-4 through C-9 and 1-192.

Response 1-194: The WSA is provided in Appendix K of the DEIR and meets the content requirements set forth in the Water Code Section 10910 as noted below:

- *Section 10910(c)(3)(4) (Determination of whether water supplies during normal, single dry and multiple dry years during a 20-year projection will meet project demands)* – WSA page 36 through 49
- *Section 10910(d) (1) (2) (Identification of any existing water supply entitlements, water rights, or water service contracts)* – WSA pages 25 through 33
- *Section 10910 (c) (2) (3) (Project water demand)* – WSA pages 34 and 35
- *Section 10910 (c) (2) (documenting supplies and demand for normal, single dry and multiple dry years))* – WSA pages 36 through 42

Response 1-195: The commenter is referred to Response 1-145, 1-149, and 1-194 and to the WSA in Appendix K of the DEIR.

Response 1-196: While this comment does not provide evidence to support the assertion, it is understood that this comment is an introductory comment and further elaboration is forthcoming in subsequent comments. The commenter is referred to Response C-6.

Response 1-197: Water usage for the proposed project is evaluated in the DEIR and will be considered by the appropriate decision-makers during the approval phase of the conditional use permit application process for the project. Regarding the comment pertaining to inconsistencies with state and local policies, the commenter is referred to Responses C-6 and 1-145 and pages 44 through 46 of the WSA in Appendix K of the DEIR. The project applicant has taken considerable actions to be conservative with the water supply for the proposed project. As outlined in the WSA, the following are three significant conservation measures being taken by the project applicant for the project: (1) design and ultimate construction of the BWWTP to include tertiary treatment technology; (2) planned utilization of BWWTP average daily flow as the primary water source for the proposed project; and (3) design of the proposed project to use 19 percent less water than the amount in the contract with the IID for the North Brawley Geothermal Development Project.

Response 1-198: Comment noted. The commenter is referred to Responses C-6, C-8, and 1-6.

Response 1-199: Comment noted. The commenter is referred to Response C-6.

Response 1-200: As stated in the commenter's letter, the County's GAEE "encourages" the efficient utilization of water in geothermal/alternative energy operations and fosters the use of non-irrigation water by these industries. Given the project's proposal to use a majority of its long-term water supply from BWWTP tertiary treated water, the project is consistent with the GAEE of the County's General Plan.

Response 1-201: The commenter is referred to Response 1-6.

Response 1-202: The commenter is referred to Response 1-7.

Response 1-203: DEIR page 3.0-13 specifically notes that the project's generating capacity is 49.9 megawatts. While it is noted on the same page of the DEIR that the facility could have up to six OEC binary generating units with a gross generating capacity of 16 MW and Appendix D of the DEIR identifies the same units at 12.5 MW, the total plant capacity would be capped at 49.9 MW. Because the parasitic load cannot be completely known until the well field and plant are in the final design phase, the proposed project has been capped at 49.9 MW net and is the basis for final design engineered. The North Brawley Geothermal project is similar to the proposed project in that it was permitted for six OEC's but only operates five OECs. The design of the OECs has improved over time thus reducing the overall OEC requirement. The CUP for the proposed project will cap its generating capacity at 49.9 MW net, and will require an amendment to exceed that generating capacity number. During the CEC's review of CURE's complaint, CEC staff also concluded that the project's generation output determination of 49.5 MW by the applicant (including the generation potential of the OECs) was reasonable and would generate a maximum net output of less than 50 MW (CEC Staff Assessment, Staff Exhibit 300, September 2011, Docket No. 11-CAI-02). The commenter is also referred to Response 1-7.

Response 1-204: The gross generating capacity of the proposed project is what has been evaluated in the DEIR. Figures for calculating the net generating capacity are not required as part of the analysis in the DEIR as the gross generating capacity number represents the greatest level of impact that could be generated from the project. As noted in Response 1-203, CEC staff also concluded that the project's generation output determination of 49.5 MW by the applicant (including the generation potential of the OECs, pumps, fans, blowers, and related equipment) was reasonable and would generate a maximum net output of less than 50 MW (CEC Staff Assessment, Staff Exhibit 300, September 2011, Docket No. 11-CAI-02).

Response 1-205: As stated on page 4.13-18 of the DEIR, should additional installation cabling or distribution facilities be required to establish service at the proposed project, installation would be coordinated with the County and IID Energy, and all utility lines would be placed in underground conduit. These utilities would be included in the development footprint of the project as evaluated in the DEIR. Therefore, no new impacts would result from installation of additional cabling or distribution facilities at the project site. The commenter is further referred to Responses 1-203 and 1-204.

Response 1-206: As identified in Response 1-7, the Energy Resources Conservation and Development Commission (ERCDC) of the State of California adopted Order No. 11-1130-4 stating that the Verified Complaint and Request for Investigation by California Unions for Reliable Energy is dismissed with prejudice and directing that the docket file (Docket No. 11-CAI-02) be closed. Under this decision, the ERCDC determined that CURE did not prove that the proposed project exceeds a net generating capacity of

50 MW. Further, the ERCDC found that CURE did not prove that the proposed project and the North Brawley project constitute a single project. Based on this determination, CURE's request for investigation and all other relief was denied, and the complaint was dismissed with prejudice. The commenter is also referred to Responses 1-203 and 1-204.

Response 1-207: The commenter is summarizing the previous comments and assertions stated throughout their comment letter and is referred to the responses above prepared for all of their comments.

Response 1-208: While this comment does not provide evidence to support the assertion, it is understood that this comment is an introductory comment and further elaboration is forthcoming in subsequent comments that are responded to. The DEIR project description meets the content requirements of CEQA Guidelines Section 15124.

Response 1-209: The commenter is referred to Responses 1-203 and 1-204.

Response 1-210: The commenter is referred to Responses 1-203 and 1-204.

Response 1-211: It is understood that this comment is an introductory comment and further elaboration is forthcoming in subsequent comments responded to below.

Response 1-212: As stated on page 4.13-18 of the DEIR, should additional installation cabling or distribution facilities be required to establish service at the proposed project, installation would be coordinated with the County and IID Energy, and all utility lines would be placed in underground conduit. These utilities would be included in the development footprint of the project as evaluated in the DEIR. Therefore, no new impacts would result from installation of additional cabling or distribution facilities at the project site.

Response 1-213: The project is anticipated to provide for its own electrical demand and would not require any additional distribution facilities to obtain service from IID.

Response 1-214: The commenter is referred to Responses 1-7 and 1-204.

Response 1-215: The commenter states the DEIR fails to adequately document and support its assumptions, analyses, and conclusions. While this comment does not provide evidence to support the assertion, it is understood that this comment is an introductory comment and further elaboration is forthcoming in subsequent comments responded to below.

Response 1-216: The commenter provides a synopsis of the DEIR discussion of noncondensible gases (NCGs) in the geothermal fluid. This DEIR discussion is located on page 4.3-18 of the DEIR.

Response 1-217: The comment is noted.

Response 1-218: The geothermal noncondensible gases separated at each of the well pads would be delivered through dedicated noncondensible gas pipelines to the RTO unit/caustic scrubber system located at the power

plant site. Because the RTO unit would receive the noncondensible gases from dedicated noncondensible gas pipelines, controlling the quantity of the gases diverted to the RTO unit (in this case up to 25 percent)versus being dissolved/entrained in the geothermal brine as it is injected into the geothermal fluid injection wells is simply controlled by regulating valves and flow meters.

Response 1-219: The comment is noted.

Response 1-220: As stated in Appendix D of the DEIR, scheduled maintenance for the RTO unit/caustic scrubber system would be coordinated with the maintenance schedule for the East Brawley power plant, such that the East Brawley power plant would operate no more than 276 hours per year without operation of the RTO unit/caustic scrubber system. While unscheduled maintenance is acknowledged as a possibility, projecting the amount of hours of unscheduled maintenance is entirely too speculative and guessing will result in an imprecise analysis. In addition, the CUP would limit the proposed project to the "276 hours per year" number, and if this number is in fact exceeded, the proposed project's power plant would be shut down in compliance with the CUP, the CUP would need to be amended, or the power plant would not have the ability to vent the NGC stream.

Response 1-221: The commenter is referred to Appendix B of Appendix D of the DEIR for detailed calculations for the facility and emission unit potential to emit. Appendix B of Appendix D of the DEIR contains 14 pages of "potential to emit notes" for operational emissions as well as a health risk assessment.

Response 1-222: The commenter is referred to Response 1-221.

Response 1-223: It is not known what exactly the commenter is trying to relate in terms of "presented emission factors." The commenter is referred to Tables 4.3-6 and 4.3-7 of the DEIR for a comparison of unabated and abated emissions. The commenter is also referred to Appendix B of Appendix D of the DEIR for detailed calculation for the facility and emission unit potential to emit. Appendix B of Appendix D of the DEIR contains 14 pages of "potential to emit notes" for operational emissions as well as a health risk assessment.

Response 1-224: The commenter is directed to "Supplemental Air Pollutant Emission Assessment, East Brawley Project Operations, Imperial County, California" of the East Brawley Geothermal Development Project Air Quality Assessment (January 2012) provided in **Appendix C** of this document for the detailed calculations of the project emissions, including improvements to the City of Brawley Wastewater Treatment Plant.

Response 1-225: The commenter requests the URBEMIS files be provided as well as a detailed construction schedule. The original URBMEMIS files are provided in **Appendix D**. The commenter is referred to **Appendix C** for output data files of the construction emissions model (using CalEEMod) and a detailed construction schedule that was originally used to support the DEIR conclusions.

Response 1-226: The commenter is referred to Responses 1-26 and 1-27.

Response 1-227: The commenter is referred to Response 1-35.

Response 1-228: The comment is noted, and the commenter is referred to Response 1-35.

Response 1-229: The commenter is referred to Response 1-35 for a depiction of available background concentrations of regulated pollutants. The commenter is also referred to pages 4.3-6 and -7 of the DEIR.

Response 1-230: The comment is noted.

Response 1-231: The commenter is referred to Responses 1-29, 1-30, and 1-162.

Response 1-232: While this comment does not provide evidence to support the assertion, it is understood that this comment is an introductory comment and further elaboration is forthcoming in subsequent comments. The air quality impact analysis was prepared by Environmental Management Associates, Inc. (2010, 2011, and 2012) using methodologies and assumptions recommended in the various guidelines of the ICAPCD. Regional and local air quality conditions are presented, along with pertinent air quality standards and regulations. Mitigation measures are recommended, as necessary, to reduce significant air quality impacts.

Response 1-233: The commenter is referred to Responses 1-54, 1-55, and 1-68.

Response 1-234: The commenter is referred to Responses 1-54, 1-55, and 1-68.

Response 1-235: The commenter is referred to Responses 1-54, 1-55, and 1-68.

Response 1-236: The commenter is correct that the ICAPCD does not have a threshold of significance for $PM_{2.5}$ emissions. The commenter is referred to Response 1-54 for a disclosure of estimated $PM_{2.5}$ emissions that would result from the proposed project. The commenter is also referred to page 4.3-17 of the DEIR for a discussion of construction-related mitigation measures that would minimize criteria air pollutants, including $PM_{2.5}$ emissions, during the project's construction phase and would reduce construction-related impacts to a less than significant level. Mitigation measure MM 4.3.2a (see modifications to this mitigation measure under Response D-1 and 1-168) and ICAPCD Rule VIII would ensure fugitive dust (PM_{10} and $PM_{2.5}$) control measures are incorporated into the project plans to reduce the emissions of fugitive dust during construction activities.

Response 1-237: The commenter is referred to Responses 1-54, 1-55, and 1-68 for a disclosure of estimated $PM_{2.5}$ emissions that would result from the proposed project, including the project's two cooling towers.

Response 1-238: The commenter is referred to Responses D-1, 1-54, 1-55, and 1-68.

Response 1-239: The comment is noted.

Response 1-240: The comment is noted.

Response 1-241: The commenter is referred to Responses 1-35 and 1-54. The commenter is also referred to page 4.3-17 of the DEIR for a discussion of construction-related mitigation measures that would minimize criteria air pollutants, including $PM_{2.5}$ emissions, during the project's construction phase and would reduce construction-related impacts to a less than significant level. Mitigation measure MM 4.3.2a (see modifications to this mitigation measure under Response D-1 and 1-168) and ICAPCD Rule VIII would ensure fugitive dust (PM_{10} and $PM_{2.5}$) control measures are incorporated into the project plans to reduce the emissions of fugitive dust during construction activities.

Response 1-242: While this comment does not provide evidence to support the assertion, it is understood that the comment is an introductory comment and further elaboration is forthcoming in subsequent comments. The air quality impact analysis was prepared by Environmental Management Associates, Inc. (2010) using methodologies and assumptions recommended in the various guidelines of the ICAPCD. Regional and local air quality conditions are presented, along with pertinent air quality standards and regulations. Mitigation measures are recommended, as necessary, to reduce significant air quality impacts.

Response 1-243: Ormat has reconfirmed that the East Brawley power plant will not use a "black-start" diesel generator (e-mail from Charlene Wardlow, Ormat, Inc., July 20, 2011).

Response 1-244: The commenter is referred to Response 1-68.

Response 1-245: The commenter is referred to Response 1-248.

Response 1-246: The level of detail requested in terms of emissions from wind erosion is not reasonably feasible and not required under CEQA. Fugitive dust emissions constitute the total of all dust-generating activities. Separating out each activity, and studying them exhaustively, will result in an imprecise analysis. DEIR mitigation measures MM 4.3.2a (see modifications under Responses D-1 and 1-168) and MM 4.8.1 address dust emissions.

Response 1-247: The commenter is referred to Responses 1-54 and 1-68 for a disclosure of all particulate matter emissions estimated to result from construction activities and project operations. The commenter is also referred to Response 1-248.

Response 1-248: The commenter is referred to Responses 1-54 and 1-68 for a disclosure of all particulate matter emissions estimated to result from construction activities and project operations. The EMA Memorandum, "Supplemental Air Pollutant Emission Assessment East Brawley Project Operations," January 29, 2012, is provided in **Appendix C** of this document and contains tables summarizing the specific daily air pollutant emissions calculated by CalEEMod for each of the project operations—power plant operations and WWTF operations. Also included are the calculations of fugitive dust generated off-site daily from the well pad maintenance traffic, as calculated using the unpaved roads emissions factors in AP-42 (using the silt and moisture defaults from CalEEMod). The operations AP-42 model (off-site

maintenance traffic on unpaved roads) assumed that approximately 46.8 miles of unpaved roads are traveled each day during operations.

Response 1-249: The commenter is referred to page 4.3-17 of the DEIR for a discussion of construction-related mitigation measures that would minimize criteria air pollutants, including $PM_{2.5}$ emissions, during the project's construction phase and would reduce construction-related impacts to a less than significant level. The commenter is also referred to Responses 1-168 and 1-169 for additional mitigation added to mitigation measures MM 4.3.2a and MM 4.3.2b.

The commenter is also referred to DEIR page 4.3-22 for a discussion of operational mitigation measures that ensure compliance with ICAPCD Rule 207, which requires utilization of the appropriate Best Available Control Technology (BACT) with specific emitting sources (RTO/scrubber abatement system), as well as with ICAPCD Rule 207.C.2.a, which involves the purchase of necessary ROC emission offset credits from one or more entities. Finally, the commenter is referred to page 4.3-25 of the DEIR for a discussion of hazardous air pollutant mitigation.

Response 1-250: The commenter is referred to Responses 1-82 and 1-89 regarding potential odor and health concerns regarding emissions for construction and operation (including redrilling) of the wells and Response 1-68, which identifies that total project operation would not exceed ICAPCD thresholds and result in a significant air quality impact.

Response 1-251: The commenter states that the North Brawley facility has encountered high levels of undissolved solids during operational activities and that as a result it is necessary to install custom sand separators. The commenter further states that sand separators are vented for a period of 20 to 30 seconds every four hours and that during these events H_2S, benzene, and NH_3 as well as undissolved solid particles are released.

The June 21, 2010, memo, "Amendment of Source Test Requirements North Brawley Geothermal Project Brawley, California," does not state that "undissolved solid particles are released into the atmosphere." In fact, the memo instead states, "North Brawley does not recognize the sand separators as a significant PM_{10} emissions source, and they [the sand separators] were not included as a potential PM_{10} emission source in the original ICAPCD application for ATC, dated July 25, 2007, or the ICAPCD amended application for ATC, dated March 26, 2008." The ATC application for the East Brawley project also does not recognize the sand separators as a PM_{10} source, as only steam and noncondensible gases are emitted from the sand separators. The commenter is referred to Response 1-71.

Response 1-252: There will be no particulate emissions from the sand separators. The commenter is referred to Response 1-71.

Response 1-253: The commenter is referred to Response 1-71.

Response 1-254: The comment is noted.

Response 1-255: The Imperial County Air Pollution Control District Rules and Regulations (January 2011) do not recognize either NH_3 or H_2S as precursors to PM_{10} (or $PM_{2.5}$) [see ICAPCD Rule 101 (Definitions) – "Precursor" (pages 101-29 and 101-30)].

Further, the California Energy Commission decision approved the Salton Sea Unit 6 geothermal power project in Imperial County (02-AFC-2, page 7), though California Energy Commission staff could not quantify the amount of particulate formed by the conversion of NH_3 or H_2S. According to the CEC, "For purposes of CEQA, the Commission needs more than a mere possibility that this chemical reaction might take place as a result of project operations in a way that could contribute to PM_{10} violations and thus create a significant impact."

Any conversion assumptions for H_2S and/or NH_3 to particulate matter for the project are speculative; there are no accepted conversion rates for H_2S and/or NH_3 to particulate matter. In addition, the estimate emissions of ammonia and hydrogen sulfide are low, and the DEIR already includes mitigation measures MM 4.3.3a and MM 4.3.3b addressing both particulate matter emissions and hydrogen sulfide as part of operations.

Response 1-256: The commenter is referred to Response 1-255.

Response 1-257: The commenter is referred to Impact 4.3.3 of the DEIR, which addresses emissions from fugitive isopentane sources like valves, connections, seals, and tubes under the headings "Other Fugitive Emissions Sources" and "Fugitive Isopentane Emissions." The commenter is also referred to Impact 4.7.3 of Section 4.7 of the DEIR for a discussion on the potential for accidental releases of isopentane.

Isopentane is an organic compound with a variety of uses, ranging from an ingredient in cosmetics to a component in geothermal power plants. This solvent is extremely flammable. Its tendency to evaporate makes it useful for dissolving compounds, since it is easily evaporated away. Isopentane smells like gasoline and does not dissolve in water, but floats on top of it. Isopentane is used in geothermal plant processes as geothermal plants tap into heat energy deep in the earth and convert it to electricity. Hot water from the geothermal energy heats liquid isopentane and turns it into a gas. This gas then drives a turbine and generator to generate the power plant's electricity. The annual fugitive emissions of isopentane from the project without mitigation are estimated at about 25 tons. An off-site consequence analysis has been prepared for the project (see Appendix J3 of the DEIR) that addresses the potential hazards associated with a release of isopentane from the power plant site.

Response 1-258: As stated on pages 4.3-18 and -19 of the DEIR, each OEC unit would have minute leaks of the motive fluid (isopentane) from valves, connections, seals, and tubes, which would be released either to the atmosphere or into the geothermal fluid or circulating cooling water lines. Isopentane would also be discharged to the atmosphere from OEC unit vapor recovery units (through which air leaked into the isopentane condensers is discharged to recover isopentane vapors) and during OEC unit

maintenance activities. The annual fugitive emissions of isopentane from the project without mitigation are estimated at about 25 tons based on inventory losses at similar facilities.

The commenter is also referred to Impact 4.7.3 of Section 4.7 of the DEIR for a discussion on the potential for accidental releases of isopentane. As stated under Impact 4.7.3, in the event of a hazardous material leak or spill, the Imperial County Fire Department would respond to manage the emergency. The commenter is also referred to Response 1-257.

Response 1-259: While this comment does not provide evidence to support the assertion, it is understood that the comment is an introductory comment and further elaboration is forthcoming in subsequent comments. The air quality impact analysis was prepared by Environmental Management Associates, Inc. (2010) using methodologies and assumptions recommended in the various guidelines of the ICAPCD. Regional and local air quality conditions are presented, along with pertinent air quality standards and regulations. Mitigation measures are recommended, as necessary, to reduce significant air quality impacts.

Response 1-260: The comment is noted.

Response 1-261: The commenter is referred to Impact 4.3.3 of the DEIR. As required by CEQA, the project has been analyzed for its contribution of air pollutants. The air quality impact analysis was prepared by Environmental Management Associates, Inc. (2010) using methodologies and assumptions recommended in the various guidelines of the ICAPCD, specifically ICAPCD Rule 207, which addresses stationary source emissions like the proposed power plant. The ICAPCD provides quantitative criteria in the form of thresholds to help in the assessment of environmental impacts, and these criteria were used for this analysis.

As stated in the discussion under Impact 4.3.3 of the DEIR, the project would result in a less than significant impact in regard to operational ROG emissions (a precursor of the pollutant ozone) with adherence to ICAPCD Rule 207.C.2.a, which requires offsets for facility emissions of each regulated air pollutant in excess of 137 pounds per day. Mitigation measure MM 4.3.3b of the DEIR mandates that the proposed project be required to fulfill its obligations mandated in ICAPCD Rule 207.C.2.a in order to mitigate project air pollutants associated with ROG in excess of 137 pounds per day with the purchase of necessary emission offset credits from one or more entities prior to the initiation of plant operations. Implementation of mitigation measure MM 4.3.3b would ensure compliance with ICAPCD Rule 207.C.2.a.

Since 1993, Health and Safety Code Sections 40709 and 40709.5 have required local air quality management districts/air pollution control districts to collect information about the cost of offset transactions from stationary source owners who purchase offsets as required by district New Source Review programs. State law also requires districts to adopt emission reduction credit banking programs. Districts are required to collect specific information about offset transactions including the price

paid in dollars per ton, the pollutant traded, the amount traded and the year of the transaction. Districts are also required to annually publish this information without revealing the identity of the parties involved with the transaction. According to the ICAPCD, offsets are actual emission reductions sufficient to offset emission increases from a new or modified emissions unit (ICAPCD Rules and Regulations, January 2011) as they provide for no net increase in emissions pursuant to Section 40918 of the Health and Safety Code.

Response 1-262: The commenter is referred to Response 1-35 for ambient air pollutant concentrations in the project area. There are no ambient air quality monitoring stations in the project area or near sensitive receptors. The commenter is referred to Appendix C of the Air Quality Assessment provided in Appendix D of the DEIR regarding the distance of sensitive receptors and modeled air pollutant concentrations (see also **Appendix C** of this document for the "East Brawley Geothermal Project – Assessment of Potential Cancer Risks from Diesel Particulate Matter Emissions from Emergency Diesel Engines"). The air quality impact analysis was prepared by Environmental Management Associates, Inc. (2010) using methodologies and assumptions recommended in the various guidelines of the ICAPCD, specifically ICAPCD Rule 207, which addresses stationary source emissions like the proposed power plant. The ICAPCD provides quantitative criteria in the form of thresholds to help in the assessment of environmental impacts, and these criteria were used for this analysis. The assessment of emissions in combination with existing ambient concentrations is not a requirement under the ICAPCD criteria.

Response 1-263: The commenter states that the DEIR fails to purport all particulate matter emissions based on failure to address the employment of a black-start generator (see Response 1-243), mobile sources (see Response 1-68), road dust and wind erosion (see Responses 1-246 and 1-248), well drilling (see Response 1-82), particulate matter from sand separators (see Response 1-251), and particulate matter from NH_3 and H_2S (see Responses 1-57, 1-252, and 1-255).

As discussed above, Ormat has reconfirmed that the East Brawley power plant will not use a "black-start" diesel generator (e-mail from Charlene Wardlow, Ormat, Inc., July 20, 2011).

Response 1-68 depicts emissions resulting from project operation sources such as worker commutes and on-site equipment usage.

In terms of emissions resulting from wind erosion, the level of detail requested in terms of these emissions is not reasonably feasible. Total fugitive dust emissions are the entirety of all dust-generating activities. Separating out each activity (generation of dust and erosion from wind), and studying them exhaustively, will result in an imprecise analysis.

For emissions associated with road dust, the EMA memorandum, "Supplemental Air Pollutant Emission Assessment East Brawley Project Operations," January 29, 2012 (see **Appendix C**), contains tables summarizing the specific daily air pollutant emissions calculated by

CalEEMod for each of the project operations—power plant operations and BWWTP operations. Also included are the calculations of fugitive dust generated off-site daily from the well pad maintenance traffic, as calculated using the unpaved roads emissions factors in AP-42 (using the silt and moisture defaults from CalEEMod). The operations AP-42 model (off-site maintenance traffic on unpaved roads) assumed that approximately 46.8 miles of unpaved roads are traveled each day during operations.

The commenter is referred to Responses 1-68 and 1-82 for a discussion of well drilling emissions.

Regarding particulate matter from sand separators, as stated in Response 1-251, like the ATC application for the North Brawley geothermal plant, the ATC application for the East Brawley project does not recognize the sand separators as a PM_{10} source, as only steam and noncondensible gases are emitted from the sand separators. The commenter is referred to pages 4.3-19 and -21 of the DEIR for a disclosure of projected sand separator-associated emissions both before and after the implementation of mitigation. As depicted on these pages, emissions projected to result from project sand separators have been added together with all other stationary emissions sources.

Any conversion assumptions of H_2S and/or NH_3 to particulate matter for the project are speculative; there are no accepted conversion rates for H_2S and/or NH_3 to particulate matter. Furthermore, the Imperial County Air Pollution Control District Rules and Regulations (01/01/2011) do *not* recognize either NH_3 or H_2S as precursors to PM_{10} (or $PM_{2.5}$) [see ICAPCD Rule 101 (Definitions) – "Precursor" (pages 101-29 and 101-30)].

Finally, the Imperial County Air Pollution Control District CEQA Air Quality Handbook (November 2007) provides guidance to assist CEQA lead agencies in making a determination on the type of environmental document to prepare. The handbook (page 8) states, "Table 1 [of the handbook] provides general guidelines for determining the significance of impacts and the recommended type of environmental analysis required based on the total emissions that are expected from the operational phase of a project." However, the ICAPCD CEQA Handbook also states on page 8, "For industrial development projects, the thresholds in Table 1 should be used only to determine significance of the impact from mobile source emissions attracted to the stationary source. Therefore, Table 1 would not be used to determine significance for the air emissions associated with the stationary source, including off-road mobile emissions produced within the stationary source. Those stationary source emissions are already subject to mitigation according to Rule 207, New and Modified Stationary Source Review and Rule 201 and must therefore be excluded."

Response 1-264: The commenter is referred to Response 1-6. The proposed project is not required to employ the use of air cooling or reverse osmosis as part of project design. Reverse osmosis is economically infeasible and requires significantly more power to operate the system. Imperial County does not possess regulatory policies to mandate the use of these features. The commenter is referred to page DEIR 4.3-22 for a discussion of operational

mitigation measures that ensure compliance with ICAPCD Rule 207, which requires utilization of the appropriate BACTs with specific emitting sources (RTO/scrubber abatement system) as well as compliance with ICAPCD Rule 207.C.2.a, which involves the purchase of necessary emission offset credits from one or more entities. According to ICAPCD, offsets are actual emission reductions sufficient to offset emission increases from a new or modified emissions unit (ICAPCD, Rules and Regulations, January 2011) as they provide for no net increase in emissions pursuant to Section 40918 of the Health and Safety Code.

Finally, the commenter is referred to page 4.3-25 of the DEIR for a discussion of hazardous air pollutant mitigation, which requires that the project achieve synthetic minor source status in order to mitigate project air pollutants associated with the HAP benzene (C_6H_6) prior to the issuance of construction permits.

Response 1-265: The commenter is referred to Response 1-6.

Response 1-266: This comment is noted. The proposed project is not required to employ the use of air cooling technology as part of project design. Imperial County does not possess regulatory policies to mandate the use of these features, and the presence of design features or power plant attributes in one location does not mandate the use of such feature in all instances. The commenter is referred to Response 1-6.

Response 1-267: The comment is noted, and the commenter is referred to Responses 1-6 and 1-266.

Response 1-268: The air quality impact analysis was prepared by Environmental Management Associates, Inc. (2010). The commenter is referred to page 11 of Appendix B of Appendix D of the DEIR, which states the TDS content of circulating water to be 9,400 ppm. Environmental Management Associates, Inc. cites "AP-42 (5th Ed. 01/95) Section 13.4 (Wet Cooling Towers) Table 13.4-1 (Particulate Emissions Factors for Wet Cooling Towers" as the source for TDS content of circulating water.

Response 1-269: This comment is noted. The proposed project is not required to employ the use of these technologies as part of project design. Imperial County does not possess regulatory policies to mandate the use of these features. The commenter is referred to Response 1-264.

Response 1-270: In Table 2 of the comment, the commenter incorrectly states that the modeled H_2S concentration at Residence 4 of 12.0 ug/m^3 resulted from the *abated* H_2S emissions from the RTO unit/scrubber, which accounted for only 34.6 percent of the project's total H_2S emissions. In fact, the modeled H_2S concentration of 12.0 ug/m^3 resulted from the unabated H_2S emissions from the high pressure separators (emitted through the cooling tower) when the RTO unit/scrubber was not operating. As presented in Appendix B of Appendix D (Air Quality Assessment) of the DEIR, these *unabated* H_2S emissions are 96.4 percent of the project's H_2S emissions when the RTO unit/scrubber is not operating. Even if one scales up the modeled H_2S concentration by the additional 3.6 percent (which even

the commenter states is not appropriate), the resulting H_2S concentration is 12.5 ug/m^3, far below the state standard of 43 ug/m^3.

Response 1-271: The commenter is referred to Responses 1-59, 1-61, and 1-78.

Response 1-272: The commenter is referred to Responses 1-59 and 1-61.

Response 1-273: Page 4.3-16 states, "Only one well is typically flow tested at a time (Thomas 2010)." The applicant has reconfirmed that only one well would be flow tested at one time (e-mail from Charlene Wardlow, Ormat, Inc., August 27, 2011). The commenter is also referred to Responses 1-13 and 1-67.

Response 1-274: The commenter is referred to Response 1-35 regarding current ambient air quality data. The air quality impact analysis was prepared by Environmental Management Associates, Inc. (2010) using methodologies and assumptions recommended in the various guidelines of the ICAPCD, specifically ICAPCD Rule 207, which addresses stationary source emissions like the proposed power plant. The ICAPCD provides quantitative criteria in the form of thresholds to help in the assessment of environmental impacts, and these criteria were used for this analysis. The assessment of emissions in combination with existing ambient concentrations is not a requirement under the ICAPCD criteria. As identified on DEIR page 4.3-20 and in Response 1-54, the proposed project operations would generate low amounts of H_2S (1.11 tons per year).

Response 1-275: The H_2S concentrations modeled for the health risk assessment resulted from the unabated H_2S emissions from the high pressure separators (emitted through the cooling tower) when the RTO unit/scrubber was not operating. As presented in Appendix B of Appendix D (Air Quality Assessment) of the DEIR, these unabated H_2S emissions are 96.4 percent of the project's H_2S emissions when the RTO unit/scrubber is not operating. Even if one scales up the modeled H_2S concentration by the additional 3.6 percent (which even the commenter states is not appropriate), the resulting H_2S concentration is 12.5 ug/m^3, far below the state standard of 43 ug/m^3. Further, as documented in Response 1-82, H_2S emissions from well flow testing are expected to be only 1.15 pounds per hour, for an average of 6 hours, no more than once a month, and distributed throughout the well field.

Response 1-276: The commenter is referred to Table 4.3-6 of Impact 4.3.3 of the DEIR, which summarizes projected air pollutant emissions without mitigation from each of the air pollutant emission sources. Sources of H_2S include the project's high pressure separator, sand separators, injection filters, and NCG pipeline condensate drains. As stated on page 4.3-20 of the DEIR, projects that have the potential to emit regulated air pollutants must comply with ICAPCD and EPA rules and regulations. New Source Review (ICAPCD Rule 207) requires that any new or modified air pollution emission unit emitting any nonattainment air pollutant or its precursors in excess of 25 pounds per day, or 55 pounds per day of H_2S, must utilize Best Available Control Technology (BACT).

As also stated on page 4.3-20 of the DEIR, a regenerative thermal oxidizer (RTO) unit and caustic scrubber system is proposed to be used to abate the combustible air pollutant emissions. The RTO unit would remove by thermal oxidation essentially all of the NH_3 and a minimum of 98 percent of the methane (CH_4), benzene (C_6H_6), and H_2S in the geothermal noncondensible gas (NCG) delivered to the RTO unit. The oxidization of H_2S by the RTO unit would produce sulfur dioxide (SO_2), and the oxidization of NH_3 by the RTO unit would produce oxides of nitrogen (NO_x). About 97.5 percent of the SO_2 created in the RTO unit would be removed by the caustic scrubber. The RTO/scrubber system represents BACT for removal of the H_2S and C_6H_6 in the NCG. The projected air pollutant emissions with implementation of the RTO unit and scrubber system from each of the air pollutant emission sources, as well as daily emissions from the RTO/scrubber itself, including both the NCG and the RTO combustion emissions, are summarized in Table 4.3-7 of the DEIR.

As shown in Table 4.3-7 of the DEIR, the RTO unit itself will emit daily emissions that equal 34.6 percent of total H_2S emissions emitted by the project as the commenter asserts. However, the RTO unit would substantially abate H_2S emissions from the project's high pressure separator. As shown in Table 4.3-7, the RTO unit would not abate H_2S emissions generated from project sand separators, which constitute the majority of project H_2S emissions.

Response 1-277: The commenter is referred to Response 1-82.

Response 1-278: The commenter is referred to Response 1-82. As noted in Response 1-59, the project's H_2S emissions would not result in any significant air quality impacts and there is no need to consider injecting hydrogen peroxide.

Response 1-279: The commenter is referred to Response 1-59. No exceedance of state ambient air quality standards is expected.

Response 1-280: This comment is noted, and the commenter is referred to Responses 1-59 and 1-61.

Response 1-281: Page 4.3-16 of the DEIR states, "Some hydrogen sulfide would be emitted to the atmosphere if the wells are flow tested once drilling is complete. The amount of hydrogen sulfide emitted to the air would be small, because a well flow test is short in duration (EMA 2010, p. 7). Assuming that the geothermal fluid contains 70 ppm of hydrogen sulfide and that all of the hydrogen sulfide in the geothermal fluid is released to the atmosphere upon flashing (the change of fluid into steam), a well flow test conducted at rate of 500,000 pounds per hour would emit hydrogen sulfide at a rate of about 35 pounds per hour (EMA 2010, p. 7)." However, more recent production well flow test data from the North Brawley well field, which was used in the calculation of air pollutant emissions for the East Brawley air permit application, indicates that the average production well hydrogen sulfide concentration in the total brine is about 2.3 ppm. This means that the hydrogen sulfide emissions from a 500,000 pounds per hour flow test would be only 1.15 pounds per hour, not the

previously supposed rate of 35 pounds per hour projected in the DEIR, and would last about 6 hours.

The commenter is referred to FEIR Section 4.0, Minor Revisions to the DEIR. The following text has been revised in DEIR Section 4.3, page 4.3-16:

> Some hydrogen sulfide would be emitted to the atmosphere if the wells are flow tested once drilling is complete. The amount of hydrogen sulfide emitted to the air would be small, because a well flow test is short in duration (EMA 2010, p. 7). Assuming that the geothermal fluid contains ~~70~~ 2.3 ppm of hydrogen sulfide and that all of the hydrogen sulfide in the geothermal fluid is released to the atmosphere upon flashing (the change of fluid into steam), a well flow test conducted at rate of 500,000 pounds per hour would emit hydrogen sulfide at a rate of about ~~35~~ 1.15 pounds per hour (~~EMA 2010, p. 7~~ EMA 2011, *Air Pollutant Emissions from East Brawley Projects Well Flow Test*, September 2011). Only one well is typically flow tested at a time (Thomas 2010). Therefore, H_2S emissions resulting from well testing activities associated with the project would never exceed more than 6.9 pounds per day.

The following text has been revised in DEIR Section 4.3, page 4.3-26:

> The amount of hydrogen sulfide emitted to the air would be small, because a well flow test is short in duration (EMA 2010, p. 7). Assuming that the geothermal fluid contains ~~70~~ 2.3 ppm of hydrogen sulfide and that all of the hydrogen sulfide in the geothermal fluid is released to the atmosphere upon flashing (the change of fluid into steam), a well flow test conducted at rate of 500,000 pounds per hour would emit hydrogen sulfide at a rate of about ~~35~~ 1.15 pounds per hour (~~EMA 2010, p. 7~~ EMA 2011, *Air Pollutant Emissions from East Brawley Projects Well Flow Test*, September 2011). Only one well is typically flow tested at a time (Thomas 2010). Therefore, H_2S emissions resulting from well testing activities associated with the project would never exceed more than 6.9 pounds per day.

Response 1-282: The measurement of odor is complex because it is based on several different compounds to which there is a range of sensitivities in the human population. The air quality impact analysis was prepared using methodologies and assumptions recommended in the various guidelines of the ICAPCD. The ICAPCD does not have a quantifiable threshold for NH_3 odor impacts because the ability to detect odors varies considerably among the population and overall is quite subjective. While the discussion of potential odor impacts in the DEIR does not specifically name NH_3 as a potential odor nuisance, page 4.3-20 of the DEIR states projects that have the potential to emit regulated air pollutants must comply with ICAPCD rules and regulations. The proposed project would be subject to ICAPCD Rule 407, which states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such persons or the public (ICAPCD Rules and Regulations, January

2011). This rule does not apply to odors emanating from agricultural operations necessary for the raising of animals.

The commenter is referred to page 4.3-26 of the DEIR for a discussion on odor impacts resulting from the proposed power plant, the geothermal well field during drilling and testing activities, and the tertiary treatment of wastewater. In addition, as stated on pages 4.9-3 and -4 of the DEIR, the purpose of Title 9, the Land Use Ordinance for the County of Imperial, is to provide comprehensive land use regulations for all unincorporated areas of Imperial County, including the establishment of zoning areas. These regulations are adopted to promote and protect the public health, safety, and general welfare through the orderly regulation of land uses throughout the unincorporated areas of the county. The geothermal plant site is currently zoned A-2-G and is primarily defined as suitable for agricultural uses (limited) and agricultural related compatible uses. Permitted uses in the A-2-G zone include oil, gas, and geothermal exploration.

The purpose of these regulations is to facilitate the beneficial use of the geothermal resource for the general welfare of the people of Imperial County and the State of California, to protect the resource from wasteful or detrimental uses, and to protect people, property, and the environment from detriments that might result from the improper use of the resource. It is the intent of these regulations to integrate, to the extent possible, Imperial County's regulations with those of other governmental agencies that regulate geothermal resource exploration and development. The regulations ensure that no gap in the protection of the public health, safety, and general welfare occurs as the result of changes in the regulations or enforcement policies of the other agencies.

It is also important to note that the project area consists of intensive agricultural and other operations and conditions that currently generate odors (e.g., Brawley Wastewater Treatment Plant, cattle feedlots, and natural odors from the Salton Sea) that would be difficult to distinguish from project operations.

Response 1-283: While this comment does not provide evidence to support the assertion, it is understood that the comment is an introductory comment and further elaboration is forthcoming in subsequent comments and are responded to below. The air quality impact analysis was prepared by Environmental Management Associates, Inc. (2010) using methodologies and assumptions recommended in the various guidelines of the ICAPCD. Regional and local air quality conditions are presented, along with pertinent air quality standards and regulations. Mitigation measures are recommended, as necessary, to reduce significant air quality impacts.

Response 1-284: This comment does not provide evidence to support the assertion. The commenter is referred to Response 1-220 for a discussion of RTO unscheduled maintenance.

Response 1-285: The commenter incorrectly assumes that the short-term (acute) health risks from H_2S and benzene were modeled using the "abated" emissions from the RTO unit/scrubber. In fact, these short-term (acute) affects were

modeled using the unabated H_2S and benzene emissions from the high pressure separators, which are 96.4 percent and 95.3 percent, respectively, of the project's unabated emissions of H_2S and benzene (see Appendix B of Appendix D [Air Quality Assessment] of the DEIR).

The commenter also incorrectly assumes that the long-term health risks from H_2S (chronic) and benzene (chronic and cancer) were modeled using only the "abated" emissions from the RTO unit/scrubber. To the contrary, the long-term health risks from H_2S and benzene were modeled using the hourly averages of the annual emissions from both the high pressure separators (emitted through the cooling towers) and the RTO unit/scrubber, which are 58.1 percent and 51.7 percent, respectively, of the project's total emissions of H_2S and benzene (see Appendix B of Appendix D (Air Quality Assessment) of the DEIR). While the RTO unit/scrubber and the cooling towers are located in close proximity on the power plant site, the rest of the project's annual H_2S and benzene emissions (from the 46 sand separators and the 64 injection filters) are scattered around the approximately 2.5-square-mile well field, each emitting less than 1.0 percent and 0.02 percent, respectively, of the benzene emitted by the project. Further, no wells (and thus no sand separators or injection filters) are located within 0.25 miles (1,320 feet) of Residence 4, the residence with the highest modeled cancer risk. Thus, the benzene emissions from the sand separators, injection filters, and NCG pipeline condensate drains have a negligible potential to appreciably add to the modeled cancer risk at Residence 4 from the RTO unit/scrubber and cooling tower benzene sources located on the power plant site.

Response 1-286: The commenter is referred to Appendix D of the DEIR (specifically page 5 of Appendix C of Appendix D) which lists said residential receptor (known as Residence 4), which is associated with the highest modeled average annual benzene concentration for all five years modeled and the OEHHA-derived benzene unit cancer risk (H_2S has no unit cancer risk). As stated on this appendix page, the dimensionless maximum cancer risk (derived by multiplying the average annual modeled concentration by the unit risk) from benzene is 0.75 cancers per million population, which is below the generally accepted *de minimus* project cancer risk of one in one million.

Response 1-287: As stated in Response 1.82 and 1-281, H_2S emissions resulting from well testing activities associated with the project would never exceed more than 6.9 pounds per day. This would also be true of redrilling and testing. Text on DEIR pages 4.3-16 and -26 has been amended to reflect this.

Response 1-288: This comment is noted. The commenter is referred to Response 1-281 for a discussion of more recent production well flow test data from the North Brawley well field, which indicates an average production well hydrogen sulfide concentration in the project vicinity of 2.3 ppm. The commenter is referred to FEIR Section 4.0, Minor Revisions to the DEIR, and/or to Responses 1-82 or 1-281 to see the text changes made to pages 4.3-16 and -26 of the DEIR regarding hydrogen sulfide concentration.

Response 1-289: The commenter is referred to Responses 1-82 and 1-281. The health risk assessment provided in Appendix C Air Quality Assessment in Appendix D of the DEIR addresses lifetime exposure and provides data on hourly and annual concentrations.

Response 1-290: The commenter is referred to Response 1-89 for a discussion of diesel PM emissions.

Response 1-291: The commenter is referred to Responses 1-85, 1-89, and 1-91.

Response 1-292: The commenter is referred to Table 4.3-8 and Table 4.3-9 of the DEIR for project hazardous air pollutant projections, including diesel-generated hazardous air pollutants and benzene from project sand separators, injection filters, and NCG pipeline condensate drains, without mitigation and with mitigation. The DEIR concludes that public health impacts would be mitigated to less than significant as documented on DEIR pages 4.3-23 through -26.

Response 1-293: As stated in Responses 1-82 and 1-281, H_2S emissions resulting from well testing activities associated with the project would never exceed more than 6.9 pounds per day. In addition, as confirmed by the applicant, no more than one well will be drilled and tested at time. Text on DEIR pages 4.3-16 and -26 has been amended to reflect this.

Response 1-294: The commenter is referred to Response 1-54.

Response 1-295: The commenter is referred to **Appendix C** of this document for updated air quality analysis and modeling that supports the conclusions of the DEIR and provides assumptions for construction activities, as well as to **Appendix D** of this document that contains the original DEIR air quality modeling data.

Response 1-296: The commenter is referred to Responses 1-68 and 1-82 regarding well drilling/testing activities.

Response 1-297: The commenter is referred to **Appendix C** of this document for updated air quality analysis and modeling that supports the conclusions of the DEIR related to NOx construction emissions from the East Brawley Geothermal Project power plant site and the drilling of any one well site. The commenter is also referred to Response 1-54 for a summary of estimated project construction emissions and Response 1-63, 1-168 and 1-171 for revisions to mitigation measures that address construction activities.

Response 1-298: The commenter is referred to **Appendix C** of this document for updated air quality analysis and modeling that supports the conclusions of the DEIR, as well as to **Appendix D** of this document that contains the original DEIR air quality modeling data. The commenter is also referred to Response 1-54 for a summary of updated air quality modeling using CalEEMod.

Response 1-299: The commenter is referred to Response 1-54.

Response 1-300: The commenter is referred to Response 1-54. As noted in EMA's "Air Quality Impact Analysis of NOx Emissions from Well Pad and Power Plant Construction, East Brawley Geothermal Project, Imperial County, California" (November 2011) (see **Appendix C**), the proposed project construction activities would not exceed state or federal air quality standards for ozone precursors (NO_x). DEIR mitigation measures MM 4.3.2a and MM 4.3.2b would also address ozone precursors and particulate matter emissions to mitigate the construction impact to less than significant. The commenter is also referred to Responses 1-168 and 1-169 for additional measures added to mitigation measures MM 4.3.2a and MM 4.3.2b.

Response 1-301: The commenter is referred to Responses 1-54 and 1-300.

Response 1-302: The commenter is referred to Responses 1-54 and 1-300.

Response 1-303: The commenter is referred to **Appendix C** of this document for updated air quality analysis and modeling that supports the conclusions of the DEIR, as well as to **Appendix D** of this document that contains the original DEIR air quality modeling data. The commenter is also referred to Response 1-54 for a summary of updated air quality modeling using CalEEMod. As noted in EMA's "Air Quality Impact Analysis of NOX Emissions from Well Pad and Power Plant Construction, East Brawley Geothermal Project, Imperial County, California" (November 2011) (see **Appendix C**), the proposed project construction activities would not exceed state or federal air quality standards for ozone precursors (NO_x). DEIR mitigation measures MM 4.3.2a and MM 4.3.2b would also address ozone precursors and particulate matter emissions to mitigate the construction impact to less than significant. The commenter is also referred to Responses 1-168 and 1-169 for additional measures added to mitigation measures MM 4.3.2a and MM 4.3.2b.

Response 1-304: The air quality impact analysis was prepared using methodologies and assumptions recommended in the various guidelines of the ICAPCD. The commenter is referred to page 23 of the ICAPCD 2007 CEQA Air Quality Handbook, which is the source of mitigation measures MM 4.3.2a and MM 4.3.2b. Both mitigation measures are specific to their application to project construction activities, and changes to mitigation measure MM 4.3.2a require that a dust control plan consistent with ICAPCD Rule 801 requirements be developed prior to any earth movement activity at the project site. The commenter is also referred to Response D-1 regarding modifications to mitigation measure MM 4.3.2a. The commenter provides no countering evidence that construction air quality emissions would not be mitigated. The commenter is also referred to Responses 1-168 and 1-169 for additional measures added to mitigation measures MM 4.3.2a and MM 4.3.2b.

Response 1-305: As stated on page 4.3-17 of the DEIR, mitigation measures MM 4.3.2a and MM 4.3.2b shall be implemented throughout project construction, and it will be the responsibility of the Imperial County Planning and Development Services Department to ensure monitoring and enforcement (as part of the implementation of the project's adopted mitigation monitoring and reporting program). The air quality impact

analysis was prepared using methodologies and assumptions recommended in the various guidelines of the ICAPCD. The commenter is referred to page 23 of the ICAPCD 2007 CEQA Air Quality Handbook, which is the source of mitigation measures MM 4.3.2a and MM 4.3.2b. The commenter is also referred to Responses D-1, 1-168, and 1-169 for additional measures added to mitigation measures MM 4.3.2a and MM 4.3.2b.

Response 1-306: DEIR mitigation measures specifically note when the mitigation measure is to be applied and who the monitoring and enforcement agency is. In addition, the County will adopt a mitigation monitoring and reporting program to ensure application and enforcement of adopted mitigation measures consistent with the requirements of CEQA.

Response 1-307: The commenter is referred to Responses 1-166 and 1-306.

Response 1-308: The commenter is referred to Responses 1-166 and 1-306.

Response 1-309: As previously stated, the project applicant has confirmed that no more than one well will be drilled and tested at a time. The commenter is referred to Responses D-1, 1-13, and 1-168, where appropriate suggested mitigation measures have been added.

Response 1-310: The commenter is referred to Responses 1-168 and 1-169, where appropriate suggested mitigation measures have been added.

Response 1-311: The commenter is referred to Response 1-171, where appropriate suggested mitigation measures have been added.

Response 1-312: The DEIR impact analysis focuses on offsetting project impacts in order to mitigate the project's contribution to cumulative air quality impacts. The commenter is referred to Response 1-282 regarding odor impacts and Response 1-162 regarding consideration of cumulative setting and future projects in the County.

Response 1-313: The proposed project would be required to comply with all applicable federal, state, and local regulations pertaining to safe-transit practices, workplace safety, spill prevention, and other hazardous materials-related concerns. The Imperial County Certified Uniform Program Agency and other agencies would be required to enforce compliance, including issuing permits and tracking and inspecting hazardous materials transportation and storage. The project will be required to prepare a Spill Prevention Control and Countermeasure Plan in accordance with U.S. Code of Federal Regulations, Title 40, Part 112 (40.CFR.112). The SPCC Plan will address the potential for brine spills to impact the project area. Additionally, the project will be required to prepare a Hazardous Materials Business Plan as required by mitigation measure MM 4.7.1a. The commenter is referred to Response 1-317.

Response 1-314: The commenter is referred to Response 1-313 in regard to handling of hazardous materials.

Response 1-315: The commenter is referred to Response 1-313.

Response 1-316: The commenter is referred to Response 1-313.

Response 1-317: A Spill Prevention Control and Countermeasure (SPCC) Plan will be required for the project. The spills noted in the comment occurred at the projects adjacent to the Salton Sea where the geothermal brines can be as high as 315,000 ppm TDS. The brines at the proposed project site are much lower, less than 40,000 ppm, and do not have the same hazards associated with them. All proposed pipelines have shutoff valves and can be controlled from the main control room. Each pipeline would be visually inspected daily as the well field crews are working in the well field. A letter from John F. Matthew, President of JFMPE Geothermal Plant, Processes, and Pipelines Design and Consulting Services dated August 4, 2011, addresses geothermal facility design and notes that most facilities have complete control over fluid flow through control valves, pump kill switches, and motor-operated valves. The proposed project would incorporate these design features into the final project construction design. Mitigation measure MM 4.7.1a is modified below to include this consideration.

The following text is added to the end of mitigation measure MM 4.7.1a on DEIR page 4.7-19:

> The project proponent shall prepare a Hazard and Operability Review for the final geothermal plant design. The Hazard and Operability Review shall contain a structured and systematic examination of the planned operation for the power plant in order to identify and evaluate problems that may represent risks to personnel or equipment, or prevent efficient operation. The final design shall incorporate control valves, pump kill switches, and motor-operated valves.
>
> *Timing/Implementation: Prior to operation ~~issuance of a recorded conditional use permit~~*

Response 1-318: The commenter is referred to Responses 1-314 and 1-317. Additionally, the commenter should note that the wells have double valving and can also be used to shut down brine blow should the catastrophe outlined occur. Through the implementation of the SPCC Plan and careful project design, the potential for an accident is reduced and the impacts from a spill occurrence are mitigated to the extent feasible.

Response I-319: The project applicant has conducted seismic surveys in the East Brawley project area to better define the geothermal resource and drilling targets. These surveys provide information needed to meet CBC requirements for Zone D as well as to address Alquist-Priolo Earthquake Fault Zone concerns in the East Brawley project area. There are no known existing active faults within the project area. Additionally, the commenter is referred to mitigation measure MM 4.6.2, which requires the project proponent to prepare site-specific geotechnical investigations for the proposed project.

Response I-320: The commenter is referred to Responses 1-314, 1-317, and 1-318.

Response I-321: The project applicant is required to prepare a number of plans that assist in prevention and remediation if a seismic event or brine spill occurs. The project will be required to prepare a Spill Prevention Control and Countermeasure Plan in accordance with U.S. Code of Federal Regulations, Title 40, Part 112 (40.CFR.112). The SPCC Plan will address the potential for brine spills to impact the project area. Additionally, the project will be required to prepare a Hazardous Materials Business Plan as required by mitigation measure MM 4.7.1a.

The commenter is referred to *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal. 3d 376, where the court noted that where future development is unspecified and uncertain, no purpose can be served by requiring an EIR to engage in sheer speculation as to future environmental consequences. The commenter is also referred to Responses 1-313 and 1-317.

Response I-322: The commenter is referred to Responses 1-317 and 1-318.

Response I-323: There are no drinking water quality aquifers in the project area. Additionally, the California Division of Oil, Gas and Geothermal Resources reviews and approves the drilling and casing program to ensure that waters of the state are protected. Ongoing monitoring of casing is required, especially for injection wells that are considered Class V under the Injection Control Program.

Response 1-324: The commenter is referred to Response 1-18 and to DEIR revised Figure 3.0-5 in Section 4.0 of this document further clarifying the alignment. Since release of the DEIR, additional site-specific biological resource analysis of the project area has been conducted and is provided in **Appendix A**. Figures 4 and 5 of **Appendix A** identify habitat conditions along the proposed transmission corridors.

Response 1-325: A communication tower is not a project component.

Response 1-326: The DEIR analyzes the project as a whole, which includes the transmission lines, plant construction, well construction, substation, City of Brawley Wastewater Treatment Plant improvements, and pipelines. The commenter is referred to Responses 1-324 and 1-325, **Figure 3.0-5** (see Section 4.0 of this document), and **Appendix A**.

Response 1-327: The proposed project does not propose any facilities within the New River corridor that would result in direct impacts. Pipeline facilities would utilize an existing crossing of the river, while transmission facilities would span the river. However, it is acknowledged that the proposed project would result in improvements and construction activities adjacent to or in the New River corridor. DEIR mitigation measures MM 4.4.1a and MM 4.4.1b (southwestern willow flycatcher), MM 4.4.4a and MM 4.4.4b (riparian habitat), and MM 4.4.5 (wetland resources) would address potential impacts to biological resources in or adjacent to the New River. Wetlands and waterways are shown in Figure 4 and Table 1 of **Appendix A**. A formal wetland delineation is not required under CEQA to determine wetland resources for a project. The commenter is referred to Response 1-184.

Response 1-328: The commenter is referred to Response 1-327.

Response 1-329: It is not expected that bird collisions into power lines will result in significant impacts to native bird populations. The following mitigation measure will be added to the EIR to ensure impacts associated with collision are minimized:

On DEIR page 4.4-35, the following mitigation measure is added:

MM 4.4.2e All aboveground lines, transformers, or conductors shall comply with Avian Power Line Interaction Committee (APLIC) standards, including the use of deterrents such as marker balls, swinging markers, bird flight diverters, or other similar devices that are commercially available products designed to increase the visibility of overhead wires to birds.

Timing/Implementation: During project design and construction grading activities

Enforcement/Monitoring: County of Imperial Planning and Development Services Department

Response 1-330: The commenter is referred to Response 1-324. The additional technical information provided in **Appendix A** further supports the conclusions of the DEIR and does not result in the identification of new significant biological resource impacts. The commenter is referred to Response 1-39 regarding additional mitigation to ensure sensitive habitat in the project area is not impacted by the proposed project.

Response 1-331: The commenter is referred to Response 1-14.

Response 1-332: Comment noted. Fencing would occur around the power plant site only to provide security associated with power plant operations and would not involve blockage of the New River, which provides wildlife movement. Due to the limited nature of the proposed fencing, movement of wildlife in the project area would not be significantly impacted. The following text changes are made to the DEIR.

On DEIR page 3.0-22, the following text changes are made:

Landscaping and Fencing

The ~~property~~ power plant will be enclosed by a 6-foot wire fence. All of the power plant facilities will be painted an earth-tone color to blend into the background. There are currently no landscaping plans for the project.

Response 1-333: Since release of the DEIR, additional site-specific biological resource analysis of the project area has been conducted and is provided in

Appendix A. The additional technical information provided in **Appendix A** further supports the conclusions of the DEIR and does not result in the identification of new significant biological resource impacts. The analysis provided in **Appendix A** involved approximately 40 hours of total field review by assigned biologists.

Response 1-334: Since release of the DEIR, additional site-specific biological resource analysis of the project area has been conducted and is provided in **Appendix A**. Pages 2.0-14 and -15 and Figure 7 of **Appendix A** specifically identify the location of burrowing owls in the project area. The commenter is also referred to Responses 1-115 through 1-119.

Response 1-335: Since release of the DEIR, additional site-specific biological resource analysis of the project area has been conducted and is provided in **Appendix A**. The additional technical information provided in **Appendix A** further supports the conclusions of the DEIR and does not result in the identification of new significant biological resource impacts. Figures 4 and 5 of **Appendix A** identify habitat conditions for all project features.

Response 1-336: Since release of the DEIR, additional site-specific biological resource analysis of the project area has been conducted and is provided in **Appendix A**. The additional technical information provided in **Appendix A** further supports the conclusions of the DEIR and does not result in the identification of new significant biological resource impacts.

Response 1-337: Since release of the DEIR, additional site-specific biological resource analysis of the project area has been conducted and is provided in **Appendix A**. The additional technical information provided in **Appendix A** further supports the conclusions of the DEIR and does not result in the identification of new significant biological resource impacts. Adequate research and field data was collected to determine the likelihood of wildlife species of concern to occur in the project area.

Response 1-338: Since release of the DEIR, additional site-specific biological resource analysis of the project area has been conducted and is provided in **Appendix A**. The additional technical information provided in **Appendix A** further supports the conclusions of the DEIR and does not result in the identification of new significant biological resource impacts. The following information is provided on the qualifications of the PMC biologists involved in the preparation of this report. The SR 78/111 Brawley Bypass project encompasses larger and more diverse habitat areas than the East Brawley geothermal project. A greater diversity of common wildlife and plants would therefore be expected for the bypass project. The differences in diversity of common species identified in the two projects do not reflect on the adequacy of the studies undertaken for the geothermal project.

Joyce Hunting, Director of Biological Resources

Education – MSC, Advanced Candidate Biological Sciences, Conservation Biology Concentration, California State University, Sacramento

BA (*Cum Laude*), Biology and Zoology, Humboldt State University, Arcata, CA

Registration – State of California, Department of Fish and Game Scientific Collector's Permit #1630

Ms. Hunting has more than 20 years of technical and practical experience in working in California's diverse natural environments. She has 14 years of experience in preparing and managing the preparation of environmental documents that comply with the requirements of the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), federal Endangered Species Act (ESA), California Endangered Species Act (CESA), California Public Utilities Commission, California Department of Transportation, State Reclamation Board, and local jurisdictions. She also has expertise in the preparation of U.S. Army Corps of Engineers Individual and Nationwide Permit Applications, California Fish and Game Codes 1602 Streambed Alterations Agreements, Habitat Conservation Plans, Natural Community Conservation Plans, wetland delineation and restoration plans, biological resource assessments and mitigation programs, and implementation of habitat conservation and restoration plans.

Jeannette Owen, Senior Biologist

Education – BS, Ecology and Systematic Biology, Wildlife Management Concentration, California Polytechnic University, San Luis Obispo

Professional Training – U.S. Army Corps Wetland Delineation Course (Richard Chinn), Sacramento

California Rapid Assessment Method (CRAM), Sacramento

CEQA Workshop (AEP), Sacramento

401 Water Quality Certification and WDR Requirements Workshop (RWQCB), Sacramento

Preparation of Biological Assessments – USFWS and NMFS, Sacramento

California Red-Legged Frog Workshop, Marshall, CA

ArcView 9 – For Fisheries and Wildlife Biology Applications, Sacramento

Ms. Owen has 12 years of experience performing detailed field studies, including data analysis and reporting on environmental impacts. She designs and implements protocols and methodologies for both plant and wildlife surveys. Ms. Owen also has experience working with GIS, including image analysis, digitizing, image rectification and projection as task manager. She has worked both independently and in conjunction with several government and private agencies as project manager. Ms. Owen has a technical talent for conducting ecological/biological assessments, interweaving transportation goals, and providing solutions to complex environmental challenges. She is familiar with state, federal, and local laws and regulations pertaining to the conservation of natural resources and endangered species. Ms. Owen is experienced in California Environmental Quality Act (CEQA) and National Environmental Policy Act

(NEPA) compliance and environmental permitting. She prepares environmental permit applications for USACE Clean Water Act 404 Nationwide Permits, Regional Water Quality Control Board (RWQCB) Section 401 Water Quality Certifications, CDFG 1602 Streambed Alteration Agreements, and Endangered Species Act (ESA) Section 7 Biological Assessments for both the USFWS and NMFS.

Angela Calderaro, Senior Biologist

Education – MS (in progress), Biological Sciences, California State University at Sacramento. Thesis: "Physical and Chemical Factors that Affect Diversity of Aquatic Invertebrates in Vernal Pools in Sacramento, California"

BS, Environmental Biology and Management, with a minor in Environmental Policy, Analysis, and Planning, University of California, Davis

Professional Training – International Society of Aboriculture (ISA) Certified Arborist (#WE-9038A) and Certified Tree Risk Assessor (CTRA #1198)

Federal Take Permit for vernal pool fairy shrimp (TE219638-0)

The Wildlife Society (TWS), Member of the National, Western, and Sacramento Valley Chapters

California Native Plant Society (CNPS), Member

Association of Environmental Professional (AEP), Member

Ms. Calderaro is a biologist with seven years' experience in environmental consulting and biological fieldwork. She regularly conducts biological surveys and writes accompanying technical reports and impact analyses for California Environmental Quality Act (CEQA) and National Environmental Protection Act (NEPA) documents. To complete these tasks, she conducts research using the California Natural Diversity Database and California Wildlife Habitat Relationship System database, as well as consulting with the U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), California Department of Fish and Game (CDFG), California Native Plant Society, local government officials, and local environmental agencies to address site-specific natural resources.

Ms. Calderaro's field skills include habitat assessments, special-status species surveys and monitoring, and fauna and flora identification. She has experience conducting protocol-level and species-specific surveys for several special-status species including valley elderberry longhorn beetle (VELB), California red-legged frog, western pond turtle, giant garter snake, Swainson's hawk, burrowing owl, raptor and migratory bird nests, and bats. She confirms the presence/absence of special-status plant species and potential habitat for special-status wildlife species at various project locations throughout California. She has worked extensively with the federally threatened VELB including conducting protocol-level surveys, assisting with research, and assessing factors that threaten the beetle. Ms. Calderaro also conducts protocol-level surveys for federally listed fairy shrimp species (take permit #TE219638-0).

Ms. Calderaro is an International Society of Aboriculture (ISA) Certified Arborist (#WE-9038A) and Certified Tree Risk Assessor (CTRA #1198); therefore, she is qualified to conduct tree surveys and tree risk assessments. Ms. Calderaro has experience conducting wetland delineations for the USACE and has completed several Natural Environment Studies (NES) for California Department of Transportation (Caltrans). She prepares environmental permit applications for USACE Clean Water Act 404 Nationwide Permits, Regional Water Quality Control Board (RWQCB) Section 401 Water Quality Certifications, CDFG 1602 Streambed Alteration Agreements, and Endangered Species Act (ESA) Section 7 Biological Assessments for the USFWS. Responsibilities also include peer review of technical reports, pre-construction surveys, and construction monitoring.

Response 1-339: Since release of the DEIR, additional site-specific biological resource analysis of the project area has been conducted and is provided in **Appendix A**. The additional technical information provided in **Appendix A** further supports the conclusions of the DEIR and does not result in the identification of new significant biological resource impacts.

The SR 78/111 Brawley Bypass project encompasses larger and more diverse habitat areas than the East Brawley geothermal project. A greater diversity of common wildlife and plants would therefore be expected for the bypass project. The differences in diversity of common species identified in the two projects do not reflect on the adequacy of the studies undertaken for the geothermal project.

Response 1-340: Since release of the DEIR, additional site-specific biological resource analysis of the project area has been conducted and is provided in **Appendix A**. The additional technical information provided in **Appendix A** further supports the conclusions of the DEIR and does not result in the identification of new significant biological resource impacts. Figures 4 and 5 and Table 1 of **Appendix A** identify habitat conditions for all project features.

Response 1-341: Since release of the DEIR, additional site-specific biological resource analysis of the project area has been conducted and is provided in **Appendix A**. Figures 4 and 5 and Table 1 of **Appendix A** (East Brawley Geothermal Development Project Biological Resources Evaluation, September 2011) identify habitat conditions for the project area. The East Brawley Geothermal Development Project Biological Resources Evaluation identifies the following habitats in the project area (acreages include buffer study area):

VEGETATIVE COMMUNITIES WITHIN THE PROJECT AREA

Vegetative Communities	Acreage	Percentage
Barren	79	9%
Urban/Ruderal	119	13%
Agricultural Fields	466	51%
Desert Scrub (Fallow Fields)	185	20%

Irrigation Ditches	25	3%
Open Water	15	2%
Desert Riparian/Riverine	24	3%
Mitigation Site	2	0.2%
Total	**915**	**100%**

Response 1-342: The comment is noted.

Response 1-343: The comment is noted. The commenter is referred **Appendix A** pages A-3 through A-12 regarding special-status wildlife species that potentially occur in the project area.

Response 1-344: The commenter is referred to Response 1-343.

Response 1-345: As identified in the East Brawley Geothermal Development Project Biological Resources Evaluation (see **Appendix A** Figure 5 and page 2.0-8), the canals and ditches in the project area have minimal habitat value, with the exception of two sites identified in Figure 5 of the evaluation that could support habitat for special-status species (e.g., Yuma clapper rail). The project proposes well sites (27-10 and 11-15) and pipelines near the northern feature, while a portion of the project features (existing Well Site 18-15 and pipelines east of the well site) near the southern feature have already been constructed. The project applicant does not anticipate placing any project features within the habitat areas. As identified in Response 1-39, an additional mitigation measure has been added to the DEIR (MM 4.4.1c), which will require that new pipelines associated with Well Sites 27-10, 11-15, and 18-15 be sited 100 feet outside of dense reed and cattail areas identified in Figure 5 of the East Brawley Geothermal Development Project Biological Resources Evaluation (September 2011), and construction exclusion fencing will be established in these areas to avoid impacts.

Response 1-346: The commenter is referred to Responses 1-39, 1-101, 1-102, 1-103, and 1-345.

Response 1-347: The commenter is referred to Response 1-40.

Response 1-348: The commenter is referred to Responses 1-40 and 1-119 through 1-124.

Response 1-349: The commenter is referred to Responses 1-41, 1-184, and 1-341. DEIR pages 4.4-37 through -39 address potential project impacts to sensitive habitats and wetland habitats.

Response 1-350: The proposed project would not include any improvements that would directly or indirectly impact the Finney-Ramey Unit of the Imperial Wildlife Area or the New Wetlands Project; thus, there is no need to describe these features in the EIR. The commenter is referred to Responses A-1 through A-2 regarding potential project impacts to the Caltrans Brawley Bypass wetland mitigation site.

Response 1-351: The commenter's statement that the DEIR only identifies impacts to burrowing owls is incorrect. As identified on DEIR pages 4.4-31 through -35,

the project has potential to impact the southern willow flycatcher and several bird and raptor species identified in DEIR Table 4.4-2 (e.g., white-faced ibis, northern harrier, yellow warbler, Crissal thrasher, and mountain plover). No impacts to special-status plant species are expected from the project based on the analysis provided in the DEIR and the subsequent analysis provided in the East Brawley Geothermal Development Project Biological Resources Evaluation (see page 2.0-13 of **Appendix A**). Moreover, the commenter inconsistently states that the DEIR has no potential impact to special-status species other than the burrowing owl, but then later states the DEIR acknowledged the potential impacts to special-status species.

Response 1-352: Since release of the DEIR, additional site-specific biological resource analysis of the project area has been conducted and is provided in **Appendix A** (East Brawley Geothermal Development Project Biological Resources Evaluation). The field review and technical analysis provided in **Appendix A** was adequate to determine the potential for presence of special-status species in the project area. As noted in the appendices of this document, resources and databases of the California Department of Fish and Game and U.S. Fish and Wildlife Service were consulted.

Response 1-353: Wetlands and waterways are shown in Figure 4 and Table 1 of **Appendix A**. Project impacts are anticipated to be limited to pipeline and transmission line crossings of wetland features and potential covering of the Best Canal for improved roadway access (see revised DEIR Figure 3.0-5 in Section 4.0). The commenter is also referred to Response 1-39 regarding additional mitigation to avoid key wetland habitat areas.

Response 1-354: The commenter is referred to Responses A-1 through A-3, 1-183, 1-184, 1-327, and 1-353.

Response 1-355: The commenter is referred to Responses A-1 through A-2.

Response 1-356: The commenter suggests that the DEIR analysis of flow changes to the New River is flawed and states that there is substantial scientific evidence to include that diversions of the City of Brawley Wastewater Treatment Plant discharge would result in significant impacts. However, the commenter fails to provide suggested evidence in this comment or later comments. Changes in New River flow and their potential impact are addressed in DEIR pages 4.4-31 and -32 and identify that the reduction of flows is well within the flow variations of the New River. It is acknowledged that once the City of Brawley moves forward with the proposed changes to the operation of the wastewater treatment plant, additional technical review (including a detailed hydrologic analysis) will likely be required as part of approval of cessation of discharges by the State Water Resources Control Board Division of Water Rights. The commenter is also referred to Response 1-120.

Response 1-357: The commenter fails to note the entire discussion of this impact in the DEIR on pages 4.4-31 and -32 that specifically notes the variation of flow conditions of the New River supporting the conclusions of the DEIR. The complete analysis is provided below.

The New River originates in Mexico. It flows approximately 20 miles through the City of Mexicali, Mexico, crosses the International Boundary, continues through the City of Calexico in the United States, and travels northward about 60 miles until it empties into the Salton Sea. Its flow at the International Boundary is about 150 to 200 cubic feet per second (cfs) (108,400 to 145,000 acre-feet per year (AFY)). The New River carries urban runoff, untreated and partially treated municipal wastes, untreated and partially treated industrial wastes, and agricultural runoff from the Mexicali Valley, Mexico, across the International Boundary into the United States. In addition, the river carries urban runoff, agricultural runoff, treated industrial wastes, and treated, disinfected, and non-disinfected domestic wastes from the Imperial Valley. It also carries approximately 6 to 11 cfs (4,350 to 7,970 AFY) of treated wastewater from point sources in Imperial Valley. The New River flow at the Salton Sea is about 600 cfs (430,000 AFY) (SWRCB, 2010).

As discussed above, a portion of the flow that contributes to the New River originates in Mexico. The average annual flow measured by the U.S Geological Survey in the New River at the International Border between 1980 and 1997 was approximately 182,000 acre-feet. This contribution of inflow from Mexico accounts for approximately 30 to 35 percent of the flow in the New River. Additionally, flows from the New River to the Salton Sea vary from year to year. Flow record measurements for the mouth of the New River started in 1943 and range from 378,000 to 540,000 acre-feet per year (USBR, 2000). The contribution of flows from Mexico to the New River is difficult to gauge from year to year.

Additionally, it is difficult to predict the amount of inflow changes within the U.S. New River area, and it typically fluctuates, because changes in cropping patterns will result in different amount of flow. For example, in the Imperial Valley, evapotranspiration from alfalfa is estimated to consume about 80.6 inches of water (6.7 feet) per year, while citrus crops consume only about 46.1 inches (3.84 feet) per year (USBR, 2000).

In order to determine a conservative estimate of the proposed project's contribution to reduced return flow to the New River, the average New River flow to the Salton Sea provided by the State Water Resources Control Board was used, or 430,000 acre-feet per year. The proposed project will require approximately 4,400 acre-feet of treated wastewater from the Brawley Wastewater Treatment Plant and an additional 1,110 acre-feet of water from the IID. The project will reduce the amount of return flow to the New River. The project's contribution to the reduction of return flow is approximately 0.01 percent. However, it is unlikely that the reduction of 4,400 acre-feet, or 0.01 percent, will have an impact on habitat in the New River. It is anticipated that the conditions of habitat in the New River will not be impacted because the

reduction is well within the range of normal flow variations. This is because evapotranspiration occurs due to crop fluctuations.

Based on review of aerial photography of the entire New River corridor in Imperial County, it is apparent that riparian vegetation primarily occurs where substantial human-made sources of water exist (e.g., reservoirs) from agricultural operations upstream and downstream of the project and is not supported by the wastewater treatment discharge. The commenter is also referred to Response 1-119.

Response 1-358: The comment is noted and the following correction is made below. This correction does not alter the conclusions of the DEIR. The commenter is also referred to Response 1-119.

On DEIR page 4.4-32, the following text change is made to the first full paragraph:

In order to determine a conservative estimate of the proposed project's contribution to reduced return flow to the New River, the average New River flow to the Salton Sea provided by the State Water Resources Control Board was used, or 430,000 acre-feet per year. The proposed project will require approximately 4,400 acre-feet of treated wastewater from the Brawley Wastewater Treatment Plant and an additional 1,110 acre-feet of water from the IID. The project will reduce the amount of return flow to the New River. The project's contribution to the reduction of return flow is approximately ~~0.01~~ 1 percent. However, it is unlikely that the reduction of 4,400 acre-feet, or ~~0.01~~ 1 percent, will have an impact on habitat in the New River. It is anticipated that the conditions of habitat in the New River will not be impacted because the reduction is well within the range of normal flow variations. This is because evapotranspiration occurs due to crop fluctuations.

Response 1-359: The commenter is referred to Responses 1-119 and 1-358.

Response 1-360: The commenter is referred to Responses 1-119, 1-357, and 1-358. Specific data related to the proposed Seely WWTP diversion of flows was not publicly available at the time of preparation of this document.

Response 1-361: The commenter is referred to Responses 1-119, 1-357, 1-358, and 1-362. Since changes in the flows of the New River will be within that currently experienced during annual variations, no impacts to Yuma clapper rail and least bell's vireo are expected as the associated habitats would not be lost.

Response 1-362: The commenter is referred to Responses 1-101 through 1-103.

Response 1-363: The commenter is referred to Responses 1-101 through 1-103.

Response 1-364: The commenter is referred to Responses 1-105 through 1-107.

Response 1-365: The commenter is referred to Responses 1-105 through 1-107.

Response 1-366: The commenter is referred to Responses 1-105 through 1-107.

Response 1-367: The commenter is referred to Response 1-108.

Response 1-368: The commenter is referred to Responses 1-110 and 1-111.

Response 1-369: The commenter is referred to Response 1-115.

Response 1-370: The commenter is referred to Response 1-116.

Response 1-371: The commenter is referred to Response 1-117.

Response 1-372: The commenter is referred to Response 1-117.

Response 1-373: The commenter is referred to Response 1-118.

Response 1-374: The commenter is referred to Response 1-118.

Response 1-375: Since release of the DEIR, additional site-specific biological resource analysis of the project area has been conducted and is provided in **Appendix A** (East Brawley Geothermal Development Project Biological Resources Evaluation). While the Sonoran desert toad was identified as potentially occurring in the project area (see page 2.0-14 of **Appendix A**), the proposed project would avoid its habitat areas. Inclusion of additional mitigation measure MM 4.4.1c (see Response 1-39) would ensure that no significant impacts to this species would occur.

Response 1-376: The commenter is referred to Responses 1-112 through 1-114.

Response 1-377: The commenter is referred to Response 1-351.

Response 1-378: The commenter provides no countering analysis demonstrating habitat impacts from the reduction of flows and the minor water elevation change that would be within the seasonal fluctuation in surface elevation (see DEIR pages 4.8-19 and -20). It should be noted that utilization of the City of Brawley Wastewater Treatment Plant effluent would reduce an existing source of salinity for the Salton Sea. Since the project would not discharge any water to the New River, there is no potential for it to contribute to increases in selenium discharges to the Salton Sea.

Response 1-379: The commenter is referred to Responses C-12, 1-124 through 1-128, and 1-378.

Response 1-380: The commenter is referred to Responses C-12, 1-124 through 1-128, and 1-378.

Response 1-381: The commenter is referred to Responses C-12, 1-124 through 1-128, and 1-378.

Response 1-382: Project construction of well sites would be temporary and would not result in permanent ponded water or mud conditions. In addition, well sites would not include lighting facilities as suggested by the commenter. Any

potential contamination that may occur from construction and operation of the project would be addressed through compliance with all applicable federal, state, and local regulations pertaining to safe-transit practices, workplace safety, spill prevention, and other hazardous materials-related concerns. The Imperial County Certified Uniform Program Agency and other agencies would be required to enforce compliance, including issuing permits and tracking and inspecting hazardous materials transportation and storage. The project will be required to prepare a Spill Prevention Control and Countermeasure Plan in accordance with U.S. Code of Federal Regulations, Title 40, Part 112 (40.CFR.112). The SPCC Plan will address the potential for brine spills to impact the project area. Additionally, the project will be required to prepare a Hazardous Materials Business Plan as required by mitigation measure MM 4.7.1a.

Response 1-383: This comment is unclear in regard to how the project could impact biological resources outside of the project area. The commenter is referred to Response A-1 regarding potential noise impacts to adjacent biological resources. The project would not involve the use of fire in the project area. As described on DEIR page 3.0-22, power plant lighting would be installed for security and nighttime use. Lighting would be projected downward to mitigate nighttime visibility of the facilities. Lighting would be directed downward and/or be on motion sensors and would not introduce any new source of substantial light or glare that would adversely affect day or nighttime views in the area. No significant impacts to special-status species are expected from these facilities. The commenter provides no countering analysis of the project to demonstrate that such impacts would occur.

Response 1-384: The commenter is referred to Response 1-329.

Response 1-385: The commenter is referred to Responses 1-181 and 1-182.

Response 1-386: The comment is noted.

Response 1-387: The comment is noted. The commenter is referred to Responses 1-183 and 1-327.

Response 1-388: The comment is noted.

Response 1-389: The commenter is referred to Responses 1-101 through 1-103 regarding impacts to Yuma clapper rail and to Response 1-327. Page 2.0-19 of **Appendix A** identified that the California black rail is unlikely to occur in the project area, and the commenter provides no countering analysis that this species could be present. Bell's vireo was not identified as a species that could occur in the project area and would not be impacted by the project. Mountain plover and Gila woodpecker have been identified in the DEIR and **Appendix A** as potentially occurring in the project area. Foraging habitat (agricultural fields) exists in the project area for the mountain plover, and this habitat condition would not be adversely impacted given that the agricultural operations surrounding the well sites would continue. Nesting habitat exists for the Gila woodpecker along the New River riparian habitat.

While the proposed project is not anticipated to directly impact the New River corridor, mitigation measures MM 4.4.2a and MM 4.4.2c would ensure that nesting habitat is not impacted by the project.

Response 1-390: The commenter is referred to Responses 1-176 through 1-179. The DEIR proposes MM 4.4.1a, which states that protocol-level surveys shall be conducted in all suitable habitat for the southwestern willow flycatcher in the project area. In addition, DEIR mitigation measures MM 4.4.4a and MM 4.4.4b would ensure that impacted riparian habitat is mitigated at a 1:1 ratio.

Response 1-391: The commenter is referred to Responses A-1 through A-3, 1-39, 1-327, and 1-390. Preconstruction surveys for the presence of tree-nesting birds are a common and statewide practice for determining presence and developing avoidance mitigation during construction activities. The commenter offers no alternative mitigation to these surveys to address the concern. Mitigation for noise impacts are addressed through mitigation measures MM 4.4.1b, MM 4.4.2a, and MM 4.4.3 that include buffers from construction activities to avoid disruption of the species.

Response 1-392: The commenter's concerns regarding the biological resource impacts of the proposed project have been responded to in the responses provided to this comment letter. The DEIR biological resources impact analysis is considered adequate for the purposes of disclosure under CEQA.

Response 1-393: The commenter is referred to Responses 1-118, 1-174, and 1-175. Mitigation measure MM 4.4.3 (as modified in Response 1-118) is considered adequate to address project impacts to burrowing owls. Since the CDFG is a trustee agency for CEQA and MM 4.4.3 now incorporates CDFG guidance documents by reference, no addition mitigation is required.

Response 1-394: Pages 2.0-14 and -15 and Figure 7 of **Appendix A** specifically identify the location of burrowing owls in the project area. The proposed project would not result in the substantial loss of burrowing owl habitat, as minimal loss of agricultural lands would occur from project development (see revised DEIR Figure 3.0-5 in Section 4.0). Mitigation measure MM 4.4.3 sets forth the ratio of compensation of lost burrow and foraging habitat at 2:1. This mitigation measure includes performance standards consistent with California Department of Fish and Game guidelines and CEQA Guidelines Section 15124.6(a)(1)(B), with the exact details of compliance to be confirmed as part of implementation of the project's adopted mitigation monitoring and reporting program. This mitigation measure would also ensure that no owls are killed as part of project construction activities.

Response 1-395: The commenter is referred to Response 1-394. If the project is approved by the County, a mitigation monitoring and reporting program would be adopted as part of the proposed project, thus providing the County with an enforcement mechanism to ensure implementation and compliance with this mitigation measure as required by CEQA Guidelines Section 15097.

Response 1-396: The commenter's concerns regarding the adequacy of biological resource mitigation measures have been addressed in the responses

above. Implementation of the identified biological resource mitigation measures would offset the project's contribution to cumulative biological resource impacts. The mitigation measures incorporated in the DEIR (MM 4.4.1a through MM 4.4.5), incorporating compliance with state and federal regulations, are implemented to address direct mortality, habitat loss (not net loss and replacement ratios for impacted habitat under mitigation measures MM 4.4.3, MM 4.4.4a, and MM 4.4.5), and deterioration of habitat suitability before project construction commences, during project construction, and during project operation and maintenance activities. The commenter presents no evidence that cumulative impacts related to biological resources would not be reduced to less than cumulatively considerable through implementation of the proposed mitigation measures. The commenter is also referred to Response 1-162.

Response 1-397: The commenter's concerns have been addressed in the above responses. The commenter is incorrect to suggest that the DEIR only contains future surveys as mitigation of biological resource impacts. DEIR mitigation measures MM 4.4.1b, MM 4.4.2a, MM 4.4.2c, MM 4.4.2d, MM 4.4.3, MM 4.4.4a, MM 4.4.4b, and MM 4.4.5 all contain specific protection measures or standards and/or compensation requirements to offset impacts.

Response 1-398: Mitigation measure MM 4.4.5 requires that any waters of the U.S. which would be lost or disturbed be replaced or rehabilitated on a no-net-loss basis in accordance with USACE mitigation guidelines. This performance standard is consistent with CEQA Guidelines Section 15124.6(a)(1)(B) and is not considered deferral.

Response 1-399: The commenter is referred to Responses 1-388 through 1-391 and 1-397.

Response 1-400: CEQA does not require the preparation of protocol surveys in order to provide an adequate impact analysis especially where there is no evidence, such as in the CNDDB, of occurrences of certain species or their habitats. The technical information provided in the DEIR as well as in **Appendix A** of this document provides adequate substantial evidence (as defined under CEQA Guidelines Section 15384) to determine potential impacts and identify mitigation measures to address these impacts.

Response I-401: Correspondence received from Dal Hunter dated August 5, 2011, provides clarification on his name and certification.

Response I-402: The commenter is referred to Responses 1-42, 1-43, and 1-319. The project applicant has conducted seismic surveys in the East Brawley project area to better define the geothermal resource and drilling targets. This confidential information provides the project applicant with the knowledge needed to meet CBC requirements for Zone D as well as to address Alquist-Priolo Earthquake Fault Zone concerns in the East Brawley project area.

Response I-403: As stated in Response I-43, the project applicant has geophysical data that provides the location of the faults in the area. The project will be built

to CBC requirements utilizing this information during project design. There are no known active faults within the Brawley seismic zone in the project area.

Response I-404: The conclusions described by the commenter do not apply to the entire project area. The commenter is referred to DEIR pages 4.6-12 through -13, which discuss the County requirements for participation in the County Subsidence and Monitoring and Detection Program as a condition of project approval. Additionally, the commenter is referred to Responses 1-42, 1-132, and 1-319.

Response I-405: The comment is noted.

The following text revisions are made to the DEIR on page 4.6-9:

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides. Passed by the State Legislature in 1990, this law was codified in the California Public Resources Code (PRC) as Division 2, Chapter 7.8A, and became operative in April 1991. ~~The County of Imperial is not identified as having any Seismic Hazards Zones according to the United States Geological Survey (USGS).~~

The commenter further states the DEIR does not evaluate the potential for liquefaction in the area. The project will be designed to meet CBC requirements for Imperial County. The commenter is referred to DEIR pages 4.6-12 through -13 and to Responses 1-42 and 1-319.

Response I-406: It is unclear to what document the commenter is referring regarding reports of liquefaction in the project area. The commenter is referred to page 10 of the Geotechnical Report, which states, "It is our judgment that the site soils are non-liquefiable." Moreover, the power plant site will be designed, engineered and constructed to address soil conditions encountered at the site. The pipelines will be built to accommodate the soil conditions encountered in the project area. Design-specific geotechnical work for the pipeline routes would be completed following project approval and during the construction design phase of the project as required by the County. In the Imperial Valley, the soil conditions are similar, and the foundations would be relatively shallow. With regard to pipeline rupture and settlement, this is normally a concern for direct burial pipe, as there are significant soil load and shears related to one portion of the ground not moving and the other moving.

Response 1-407: The commenter is referred to Response 1-406.

Response 1-408: The commenter is referred to the CUP application (June 10, 2010) on page 19, which provide measures incorporated into the project for subsidence from use of groundwater. When the CUP application is accepted by the County, the measures provided in the CUP application will become Conditions of Approval for the project.

As discussed above, the proposed project will be required to have a subsidence monitoring program. Baseline data has already been collected as part of the North Brawley Geothermal Development project whose survey points extend into the proposed project area. The Imperial Valley Department of Public Works is responsible for approval of the program and review of the annual reports. Additionally, the proposed project is binary and 100 percent of the geothermal fluids are returned to the geothermal reservoir.

Response 1-409: Expansive soil impacts are addressed on DEIR page 4.6-15, which includes mitigation measure MM 4.6.6 to address the impact. Project construction (including worker trips and equipment) impacts are addressed on DEIR pages 4.3-15 and -17 (see also **Appendix A** of this document), 4.10-17 and -18, and 4.12-12, -25, and -26.

Response 1-410: A subsidence monitoring program will be required by the CUP. The California Division of Oil, Gas and Geothermal Resources approves and monitors all injection operations and also reviews the annual subsidence data to ensure there is no impact to surrounding lands. The commenter is referred to Responses 1-402 through 1-409.

Response 1-411: The commenter is referred to Responses 1-132 and 1-402 through 1-409.

Response 1-412: The commenter is referred to Response 1-402.

REFERENCES

California Air Resources Board (CARB). 2011. "Air Quality and Emissions." http://www.arb.ca.gov/adam/index.html.

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California Department of Fish and Game (CDFG). 2012. "Staff Report on Burrowing Owl Mitigation."

California Energy Commission (CEC). 2010. Best Management Practices and Guidance Manual: Desert Renewable Energy Projects. http://www.energy.ca.gov/2010publications/REAT-1000-2010-009/REAT-1000-2010-009.PDF.

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Hutton, L. K., L. M. Jones, E. Hauksson, and D. D. Given. 1991. "Seismotectonics of Southern California." In D. B. Slemmons, E. R. Engdahl, M. D. Zoback, and D. D. Blackwell, eds. *Neotectonics of North America*. Boulder, CO: Geological Society of America, Decade Map Vol. 1.

Imperial Irrigation District (IID). n.d. "Imperial Irrigation District Annual Inventory of Areas Receiving Water Years 2011, 2010, 2009."

Johnson, C. E., and D. P. Hill. 1982. "Seismicity of the Imperial Valley, in The Imperial Valley, California, Earthquake of October 15, 1979." United States Geological Survey Professional Paper 1254.

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4.0 MINOR REVISIONS TO THE DRAFT EIR

4.1 INTRODUCTION

This section includes minor edits to the Draft EIR. These modifications resulted from responses to comments received during the Draft EIR public review period as well as staff-initiated changes.

Revisions herein do not result in new significant environmental impacts and do not constitute significant new information, nor do they alter the conclusions of the environmental analysis. Changes are provided in revision marks (underline for new text and ~~strikeout~~ for deleted text).

4.2 MINOR CHANGES AND EDITS TO THE DRAFT EIR

1.0 INTRODUCTION

The following text has been added to page 1.0-3:

IMPERIAL IRRIGATION DISTRICT

- Encroachment permit for covering of Best Canal for project access

2.0 EXECUTIVE SUMMARY

For revisions made to the executive summary table (Table 2.0-1) in the DEIR, please reference FEIR Section 2.0, **Table 2.0-1, Project Impacts and Proposed Mitigation Measures**.

3.0 PROJECT DESCRIPTION

Following page 3.0-10, Figure 3.0-5 has been revised. The revised figure is included in this Section 4.0, Minor Revisions to the Draft EIR.

In Draft EIR Table 3.0-2 (first row, last column), the following text changes are made:

> Well pads include all the equipment necessary to operate a well. During development, any additional drilling/redrilling would occur from the well pads. Well pads also include containment basins for drilling and maintenance of the wells, as well as sand separation systems.

Draft EIR page 3.0-15, the following text changes are made to the row associated with "Access Roads":

~~Access Roads~~	~~Access roads would be no less than 10 feet wide.~~	~~Access roads would extend from existing County roads to the well pads. Existing farm roads would be used to the extent practical. Access roads developed for exploration would be used for any wells and pads that are used for development. Where new pads are created, new access roads would be developed.~~	~~Access roads are used during development to construct the production wells and install equipment. During utilization, access roads are used for accessing wells for maintenance.~~

On page 3.0-18, the following discussion has been added after the second full paragraph:

The proposed tertiary treatment system would have a capacity of 5.9 mgd. As of 2008, existing Brawley WWTP average dry weather flows were 3.9 mgd. Therefore, the tertiary treatment system would operate at the initial available flow rate of 3.9 mgd but increase over time to 5.9 mgd as dry weather flows increase.

The new tertiary treatment system would receive water from a new tertiary treatment diversion structure, which would be installed approximately 200 feet downstream of the existing secondary effluent distribution structure. Secondary effluent flow would be diverted from the existing 42-inch pipeline to the tertiary effluent pump station wet well. From the wet well, water would be pumped into a flash mixing chamber for alum addition. Alum will be added using a high-energy direct-vacuum induction or pump diffusion system for near instantaneous and homogenous mixing.

Following flash mixing, the water would overflow into two parallel flocculation and sedimentation trains. Flocculation will be based on a two-stage design. The first stage would provide greater mixing energy to begin particle agglomeration and floc formation. The second stage would impart less energy to avoid shearing and encourage continued growth of large settleable floc. After the flocculation chambers, water would flow into the rectangular sedimentation tanks. The majority of the suspended solids would be removed in the sedimentation basin and the supernatant would be collected via weirs from the top of the sedimentation basin. The supernatant would then flow into the multimedia filter by gravity. A polymer would be added to the water as needed to increase filter performance and minimize filtered effluent turbidity. The gravity multimedia filter would have four filtration cells operating in parallel with sand and anthracite media. The filtered water would be collected in the filter effluent distribution box.

The filter effluent distribution box will be designed with a three-way weir system that would allow the filtered water to flow into the filter backwash supply storage sump, to the UV system by gravity, or to the chlorine contact basin should the UV system become unavailable due to service interruption or maintenance. Once the water is disinfected by the existing UV system, the water would flow into the effluent pump station wet well. Sodium hypochlorite would be injected at the dosage of 2 mg/L into the effluent pump station discharge pipe to maintain the residual disinfectant. The pump station would pump the disinfected tertiary water to the East Brawley power plant and/or to a storage equalization basin. The free chlorine residual would be monitored and analyzed downstream of the injection point. The equalization basin would hold approximately 5.0 million gallons to provide an operational buffer in case of WWTP or tertiary system interruptions, or power plant operational disruptions.

If the UV system operations are disrupted for a brief amount of time, the secondary effluent would be diverted to the chlorine contact chamber instead of the tertiary treatment process. The secondary effluent would be chlorinated and discharged to the New River. In this short period, the water demand at the East Brawley power plant would be met by utilizing the equalization storage. If the UV system operations were shutdown for an extended period of time, water demand at the project would be met by utilizing IID water available pursuant to the IWSP.

T:_GIS\IMPERIAL_COUNTY\MXD\ORMAT\GEOTHERMAL\FIGURE 3.0-5 8SA WITH COMPONENTS.MXD - 3/22/2012 @ 9:22:03 AM

BAUGHMAN RD
HOVLEY RD
STATE HWY 111
BEST RD
ANDRE RD
WARD RD
SLIDER RD
Railroad
Ormatt North Brawley 1
Geothermal Power Plant Site

27-10
47-10
87-10
27-11
11-15
45-15
81-15
21-14
62A-15
62-15
83-15
23-14
14-15
44-15
15-15
45-15
85-15
25-14
65A-15
65-15
37-15
87-15
27-14
18-15
61-22
21-23
42-22
23-22
43-22
63-22
23-23
14-22
26-22
45-22
65-22
86-21

Legend

- Biological Study Area
- Approved Geothermal Exploration Well Site
- Approved and Constructed Geothermal Well
- Proposed Geothermal Development Well Site
- Project Site Plan
- Alternative North Transmission Line Route
- Proposed West Transmission Line Route
- Approved and Constructed Geothermal Pipeline
- Proposed Freshwater Pipeline
- Proposed Geothermal Pipeline
- Proposed Tertiary Pipeline
- Existing New River Crossing

Source: NAIP, 2009; Ormatt

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Figure 3.0-5
East Brawley Geothermal Project Site

PMC

The tertiary system would have infrastructure and control valves/gates in place to manually divert the tertiary effluent into the chlorine contact chamber (during dry weather periods only) for situations where the UV system would be unavailable for an extended period that would exhaust the equalization storage supply. To initiate this temporary tertiary disinfection mode, an operator would manually close the UV system inlet control gate, which would cause the water level in the filtered effluent distribution box to rise and overflow into the chlorine contact chamber. The chlorine contact chamber would be dosed with 5 mg/L of sodium hypochlorite to meet the Title 22 disinfected tertiary CT requirements. The chlorinated tertiary effluent would then flow to the tertiary effluent pump station via a dedicated pipeline and connect to the effluent pump station wet well bypassing the UV system.

As part of the normal dry weather tertiary operation, the filter effluent distribution box would allow the filtered effluent to flow into the filter backwash supply storage sump. The weir height would be equivalent to the weir height that controls flow to the UV system. This would keep the filter backwash supply storage sump full at all times. The sump would have the capacity to store water to satisfy two sequential filter backwash cycles without interrupting normal tertiary treatment system operation. The filter backwash supply pumps would convey the stored backwash supply water to the media filter at a higher rate to provide cleaning, fluidization, and restratification of the media. The backwash wastewater would then be collected and conveyed back to the influent pump station wet well.

Alum sludge would be collected from the sedimentation basin using a chain-and-flight system and conveyed to a sludge holding tank. The sludge pumps would convey the collected sludge to a new centrifuge system. Two parallel centrifuges would be installed near the existing centrifuge. A new polymer system would be utilized at the new centrifuge system to increase the dewatering efficiency. The concentrate from the centrifuge would then be recirculated to the tertiary influent pump station wet well and the solids from the centrifuge would be collected and transferred to solids drying beds for further dewatering. Once the water content of the dried solids is reduced below 50 percent, the solids will be hauled off to a landfill for final disposal.

Chemical storage, feed systems, and electrical distribution and control systems will occupy separate areas in a common building. The pipeline connecting the upgraded facilities to the proposed power plant is shown on **Figure 3.0-5** and is approximately 5,040 feet in length.

On page 3.0-18, under the Well Field subheading, a new last paragraph has been inserted, as follows:

Because geothermal well site selection is an iterative process, after the first exploration wells were drilled, the well field was further refined. Additionally, it was decided that some of the wells drilled for East Brawley exploration will be used as wells for Ormat's North Brawley project. The County previously approved the use of these wells as well as construction of a pipeline crossing over the New River pipeline. **Figure 3.0-5** is the most recent well field layout and also shows which wells were already drilled and/or approved to be drilled under exploration.

On Draft EIR page 3.0-18, the following text changes are made to the last paragraph:

The well field would be located between Rutherford Road on the north, Dietrich Road on the east, the New River on the west, and just north of Shank Road on the south. Access to the well pads and pipelines would be from Best Road, Baum Road (not a county road), Groshen Road, Kershaw Road, Rutherford Road, Ward Road, and Willis Roads. Additionally, private

farm roads and portions of IID rights-of-way for vehicular use may be used for access. Encroachment permits for ingress/egress and irrigation canal and drain crossings would be obtained from Imperial County Public Works and IID as applicable. Access to farmland would be coordinated with landowners to minimize impacts to farming operations. Well pads and pipelines would be along the edges of fields. New access roads would be constructed or improved only as needed to safely accommodate traffic required for well pad construction, well drilling/redrilling (only one well would be typically flow tested at a time), and maintenance of wells and roads. Road widths to well pads would typically be no less than 10 feet. The disturbed lands, except for possibly the power plant site, would be returned to agricultural use once the wells are abandoned. Specifically, the pipelines will be removed and the well pads reclaimed.

The following new subheading and text has been added under the Geothermal Pipeline Systems subheading on page 3.0-22:

Transmission and Interconnect

A substation would be located on the westerly portion of the development footprint for the power plant site. A new transmission line would interconnect to the IID Energy grid at the North Brawley 1 substation located near the intersection of Hovley and Andre roads. The interconnection line would be a 2- to 5-mile-long double-circuit 13.8- and 92-kilovolt (kV) transmission line with 66-foot-high poles. The transmission line pole and turning structure designs have not yet been completed, but the distance between the conductors and the ground wire near the top of poles will exceed 60 inches to prevent the potential electrocution of birds that may perch on the poles. Both the new substation and the interconnection transmission line would be part of the East Brawley project. The new line would span the New River, but no structures would be constructed within the river. Encroachment permits and easements would be obtained from landowners or agencies as required for permitting and installation of the interconnection transmission line.

The proposed interconnection line would be routed to the west from the power plant substation, crossing the New River, and would be aligned north of Andre Road to the interconnection point at the North Brawley 1 substation (west route). The alternative interconnection transmission line route would course northerly to an alignment on the south side of Baum/West Baughman Road turning west and crossing the New River to Hovley Road where it would turn to the south to the North Brawley 1 substation interconnection point (north route). The substation and interconnection transmission line construction would be conducted concurrent with the construction of the power plant.

The substation at North Brawley is the point of demarcation between Ormat and the IID. The substation is owned by ORNI 18, LLC. The transmission lines beyond the substation are owned and operated by IID to a point of interconnection with the California Independent System Operator's (CAISO) controlled grid.

The following text changes have been made on page 3.0-22:

Landscaping and Fencing

The ~~property~~ power plant will be enclosed by a 6-foot wire fence. All of the power plant facilities will be painted an earth-tone color to blend into the background. There are currently no landscaping plans for the project.

On page 3.0-24, under the Dry Utilities subheading, text has been revised as follows:

> No new distribution facilities or cabling is required to serve the project area. The project proponent would develop transmission lines from the project. A new transmission line would interconnect to the IID at the North Brawley 1 substation located near the intersection of Hovley and Andre roads. The interconnection line would be a 2- to 5-mile-long double-circuit 13.8- and 92-kilovolt (kV) transmission line with 66-foot-high poles. The installation of all utilities would be coordinated with the County of Imperial and individual service providers. All utility lines would be placed in underground conduit. Further discussion and details regarding electricity/natural gas and telephone are provided in Section 4.13, Utilities, of this Draft EIR. Placement of any utilities within County road rights-of-way will require the applicant to secure an encroachment permit from the Imperial County Department of Public Works.

On page 3.0-26, the following text additions have been made above "City of Brawley":

> **State Water Resources Control Board**
>
> Approval from State Water Resources Control Board Division of Water Rights to stop effluent discharges to the New River

4.0 INTRODUCTION TO THE ANALYSIS AND ASSUMPTIONS USED

No changes were made to this section.

4.1 Land Use

No changes were made to this section.

4.2 Agricultural Resources

No changes were made to this section.

4.3 Air Quality

The following text has been added to page 4.3-6:

> The nearest ambient air quality monitoring station to the proposed project area is the Westmorland–1st Street monitoring station for ozone, located approximately 6 miles to the northwest of the project area, and the Brawley–220 Main Street monitoring station for particulate matter, located just over 2 miles south of the project in Brawley. **Table 4.3-2** summarizes historical occurrences of pollutant levels for the monitoring stations, based on the last three years of available data (i.e., 2008–2010). The number of days for which state and federal ambient air quality standards have been exceeded during this same monitoring period are also presented. As depicted, there have been no days during which measured concentrations of carbon monoxide or nitrogen dioxide exceeded federal or state ambient air quality standards during the last three years of available data. The state standard for PM_{10} was exceeded on 61-plus days in 2008 and on 90 days in 2009, but on only 47-plus days in 2010. The state standard for ozone was exceeded on 23 days in 2009 but only on 7 and 5 days in 2008 and 2010, respectively.

TABLE 4.3-2
AMBIENT AIR QUALITY MONITORING DATA

Pollutant Standards	2008	2009	2010
Ozone			
Max 1-hour concentration (ppm)	0.102	0.150	0.089
Max 8-hour concentration (ppm) (state/federal)	0.89/0.88	0.87/0.87	0.77/0.77
Number of days above state 1-hr standard	2	8	0
Number of days above state/federal 8-hour standard	7/6	23/7	5/2
Respirable Particulate Matter (PM_{10})			
Max 24-hour concentration (μg/m3) (state/federal)	138/137	196.4/196.4	105.9/61.6
Number of days above state/federal standard	61.1/0	90/18.8	47.9/0
Fine Particulate Matter (PM2.5)			
Max 24-hour concentration (μg/m3) (state/federal)	32.7/32.7	26.6/26.6	16.2/16.2
Number of days above state/federal standard	0	–	–
Carbon Monoxide (CO)			
Max 8-hr concentration (ppm)	6.34	7.46	5.61
Number of days above state/federal 8-hour standards	0/0	0/0	0/0
Nitrogen Dioxide (NO_2)			
Max 1-Hour concentration (ppm)	0.146	0.122	0.141
Annual concentration (ppm)	0.012	0.010	–
Number of days above state standard	0	0	0

Source: California Air Resources Board 2011. Air Quality and Emissions. http://www.arb.ca.gov/adam/index.html
Based on ambient monitoring data obtained from the Westmorland-1st Street monitoring station for ozone and the Brawley–220 Main Street monitoring station for particulate matter.
– Insufficient or no data currently available to determine the value.

On page 4.3-15, Table 4.3-5 has been replaced as follows (original table deleted, with entirely new table and data added):

TABLE 4.3-5
MAXIMUM ESTIMATED AIR POLLUTANT EMISSIONS FROM CONSTRUCTION ACTIVITIES[1]

~~Source~~	~~ROG[2]~~	~~NO_x~~	~~CO~~	~~SO_2~~	~~PM_{10}~~
	~~Tons per Year~~				
~~Site Construction 2010[1]~~	~~0.10~~	~~0.76~~	~~0.44~~	~~0.00~~	~~1.33~~
~~Site Construction 2011[1]~~	~~5.61~~	~~6.66~~	~~14.57~~	~~0.01~~	~~1.93~~
~~Site Construction 2012[1]~~	~~3.34~~	~~5.94~~	~~14.40~~	~~0.01~~	~~0.34~~

~~Source~~	~~ROG[2]~~	~~NO_x~~	~~CO~~	~~SO_2~~	~~PM_{10}~~
	~~Tons per Year~~				
~~Tons per Pad~~					
~~Well Pad Construction~~	~~0.03~~	~~0.28~~	~~0.15~~	~~0.00~~	~~0.07~~

~~[1] Assumes construction begins November 1, 2010, and ends January 30, 2012, and assumes BWWTP construction begins December 1, 2011, and ends October 31, 2012.~~
~~[2] Reactive organic gases (ROG) are non-methane organic compound emissions that are assumed to be precursors to the formation of secondary photochemical oxidant air pollutants in the atmosphere, including ozone.~~
~~Source: EMA 2010, p. 6~~

Power Plant Site Preparation & All Well Pad Activities (Early through Mid January 2012)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	44.32	330.94	195.14	0.36	236.88	38.57
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**
Summer Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	44.45	330.85	196.31	0.36	236.88	39.57
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**
Winter Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	33.43	317.11	205.25	0.36	99.90	21.56
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	33.56	317.02	206.42	0.36	99.89	21.55
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Power Plant Grading & All Well Pad Activities (Late January through March 2012)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	52.33	392.95	230.03	0.43	231.69	39.91
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**
Summer Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	52.51	392.85	231.68	0.43	231.69	39.61
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**
Winter Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	36.75	374.40	246.51	0.43	99.19	22.69
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	36.93	374.30	248.16	0.43	99.18	22.68
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Power Plant Construction A – Foundation Work & All Well Pad Activities (April through Mid June 2012)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	45.90	326.06	212.42	0.38	222.93	33.65
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**

Summer Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	46.27	325.64	216.04	0.38	222.91	33.64
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**

Winter Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	36.35	318.47	223.01	0.38	96.37	19.59
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Summer Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	36.72	318.05	226.63	0.38	96.34	19.57
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Power Plant Construction B – Mechanical Work, Well Field Construction & All Well Pad Activities (Mid June through Late June 2012)

Winter Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	94.27	484.97	347.98	0.57	235.87	45.59
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Summer Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	94.64	484.55	351.60	0.57	235.85	45.58
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Winter Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	43.89	464.26	329.40	0.57	106.59	29.81
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Summer Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	44.26	463.84	333.02	0.57	106.56	29.79
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Power Plant Construction B – Mechanical Work, Well Field Construction, WWTP Site Prep, & All Well Pad Activities (Early July 2012)

Winter Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	100.19	534.33	371.61	0.62	244.55	48.83
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Summer Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	100.58	533.91	375.36	0.62	244.53	48.82
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Winter Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	46.38	510.21	358.47	0.62	110.85	31.51
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	46.77	509.79	362.22	0.62	110.82	31.49
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Power Plant Construction B – Mechanical Work, Well Field Construction, WWTF Grading, & All Well Pad Activities (Mid July 2012)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	100.73	536.69	375.87	0.62	247.08	52.46
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Summer Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	101.12	536.27	379.62	0.62	247.06	52.45
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Winter Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	46.36	509.96	358.76	0.62	111.78	32.87
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	46.75	509.54	362.51	0.62	111.75	32.85
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Power Plant Construction B – Mechanical Work, Well Field Construction, WWTF Construction, & All Well Pad Activities (Late July 2012)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	97.99	508.25	362.86	0.60	237.52	48.10
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Summer Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	98.39	507.83	366.75	0.60	237.50	48.09
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Winter Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	45.15	485.68	345.19	0.60	107.80	30.88
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	45.55	485.26	349.08	0.60	107.77	30.86
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Power Plant Construction B – Mechanical Work, Well Field Construction & All Well Pad Activities (August 2012)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	94.27	484.97	347.98	0.57	235.87	45.59
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Summer Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	94.64	484.55	351.60	0.57	235.85	46.58
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Winter Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	43.89	464.26	329.40	0.57	106.59	29.81
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Summer Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	44.26	463.84	333.02	0.57	106.56	29.79
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Power Plant Construction B – Mechanical Work, Well Field Construction, Coating, & All Well Pad Activities (September 2012)

Winter Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	96.75	488.47	350.56	0.57	236.24	46.89
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Summer Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	97.13	488.04	354.27	0.57	236.22	46.88
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Winter Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	46.37	467.76	331.98	0.57	106.96	30.11
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Summer Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	46.75	467.33	335.69	0.57	106.93	30.09
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Power Plant Construction B – Mechanical Work, Well Field Construction, Paving, & All Well Pad Activities (October 2012)

Winter Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	97.72	503.19	359.74	0.59	238.00	48.16
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Summer Unmitigated	Unmitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	98.11	502.76	363.52	0.59	237.98	48.15
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**

Winter Mitigated	Mitigated Emission Rate (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Total	44.77	478.89	340.27	0.59	107.97	30.63
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	45.16	478.46	344.05	0.59	107.94	30.61
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Power Plant Construction B – Mechanical Work, Well Field Construction, & All Well Pad Activities (November 2012 through March 2013)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	94.27	484.97	347.98	0.57	235.87	46.59
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Summer Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	94.64	484.55	351.60	0.57	235.85	46.58
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Winter Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	43.89	464.26	329.40	0.57	106.59	29.81
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	44.26	463.84	333.02	0.57	106.56	27.79
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Power Plant Construction B – Mechanical Work, Well Field Construction, & All Well Pad Activities (April through May 2013)						
Winter Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	94.27	484.97	347.98	0.57	235.87	46.59
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Summer Unmitigated	**Unmitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	94.64	484.55	351.60	0.57	235.85	46.58
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Winter Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	43.89	464.26	329.40	0.57	106.59	29.81
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Summer Mitigated	**Mitigated Emission Rate (lbs/day)**					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Total	44.26	463.84	333.02	0.57	106.56	27.79
ICAPCD Threshold	75	100	550	150	150	55
Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

Notes: Mitigation for the well pad site preparation, well pad grading, and drill rig assembly and well drilling and testing CalEEMod models assumed that the off-site unpaved roads to the project would be watered (stabilized) at least three times daily. All construction activity CalEEMod models assumed that the construction contractor would use diesel powered construction equipment using engines with certified NOX emissions rated as Tier 2 or better to reduce NOx emissions.
As ICAPCD does not identify significance thresholds for $PM_{2.5}$, the significance threshold used by the South Coast Air Quality Management District is applied to $PM_{2.5}$ emissions from project construction activities.
Source: EMA 2012."Updated Air Pollutant Emissions Assessment, East Brawley Project Construction, Imperial County, California," January 29, 2012. (See Appendix C.)

The following text has been revised on page 4.3-16:

Some hydrogen sulfide would be emitted to the atmosphere if the wells are flow tested once drilling is complete. The amount of hydrogen sulfide emitted to the air would be small, because a well flow test is short in duration (EMA 2010, p. 7). Assuming that the geothermal

fluid contains 70 2.3 ppm of hydrogen sulfide and that all of the hydrogen sulfide in the geothermal fluid is released to the atmosphere upon flashing (the change of fluid into steam), a well flow test conducted at rate of 500,000 pounds per hour would emit hydrogen sulfide at a rate of about 35 1.15 pounds per hour (~~EMA 2010, p. 7~~ EMA 2011, *Air Pollutant Emissions from East Brawley Projects Well Flow Test*, September 2011). Only one well is typically flow tested at a time (Thomas 2010). Therefore, H_2S emissions resulting from well testing activities associated with the project would never exceed more than 6.9 pounds per day.

On page 4.3-17, revisions have been made to the text of mitigation measure MM 4.3.2a as follows:

MM 4.3.2a The following fugitive PM_{10} and $PM_{2.5}$ control measures shall be implemented ~~where feasible~~, in addition to the requirements of ICAPCD Regulation VIII, at the project site during all construction activities~~:~~. In addition, the project applicant shall provide a copy of a dust control plan consistent with ICAPCD Rule 801 requirements for construction activities prior to any earth movement activity at the project site. Also, ten days prior to the commencement of any construction activity, the project proponent shall submit written notification to the District.

a. Water exposed soil with adequate frequency (three times daily at a minimum) for continued moist soil.

b. Replace ground cover in disturbed areas as quickly as possible.

c. Install automatic sprinkler system on all soil piles.

d. Limit vehicle speed for all construction vehicles to a maximum of 15 mph on any unpaved surface at the construction site.

e. Develop a trip reduction plan to achieve a 1.5 average vehicle ridership (AVR) for construction employees.

f. While clearing forms, use single-stage pours where allowed; use water spray to clear forms; use sweeping and water spray to clear forms; use vacuum to clear forms; and avoid use of high pressure air to blow soil and debris from the form.

g. For large areas of disturbed land, prevent access by fencing, ditches, vegetation, berms or other barriers; install perimeter wind barriers.

h. Pave project driveways as early as possible; install gravel pads and wheel cleaning features for construction equipment; and limit site access.

i. All materials shall be covered in haul trucks and wetted; where appropriate, use bedliners in bottom-dumping haul vehicles.

j. Remove the accumulation of mud or dirt from roadways at least once every 24 hours when construction is occurring.

k. Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. Complaints shall be responded to and resolved with 24 hours.

l. Prior to power plant operation, the applicant shall demonstrate that all disturbed ground surfaces have been treated to minimize fugitive dust emissions.

m. Gravel pads will be installed at all construction access points.

n. The construction contractor shall designate a person or persons to monitor compliance with this mitigation measure to ensure minimization of fugitive dust emissions.

o. Areas of excavated or disturbed soils where construction activities have ceased for more than 15 days will be covered or treated with a dust suppressant.

p. Construction activities that typically generate significant amounts of fugitive dust emissions will be discontinued when wind speeds are greater than 20 miles per hour.

Timing/Implementation: *Mitigation shall be implemented throughout project construction phase*

Enforcement/Monitoring: *Imperial County Planning and Development Services Department*

Draft EIR page 4.3-18, the following text change is made to mitigation measure MM 4.3.2b:

MM 4.3.2b The following construction equipment control measures shall be implemented at the project site during all construction activities~~, when feasible~~:

a. Use alternative-fueled or catalyst-equipped diesel construction equipment, including all off-road and portable diesel-powered equipment.

b. Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 3 ~~5~~ minutes at a maximum.

c. Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the amount of equipment in use.

d. Replace fossil-fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).

e. The project shall utilize construction and well redrilling equipment that meets or exceeds Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in the California Code of Regulations.

f. Provide for on-site meals for construction workers by arranging a lunch wagon to visit the construction site.

g. Suspend construction activities when the Imperial County Air Pollution Control District issues a Health Advisory Alert pursuant to District Rule 608.

h. The construction contractor will be required to ensure that construction equipment is properly maintained.

On pages 4.3-19 through -20, Table 4.3-6 has been revised as follows:

TABLE 4.3-6
SUMMARY OF PROJECTED POWER GENERATION AIR POLLUTANT EMISSIONS BEFORE ABATEMENT BY EMISSION SOURCE (TONS PER YEAR)

Emission Source	$PM_{2.5}$	PM_{10}	SO_2	CO	NO_x	ROC[1]	H_2S	NH_3	C_6H_6[1]
	Tons per Year								
High Pressure Separator	0.00	0.00	0.00	0.00	0.00	48.87	12.79	1.53	48.87
RTO Unit/Scrubber NCG Abatement System Emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sand Separators NCG Emissions	0.00	0.00	0.00	0.00	0.00	2.27	0.45	57.13	2.27
Injection Filters NCG Emissions	0.00	0.00	0.00	0.00	0.00	0.05	0.01	1.32	0.05
NCG Pipeline Condensate Drains Emissions	0.00	0.00	0.00	0.00	0.00	0.003	0.0007	0.08	0.003
North Cooling Tower Emissions	0.32	11.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
South Cooling Tower Emissions		11.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OEC Isopentane Emissions	0.00	0.00	0.00	0.00	0.00	24.82	0.00	0.00	0.00
Emergency Standby Diesel Fire-Water Pump Engine	0.00	0.0011	0.0001	0.0071	0.06	0.0017	0.00	0.00	0.00
Emergency Standby Diesel Generator Engine	0.00	0.0059	0.0002	0.103	0.11	0.003	0.00	0.00	0.00
Total	**0.32**	**22.63**	**0.00**	**0.10**	**0.17**	**76.02**	**13.25**	**60.08**	**51.20**
ICAPCD Rule 207.C.2.a Significance Threshold	**10[2]**	**25**	**25**	**25**	**25**	**25**	**--**	**--**	**--**
Significant	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**

[1] ROC – reactive organic compound, H_2S – hydrogen sulfide, NH_3 – ammonia, C_6H_6 – benzene. Benzene is also listed as a ROC.
[2] As ICAPCD does not identify significance thresholds for $PM_{2.5}$, the significance threshold used by the South Coast Air Quality Management District is applied to $PM_{2.5}$ emissions from project construction activities.
Source: EMA 2010, Appendix B. $PM_{2.5}$ emission projections sourced from EMA Memorandum, "PM_{10} and $PM_{2.5}$ Emissions from East Brawley Project Cooling Towers," January 29, 2012.

The following revisions have been made to Table 4.3-7 on page 4.3-21:

TABLE 4.3-7
SUMMARY OF PROJECTED POWER GENERATION AIR POLLUTANT EMISSIONS AFTER ABATEMENT BY EMISSION SOURCE (RTO OPERATING) (TONS PER YEAR)

Emission Source	$PM_{2.5}$	PM_{10}	SO_2	CO	NO_x	ROC[1]	H_2S	NH_3	C_6H_6[1]
	Tons per Year								
High Pressure Separator	0.00	0.00	0.00	0.00	0.00	1.54	0.40	0.05	1.54
RTO Unit/Scrubber NCG Abatement System Emissions	0.00	2.12	0.57	0.00	4.02	0.95	0.25	0.00	0.95
Sand Separators NCG Emissions	0.00	0.00	0.00	0.00	0.00	2.27	0.45	57.14	2.24
Injection Filters NCG Emissions	0.00	0.00	0.00	0.00	0.00	0.05	0.01	1.32	0.05
NCG Pipeline Condensate Drains Emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00
North Cooling Tower Emissions	0.32	11.32	0.00	0.0	0.00	0.00	0.00	0.00	0.00
South Cooling Tower Emissions		11.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OEC Isopentane Emissions	0.00	0.00	0.00	0.00	0.00	24.82	0.00	0.00	0.00
Emergency Standby Diesel Fire-Water Pump Engine	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.00
Emergency Standby Diesel Generator Engine	0.00	0.01	0.00	0.10	0.11	0.00	0.00	0.00	0.00
Total	**0.32**	**24.76**	**0.57**	**0.11**	**4.20**	**29.64**	**1.11**	**58.60**	**4.82**
ICAPCD Rule 207.C.2.a Significance Threshold	**10[2]**	**25**	**25**	**25**	**25**	**25**	**--**	**--**	**--**
Significant	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**

[1] ROC – reactive organic compound, H_2S – hydrogen sulfide, NH_3 – ammonia, C_6H_6 – benzene. Benzene is also listed as a ROC.
[2] As ICAPCD does not identify significance thresholds for $PM_{2.5}$, the significance threshold used by the South Coast Air Quality Management District is applied to $PM_{2.5}$ emissions from project construction activities.

Source: EMA 2010, p. 9. $PM_{2.5}$ emission projections sourced from EMA Memorandum, "PM_{10} and $PM_{2.5}$ Emissions from East Brawley Project Cooling Towers," January 29, 2012.

On page 4.3-25, revisions have been made to the text of mitigation measure MM 4.3.5 as follows:

MM 4.3.5 The proposed project shall achieve synthetic minor source status in order to mitigate project air pollutants associated with the HAP benzene (C_6H_6) prior to operation ~~the issuance of construction permits~~.

Timing/Implementation: *Prior to operation ~~the issuance of construction permits~~*

Enforcement/Monitoring: *Imperial County Planning and Development Services Department*

The following text has been revised on page 4.3-26:

The amount of hydrogen sulfide emitted to the air would be small, because a well flow test is short in duration (EMA 2010, p. 7). Assuming that the geothermal fluid contains 70 2.3 ppm of hydrogen sulfide and that all of the hydrogen sulfide in the geothermal fluid is released to the atmosphere upon flashing (the change of fluid into steam), a well flow test conducted at rate of 500,000 pounds per hour would emit hydrogen sulfide at a rate of about 35 1.15 pounds per hour (~~EMA 2010, p. 7~~ EMA 2011, *Air Pollutant Emissions from East Brawley Projects Well Flow Test*, September 2011). Only one well is typically flow tested at a time (Thomas 2010). Therefore, H_2S emissions resulting from well testing activities associated with the project would never exceed more than 6.9 pounds per day.

4.4 Biological Resources

Text on pages 4.4-7 through -8 has been modified as follows:

The CNDDB (CDFG 2010) identified the occurrence of special-status wildlife species, the Yuma clapper rail, within ~~1~~ 5 miles of the project site ~~(**Figure 4.4-1**).; however, t~~The project site does ~~not~~ contain marginal suitable habitat to support the Yuma clapper rail ~~due to the lack of dense cattails (*Typha* sp.) or Phragmites (*Phragmites* sp.) (Barrett's Biological Surveys 2010, p. 15)~~ (PMC 2011).

Revisions have been made to the text on page 4.4-12 (part of Table 4.4-2) as follows:

Athene cunicularia hypugaea Western burrowing owl	MNBMC	CSC	Lives in dry, open areas with no trees and short grass (grasslands and shrublands) up to 5,300 feet with low perches and small mammal burrows. Found on golf courses, cemeteries, airports, vacant lots, university campuses, pastures, and prairie dog towns. It hunts by walking, hopping, or running along the ground, or by flying from a low perch. They nest in burrows, often dug by a mammal, typically ground squirrels. Burrow can be several meters long, with numerous twists and turns. Resident year-round. Breeds March to August.	Yes	~~Marginally~~ ~~s~~Suitable nesting habitat is present within project site along canal/ditch banks and dirt roadways.

Text on page 4.4-15 (part of Table 4.4-2) has been revised as follows:

Rallus longirostris yumanensis Yuma clapper rail	FE; MNBMC	ST	Freshwater marshes containing dense stands of cattails (*Typha* spp.) and bulrushes (*Scirpus* spp.). Prefers mature stands along margins of shallow ponds with stable water levels. Generally in freshwater and alkali marshes dominated by stands of emergent vegetation interspersed with areas of open water and drier, upland benches. Nests probably on dry hummocks (small natural mound) or in small shrubs among dense cattails or bulrushes along the edges of shallow ponds in freshwater marshes with stable water levels.	No	~~No suitable habitat within project site~~. Marginal habitat on site in two locations. No recorded occurrences within 5 miles of project site.

On page 4.4-22, the following text has been added:

The **Yuma clapper rail** is a federally endangered and state threatened species. The clapper rail requires regenerating marsh for foraging and mature stands of cattail and bulrush for nesting. Regenerating marsh borders the open water and provides the birds with prey—usually crayfish, small fish, beetles, and isopods. Mature cattail and bulrush stands provide materials for nest building and cover for the nests. These stands grow near areas of open water and drier upland habitat. The rail nests on dry hummocks (small natural mounds) or in small shrubs among dense cattails or bulrushes along the edges of shallow ponds in freshwater marshes with stable water levels from mid-March to July. Females lay 6–7 eggs, which they incubate for 23–28 days.

The following revisions have been made to the first full paragraph on page 4.4-32:

In order to determine a conservative estimate of the proposed project's contribution to reduced return flow to the New River, the average New River flow to the Salton Sea provided by the State Water Resources Control Board was used, or 430,000 acre-feet per year. The proposed project will require approximately 4,400 acre-feet of treated wastewater from the Brawley Wastewater Treatment Plant and an additional 1,110 acre-feet of water from the IID. The project will reduce the amount of return flow to the New River. The project's contribution to the reduction of return flow is approximately ~~0.01~~ 1 percent. However, it is unlikely that the reduction of 4,400 acre-feet, or ~~0.01~~ 1 percent, will have an impact on habitat in the New River. It is anticipated that the conditions of habitat in the New River will not be impacted because the reduction is well within the range of normal flow variations. This is because evapotranspiration occurs due to crop fluctuations.

On page 4.4-32, the following text has been added:

Yuma Clapper Rail

The Yuma clapper rail is a federally endangered and state threatened species. As identified in the East Brawley Geothermal Development Project Biological Resources Evaluation (see Figure 5 and page 2.0-8), the canals and ditches in the project area have minimal habitat value, with the exception of two sites identified in Figure 5 of the evaluation. The project proposes well sites

(27-10 and 11-15) and pipelines near the northern feature, while a portion of the project features (existing Well Site 18-15 and pipelines east of the well site) near the southern feature have already been constructed. The project applicant does not anticipate placing any project features within the habitat areas. However, the following mitigation measures ensure no impacts to these habitat areas and associated special-status species occur.

The following mitigation measure has been added to page 4.4-33:

MM 4.4.1c Project pipelines shall be placed within existing roadway features or other disturbed areas outside of irrigation ditches and canals (with the exception of required crossing points). New pipelines associated with Well Sites 27-10, 11-15, and 18-15 shall be sited 100 feet outside of dense reed and cattail areas identified in Figure 5 of the East Brawley Geothermal Development Project Biological Resources Evaluation (September 2011), and construction exclusion fencing shall be established in these areas to avoid impacts.

Timing/Implementation: Prior to construction-related disturbance to water features

Enforcement/Monitoring: County of Imperial Planning and Development Services Department

Implementation of the above mitigation measures (**MM 4.4.1a** ~~and~~ through **MM 4.4.1~~b~~c**) would reduce potential impacts to endangered, threatened, rare, proposed, and candidate status species, as well as plant species, identified by the California Native Plant Society to a level that is considered **less than significant** by requiring protocol surveys.

The following mitigation measure has been added to page 4.4-35:

MM 4.4.2.e All aboveground lines, transformers, or conductors shall comply with Avian Power Line Interaction Committee (APLIC) standards, including the use of deterrents such as marker balls, swinging markers, bird flight diverters, or other similar devices that are commercially available products designed to increase the visibility of overhead wires to birds.

Timing/Implementation: During project design and construction grading activities

Enforcement/Monitoring: County of Imperial Planning and Development Services Department

On page 4.4-36, mitigation measure MM 4.4.3 has been amended as follows:

MM 4.4.3 Mitigation and surveys will be consistent with recommendations in the Staff Report on Burrowing Owl Mitigation (CDFG 2012). Surveys shall be undertaken during the nesting and wintering season for the burrowing owl to determine the type of site use (i.e., nesting activity, etc.) that is occurring within and adjacent to the project construction areas. Occupied western burrowing owl burrows shall not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist approved by CDFG verifies through non-invasive methods that either: (1) the birds have not begun egg-laying

and incubation; or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival.

On page 4.4-37, mitigation measures MM 4.4.4a and MM 4.4.4b have been amended as follows:

MM 4.4.4a Where impacts to riparian habitat are not avoidable and on-site preservation is not possible, habitat compensation shall be required at a 1:1 impact preservation ratio. To mitigate for the permanent direct and indirect impacts from the proposed project, a mitigation and monitoring plan will be prepared for submittal to USACE with the Section 404 permit application. The mitigation plan will identify impacts on all jurisdictional features and mitigation measures that will be implemented to achieve the "no net loss" (i.e., the same amount of wetland resources lost to site development shall be replaced/created). This may include creation of wetland resources on the project site or off site as determined acceptable to USACE. To assist in the on-site revegetation, areas of vegetation with a diameter at breast height (DBH) of 4 inches or less that do not require complete removal shall be cut at ground level with hand-operated power. This mitigation will not apply if riparian habitat is not impacted.

MM 4.4.4b A 1602 Streambed Alteration Agreement for removal of or disturbance to riparian habitat and waters of the United States (i.e., stream, lake, or river) from CDFG would also be required for the proposed project. This agreement will include measures to minimize and restore riparian habitat to pre-project conditions. The 1602 Streambed Alteration Agreement would require the project applicant to prepare and implement a riparian vegetation mitigation and monitoring plan for disturbed riparian vegetation. This mitigation will not apply if riparian habitat is not impacted.

4.5 Cultural Resources

No changes were made to this section.

4.6 Geology and Soils

The following additional text has been added to page 4.6-3, beneath the third paragraph:

The Brawley Seismic Zone is a structural depression that lies between the San Andreas fault to the northeast and the Imperial fault to the southwest. The Brawley Seismic Zone was first recognized because of the number of earthquake swarms produced from 1973 through 1979.[1]

The swarm sequences and individual event clusters in the 1979 Imperial County earthquake aftershock sequence defined lineation transverses to the strike of the Imperial fault.[2] Two types of earthquake swarms occur in the Brawley seismic zone. Swarms that occur in the southern end of the seismic zone near the town of Brawley tend to occur in pairs, nucleating on the Imperial fault to the south and propagating away from it into the seismic zone.

[1] Johnson, C. E., and D.P. Hill. 1982. "Seismicity of the Imperial Valley, in The Imperial Valley, California, Earthquake of October 15, 1979." United States Geological Survey Professional Paper 1254, p. 15–24.
[2] Ibid.

Swarms occurring in the northern part of the seismic zone nucleate within the seismic zone and do not occur in pairs.[3] Analysis of these swarms suggests they are triggered by creep events on the Imperial fault. The blind faulting controlling the geothermal resource geometry does not extend into recent sediments and therefore is not considered a potential source of ground rupture. Following the 1940 Imperial County earthquake, swarm activity in the Brawley seismic zone ceased until the mid-1970s, most likely because of the drop in regional stress after the Mw 6.9 event.

The Brawley seismic zone is characterized by earthquake swarms, generally less than magnitude 3 or 4. CGS fault parameters for the Brawley Seismic Zone indicate a slip rate of 1 inch per year and a maximum Mw of 6.4.

The following text revisions have been made on page 4.6-9:

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides. Passed by the State Legislature in 1990, this law was codified in the California Public Resources Code (PRC) as Division 2, Chapter 7.8A, and became operative in April 1991. ~~The County of Imperial is not identified as having any Seismic Hazards Zones according to the United States Geological Survey (USGS).~~

On page 4.6-12, mitigation measure MM 4.6.2 is amended as follows:

MM 4.6.2 Prior to design and construction of the proposed project, site-specific geotechnical investigations, including areas underlying the proposed power plant, well field, water pipelines, transmission lines, and river crossings, shall be performed, including subsurface exploration and laboratory testing. If any potential seismic hazards exists for the potential for ground-shaking through the geotechnical investigations, measures such as regrading, grout injection, or deep dynamic compression shall be incorporated into the site design and implemented during project construction to reduce potential hazards to a less than significant level, in accordance with CBC standards.

4.7 Hazardous Materials/Public Health

The following text has been added to page 4.7-16:

Demolition

The project proposes to demolish both of the residences located on the site of the proposed power plant and the residence located directly across Best Road from the power plant site.

The following text has been added to the end of mitigation measure MM 4.7.1a on page 4.7-19:

The project proponent shall prepare a Hazard and Operability Review for the final geothermal plant design. The Hazard and Operability Review shall contain a structured and

[3] Hutton, L. K., L. M. Jones, E. Hauksson, and D. D. Given. 1991. "Seismotectonics of Southern California." In Slemmons, D. B., E. R. Engdahl, M. D. Zoback, and D. D. Blackwell, eds. *Neotectonics of North America*. Boulder, CO: Geological Society of America, Decade Map Vol. 1, p. 133–151.

systematic examination of the planned operation for the power plant in order to identify and evaluate problems that may represent risks to personnel or equipment, or prevent efficient operation. The final design shall incorporate control valves, pump kill switches, and motor-operated valves.

Timing/Implementation: Prior to operation ~~issuance of a recoded conditional use permit~~

Enforcement/Monitoring: Imperial County Planning and Development Services Department, Imperial County Fire Department, and California Department of Toxic Substances Control (DTSC), as the Certified Unified Program Agency (CUPA) for Imperial County

The following text has been added to page 4.7-20:

MM 4.7.1c Prior to the demolition of any building, structure, asphalt, or concrete-paved surface, the project applicant shall prepare a Phase II ESA to identify whether any hazardous materials, hazardous chemicals, lead-based paints, mercury, or asbestos-containing materials are located on the site. The applicant shall ensure that all ASTs, equipment, and debris have been cleared from the site. All contaminants shall be remediated in compliance with local, state, and federal requirements.

Timing/Implementation: Prior to the demolition of any building, structure, asphalt, or concrete-paved surface

Enforcement/Monitoring: Imperial County Department of Planning and Development Services

The following mitigation measure has been added to page 4.7-20:

MM 4.7.1d Before excavation within the areas proposed to be graded for development, the applicant shall prepare a Health and Safety Plan (HSP) to minimize the risk of exposure of workers to residual agricultural chemicals in soil. The plan shall describe the chemicals potentially contained in the soil and potential routes of exposure; incorporate construction safety measures (including appropriate personal protective equipment and procedures) for excavation and remediation or disposal activities; establish procedures for the safe storage and use of hazardous materials at the project site, if necessary; provide emergency response procedures; and designate personnel responsible for implementation of the HSP. The HSP shall be submitted to the Imperial County Public Health Department for review and approval prior to the issuance of a grading permit.

Timing/Implementation: Prior to the issuance of a grading permit

Enforcement/Monitoring: Imperial County Planning and Development Department and Public Health Department

The following revisions have been made to Impact 4.7.4, under associated mitigation measure MM 4.7.4, on page 4.7-22:

Timing/Implementation: Prior to issuance of conditional use permit~~s~~ for the wells

Enforcement/Monitoring: *Project applicant; Imperial County Planning and Development Services Department; City of Brawley Planning Department*

4.8 Hydrology and Water Quality

The following revisions have been made to mitigation measure MM 4.8.1, page 4.8-14:

MM 4.8.1 The project applicant shall prepare a stormwater pollution and prevention plan (SWPPP) to be administered during grading and project construction. The SWPPP must incorporate best management practices (BMPs) meeting technical standards of the General Construction permit to ensure that potential water quality impacts (including on- and off-site erosion) during construction phases are minimized and that a violation of water quality standards does not occur. The SWPPP must address spill prevention and include a countermeasure plan describing measures to ensure proper collection and disposal of all pollutants handled or produced on the site during construction, including sanitary wastes, cement, and petroleum products. BMPs included in the SWPPP must be consistent with the California Stormwater Best Management Practices Handbook for Construction. The SWPPP must be submitted to the Colorado River Basin Regional Water Quality Control Board, Region 7~~, and to the County for review prior to the issuance of grading permits~~

The following revisions have been made to mitigation measure 4.8.5, page 4.8-20:

Mitigation Measures

MM 4.8.5 Although this impact is expected to be addressed through design, retention basins, and required mitigation measure MM 4.8.2, the project applicant and Imperial Irrigation District will perform an analysis of these impacts through a detailed drain hydraulic analysis in order to properly design system modifications, mitigate development impacts, and determine if associated drain impact fees are required.

Timing/Implementation: As a condition of approval for the proposed project

Enforcement/Monitoring: Imperial County Department of Planning and Development Services; Imperial Irrigation District

No other additional mitigation is required. Mitigation measures MM 4.8.1, MM 4.8.2, and MM 4.8.5 described above, in addition to the proposed project's drainage features, would ensure that the project's contribution to cumulative water quality impacts would remain less than cumulatively considerable.

4.9 Land Use and Planning

The following revisions have been made on page 4.9-7:

…30-year life of the project. Approximately ~~18~~ 9 miles of ~~either single pipeline or combined production and injection~~ pipeline route would be built.

4.10 Noise

No changes were made to this section.

4.11 Public Services

No changes were made to this section.

4.12 Transportation and Circulation

No changes were made to this section.

4.13 Utilities

The following revisions have been made to page 4.13-11:

Mitigation Measures

~~None.~~

MM 4.13.1.2 The project applicant shall be required to comply with all conditions and requirements as set forth by the IID in the water supply agreement prepared for the proposed project by the IID. A copy of the fully executed water supply agreement shall be provided to the County for oversight of compliance with conditions and requirements prior to initiation of plant operations.

Timing/Implementation: Prior to initiation of plant operations

Enforcement/Monitoring: Imperial County Department of Planning and Development Services; Imperial Irrigation District

4.14 Climate Change and Greenhouse Gases

No changes were made to this section.

5.0 CUMULATIVE IMPACT ANALYSIS

No changes were made to this section.

6.0 ALTERNATIVES

No changes were made to this section.

7.0 CEQA-MANDATED SECTIONS

No changes were made to this section.

8.0 REPORT PREPARERS

No changes were made to this section.

COUNTY OF IMPERIAL

EAST BRAWLEY GEOTHERMAL

ADMINISTRATIVE FINAL ENVIRONMENTAL IMPACT REPORT
VOLUME II: TECHNICAL APPENDICES

SCH: 2010061054

Prepared for:

COUNTY OF IMPERIAL
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MAY 2012

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MAY 2012

APPENDICES

Appendix A - East Brawley Geothermal Development Project Biological Resources Evaluation
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APPENDICES

APPENDIX A - EAST BRAWLEY GEOTHERMAL DEVELOPMENT PROJECT BIOLOGICAL RESOURCES EVALUATION

EAST BRAWLEY GEOTHERMAL DEVELOPMENT PROJECT

BIOLOGICAL RESOURCES EVALUATION

PREPARED FOR

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801 MAIN STREET
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PMC

SEPTEMBER 2011

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Appendix A: Database Search Results and Consolidated List of Special-status Species
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LIST OF ABBREVIATED TERMS

Abbreviation	Spelled-out term
BRE	Biological Resource Evaluation
BSA	Biological Study Area
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CUP	Conditional Use Permit
CWHR	California Wildlife Habitat Relationship
FESA	Federal Endangered Species Act
FGC	Fish and Game Code
FR	Federal Register
GIS	Geographic Information System
GPS	Global Positioning System
kV	kilovolt
MBTA	Migratory Bird Treaty Act
MW	megawatt
NHD	National Hydrography Dataset
NWI	National Wetland Inventory
OEC	Ormat Energy Converter
RTO	regenerative thermal oxidizer
RWQCB	Regional Water Quality Control Board
SWRCB	States Water Resources Control Board
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
WWTP	Wastewater Treatment Plant

1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

This Biological Resources Evaluation (BRE) describes the on-site vegetative communities, identify potentially jurisdictional waters of the U.S., and assess the potential for occurrence of special-status plant and wildlife species within the East Brawley Geothermal Development Project biological study area (BSA). The BSA is comprised of the East Brawley Geothermal Development Project footprint (proposed project) and adjacent environment.

1.2 PROJECT LOCATION AND DESCRIPTION

The proposed project is located northeast of the City of Brawley in Imperial County, California (**Figure 1**). The BSA can be accessed from State Route (SR) 111, Best Road, and Shank Roads. The sites are located in and surrounded by agricultural fields, abandoned agricultural areas, railroad tracks and industrial lots. This location corresponds to Township 13 South, Range 14 East in the *Westmorland, California* United States Geologic Survey (USGS) 7.5-minute topographic quadrangle (USGS 1992). The BSA is generally located on either side of SR 111 south of County Highway S-26 and north of Shank Road (**Figure 2**). The BSA consists of approximately 916 acres. **Figure 3** shows the location of the BSA.

1.3 METHODOLOGY

Literature Search

A list of special-status species and habitats that have the potential to occur within the BSA or vicinity was prepared using information provided by the California Department of Fish and Game's (CDFG) California Natural Diversity Database (CNDDB) Rarefind program (CDFG 2011a), CNDDB Quickviewer (CDFG 2011b), and the California Native Plant Society (CNPS) online inventory (CNPS 2011). In addition, a formal list of special-status species with the potential to occur in the BSA was obtained from United States Fish and Wildlife Service (USFWS) in order to develop a comprehensive list of special-status species for this report (**Appendix A;** USFWS 2011a). The database searches were queried for the *Westmorland, California* USGS 7.5-minute quadrangle and the surrounding quadrangles (*Obsidian Butte, Niland, Iris, Calipatria SW, Wiest, Brawley NW, Brawley, and Alamorio)*. Special-status species from the literature search are listed and evaluated individually in **Appendix A** to determine if they have the potential to occur in the BSA. A species has the potential to occur in the BSA based on the species habitat requirements, known distribution, previously recorded occurrences of these species within the vicinity of the BSA, and professional opinion.

When the USFWS lists a species as threatened or endangered under the Federal Endangered Species Act (FESA), areas of habitat considered essential to its conservation and survival may be designated as critical habitat. These areas may require special consideration and/or protection due to their ecological importance. In July 2011, potential critical habitat designations within the general vicinity of the BSA were checked using the USFWS Critical Habitat Portal (USFWS 2011b).

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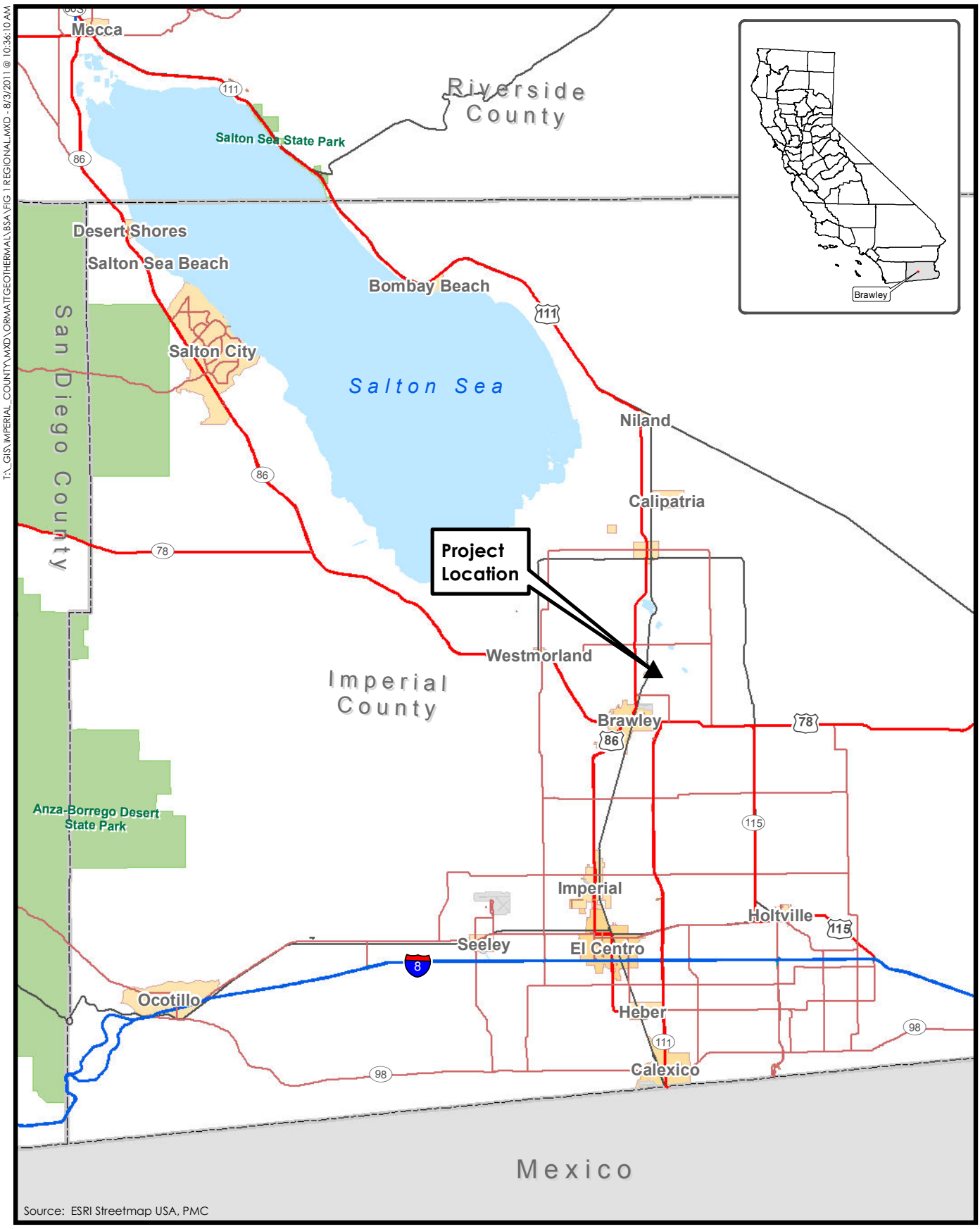

Figure 1
Regional Vicintiy Map

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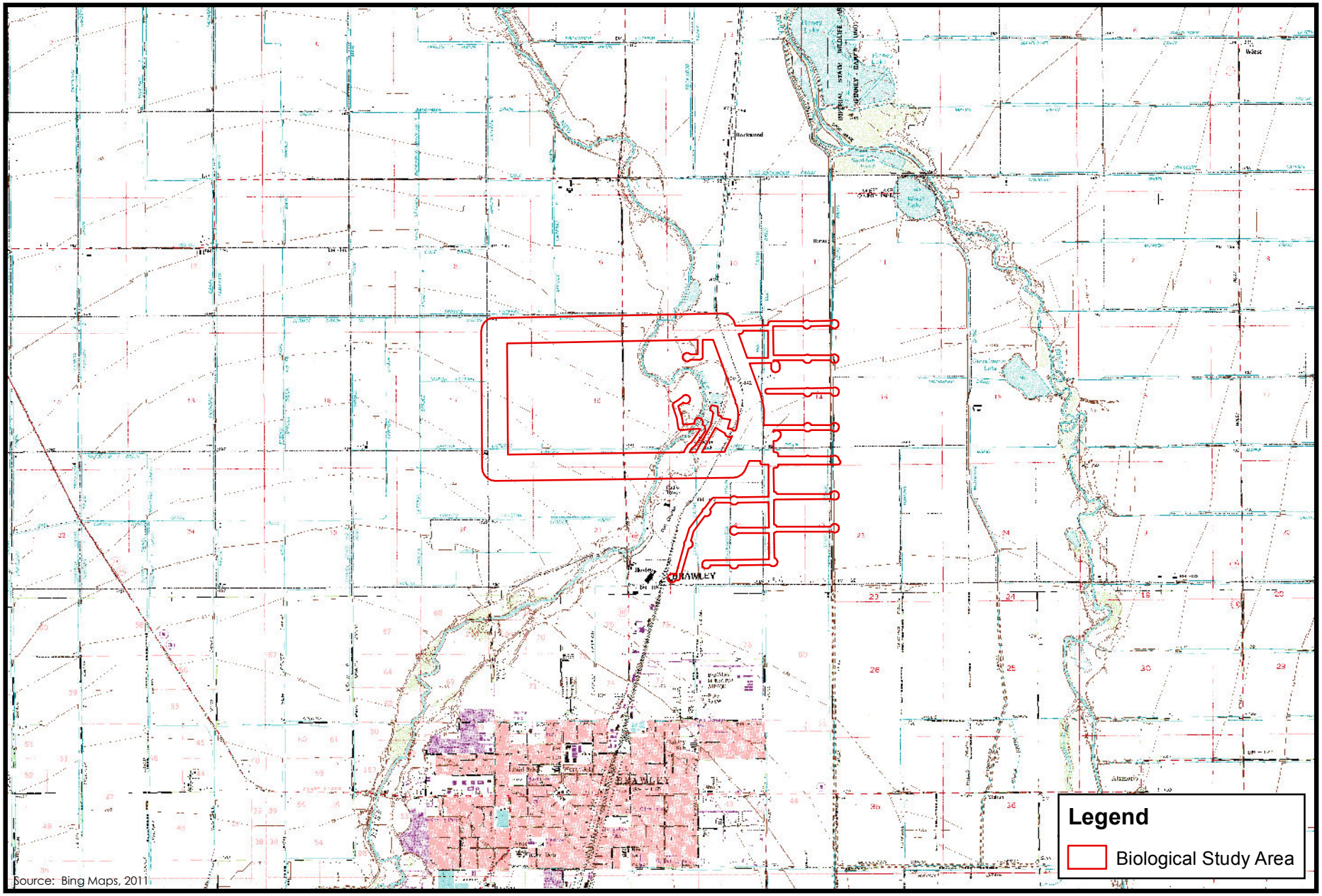

Figure 2
Project Location
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T:_GIS\IMPERIAL_COUNTY\MXD\ORMATTGEOTHERMAL\BSA\FIGURE3_BSA WITH COMPONENTS.MXD - 8/31/2011 @ 10:36:54 AM

BAUGHMAN RD

HOVLEY RD

STATE HWY 111

BEST RD

ANDRE RD

Ormatt North Brawley 1
Geothermal Power Plant Site

WARD RD

Railroad

SLIDER RD

FREDRICKS RD

Legend

Biological Study Area

Source: NAIP, 2009; Ormatt

600 0 600
FEET

N

Figure 3
Biological Study Area

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Field Work

PMC biologists conducted reconnaissance-level surveys within the BSA on July 12 and 13, 2011. Surveys were conducted from approximately 6am until 2pm. Temperature varied from a low of 74 to a high 104 degrees Fahrenheit with clear sunny skies. Concurrently with the reconnaissance-level surveys, PMC biologists mapped vegetation communities and evaluated those communities potential to support special-status plant and wildlife species. Surveys were conducted at sunrise (5:54am) and 2 hours after sunrise to note the presence of individual burrowing owls and occupied burrows when observed within the BSA. Nevertheless, protocol-level surveys for burrowing owls were not conducted during this survey effort for the entire BSA. Vegetative communities and other biological features were noted on an aerial photograph of the BSA and were digitized using ArcGIS software. Photographs were taken along the BSA boundaries and at points of interest (**Appendix B**). Plant and wildlife species observed within and adjacent to the BSA were noted and are included in **Appendix C**.

Mapping and Acreage Calculations

Vegetative communities and other biological features were noted on an aerial photograph of the BSA and were digitized using ArcGIS software. Resources were mapped using a Trimble Geo XT Global Positioning System (GPS), aerial photos, and topographic maps. The habitat types were overlain on aerial photography with Geographic Information System (GIS) software (ArcGIS 10) to quantify habitats in the BSA.

Limitations That May Influence Results

Protocol-level surveys and wetland delineation were not conducted for the proposed project with this survey effort. No other limitations to the assessment efforts or information collected to date for the BSA have been identified. The area within the BSA was accessible during the surveys, and weather conditions were sunny and clear, thus did not hamper survey efforts.

2.0 FINDINGS

2.1 EXISTING LAND USES

The majority of the BSA is developed as agricultural fields, geothermal well pads and pipelines and the existing Brawley WWTP. In the Imperial County General Plan the habitat is listed as Disturbed (Agriculture/Urban) (Imperial County 1993).

2.2 ELEVATION/TOPOGRAPHY

The region surrounding the BSA is flat. The BSA is located on the lake plain of the Imperial Valley, which is southeast of the Salton Sea. This region consists of a nearly level dry lake bed (USDA 1997). Elevation within the BSA ranges from approximately 52 to 39 feet *below* mean sea level.

2.3 CLIMATE

Type: Mediterranean with cool, wet winters and hot, dry summers. The climate is very hot and semi-arid.

Precipitation: Average precipitation is approximately 3 inches per year (U.S. Department of Agriculture [USDA] 1997).

Air Temperature: The average annual air temperature is approximately 75 degrees Fahrenheit (USDA 1997).

***Growing season*:** The average freeze-free period is approximately 350 days (USDA 1997).

2.4 NATIONAL WETLAND INVENTORY MAPS

National Wetland Inventory (NWI) (USFWS 2011c) and the National Hydrography Dataset (NHD) maps were examined for previously identified surface waters in the BSA. Several canals and ditches are depicted on the maps. The New River is identified as an artificial path according to the NHD. **Figure 4** shows the NWI and NHD features within and surrounding the BSA.

2.5 VEGETATIVE COMMUNITIES

Vegetative communities are assemblages of plant species that occur in the same area and which are defined by species composition and relative abundance. The vegetative community descriptions and nomenclature used in this section generally correlate to wildlife habitat types in *A Guide to Wildlife Habitats of California* or California Wildlife Habitats Relationships (CWHR) (Mayer and Laudenslayer 1988). The types of vegetative communities present in the BSA can be found in T**able 1** and **Figure 5**.

TABLE 1 – VEGETATIVE COMMUNITIES WITHIN THE BIOLOGICAL STUDY AREA

Vegetative Communities	Acreage	Percentage
Barren	79	9%
Urban/Ruderal	119	13%
Agricultural Fields	466	51%
Desert Scrub (Fallow Fields)	185	20%
Irrigation Ditches	25	3%
Open Water	15	2%
Desert Riparian/Riverine	24	3%
Mitigation Site	2	0.2%
Total	**915**	**100%**

Barren

Barren habitat is defined by the absence of vegetation. Any habitat with less than two percent total vegetation cover by herbaceous species and less than ten percent cover by tree or shrub species. The barren land category includes a wide variety of specific types, but all are characterized by a general lack of any significant vegetative cover. Included are both naturally occurring barren areas, such as beaches and rock outcrops, as well as artificially created barren areas, where vegetation has been artificially removed. Cleared but undeveloped urban lands, transitional areas, mines, dumps and quarries are also included in the general category of barren land (Parisi 1999). The majority of barren habitat within the BSA includes areas that were cleared by human disturbance as well as some areas of desert pavement.

Barren habitat with little or no vegetation may support a variety of wildlife. Several birds rely on open ground covered with sand or gravel for constructing small scrape nests. No species were observed during the site visit within this community type.

Urban/Ruderal

The CWHR classifies urban habitat into five different vegetation types: tree grove, street strip, shade tree/lawn, lawn, and shrub cover (McBride and Reid 1988). Vegetation in these areas consists primarily of introduced ornamental trees and shrubs and manicured lawns as well as invasive weeds in disturbed areas. Ruderal (roadside) communities occur in areas of disturbances such as along roadsides, trails, parking lots, etc. These communities are subjected to ongoing or past disturbances (e.g., vehicle activities, mountain bikes, mowing). Ruderal habitat in these disturbed areas supports a diverse weedy flora. Vascular plant species associated with these areas typically include fivehorn smotherweed (*Bassia hyssopifolia*), filaree (*Erodium* spp.), prickly lettuce (*Lactuca serriola*), common mallow (*Malva neglecta*), alkali mallow (*Malvella leprosa*). Mediterranean hoary-mustard (*Hirschfeldia incana*) and curly dock (*Rumex crispus*) are also typical of this area. In the BSA, urban/ruderal habitat includes developed land such as buildings, pavement, landscaping, gravel, as well as the surrounded disturbed areas.

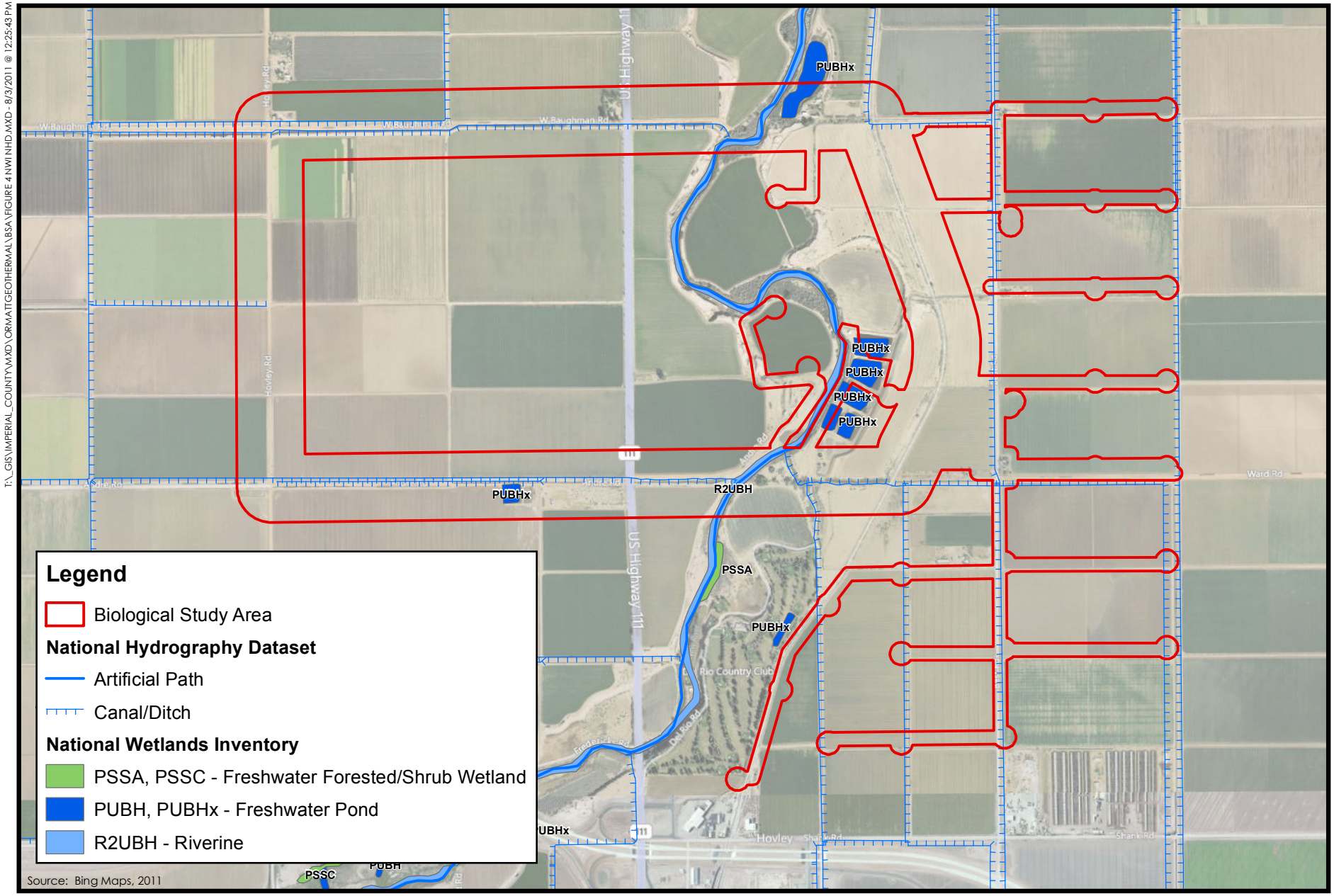

Figure 4

National Wetland Inventory and National Hydrography Dataset in the Biological Study Area

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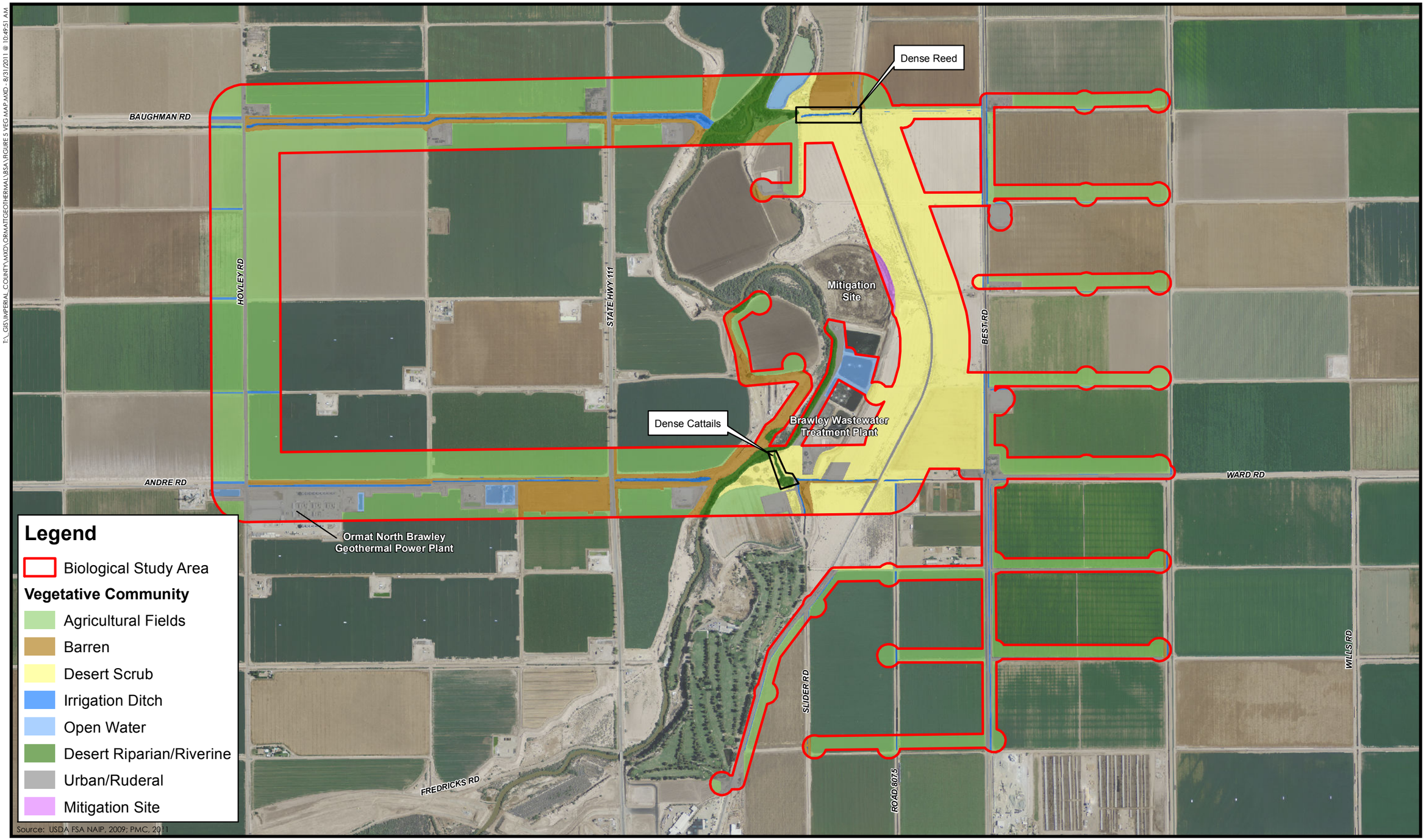

Figure 5

Vegetative Communities within the Biological Study Area

PMC

A distinguishing characteristic of urban habitats is the mixture of native and exotic plant species (McBride and Reid 1988). Native and introduced animal species that are tolerant of human activities often thrive in urban habitats (McBride and Reid 1988). Birds and mammals that occur in these areas typically include introduced species adapted to human habitation, including western fence lizard (*Sceloporus occidentalis*), rock pigeon (*Columba livia*), European starling (*Sturnus vulgaris*), Brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Carpodacus mexicanus*), American crow (*Corvus brachyrhynchos*), house sparrow (*Passer domesticus*), house mouse (*Mus musculus*) and Norway rat (*Rattus norvegicus*).

Agricultural Fields

The majority of BSA includes croplands in various states of production (i.e., mowed, disked, active growth). Crops in the BSA include hay and alfalfa used for cattle feed and are flood irrigated. The fields surrounding the Brawley WWTP are fallow agricultural fields as evidenced by the remnant berms used in irrigating the property. The fallow fields are overgrown with shrubs and are discussed under desert scrub since they have been allowed to go fallow. The areas classified as agricultural fields are actively being farmed.

Cultivated fields such as cropland generally provide less suitable habitat for wildlife than do pastures because of weed control, tilling, and insect control practices. Many of the fields in the BSA are flood irrigated and provides foraging habitat for herons, egrets, white-faced ibis *(Plegadis chihi)*, and other wading birds and shorebirds. Many small herbivorous mammals, particularly rodents, are able to establish seasonal populations in croplands because food is abundant and cover provided by crops is adequate; however, tilling, flood irrigation, and rodent control tend to reduce these populations. Some common and agricultural "pest" species forage in these habitats and cultivated vegetation can provide benefits such as cover, shade, and moisture for these and other species during hot summer months. Amphibians and reptiles may disperse across croplands on a seasonal basis. Common species such as western fence lizard *(Sceloporus occidentalis)* and Pacific gopher snake *(Pituophis malanoleucus)* may occasionally forage within agricultural lands, particularly adjacent to grasslands. Some birds, such as killdeer *(Charadrius vociferus)* and western meadowlark *(Sturnella neglecta)*, will nest on agricultural lands when farming practices allow adequate cover and nest sites. Migratory species that may forage in agricultural fields during their migrations through the region include various shorebirds, swallows, and sparrows. Small herbivores expected to occur in croplands include black-tailed jackrabbit *(Lepus californicus)*, valley pocket gopher *(Thomomys bottae),* round tailed ground squirrel *(Xerospermophilus tereticaudus),* deer mouse (*Peromyscus maniculatus*), and California vole *(Microtus californicus)*. Carnivores and omnivores expected to forage in croplands include broad-footed mole *(Scapanus latimanus),* desert kit fox (*Vulpes velox*), striped skunk (*Mephitis mephitis*), coyote *(Canis latrans)*, and raccoon *(Procyon lotor)*.

Desert Scrub (Fallow Fields)

Desert scrub habitats typically are open, scattered assemblages of broadleaved evergreen or deciduous microphyll shrubs usually between 1.5 and 6.5 feet in height; desert scrub plants rarely exceed 10 feet in height (Laudenslayer and Boggs 1988). Canopy cover is generally less than 50 percent, usually much less; bare ground is often between plants. Rainfall may be an important factor related to desert scrub plant densities; as rainfall increases, creosote bush (*Larrea tridentata*) densities also increase. Creosote bush is often considered a dominant of desert scrub habitats but its dominance is usually owing to its tall stature rather than density. Generally, desert scrub habitats have low species diversity; however, many plant species are found in the habitat. These species include coastal bladderpod (*Isomeris arborea*), white brittlebush (*Encelia farinosa*), white bursage (*Ambrosia dumosa*), hedgehog cactus (*Echinocereus* sp.), cholla

(*Cylindropuntia sp.*), beavertail pricklypear (*Opuntia basilaris*), rabbitbrush (*Chrysothamnus* sp.), and Mojave yucca (Laudenslayer and Boggs 1988). Forbs and grasses may include evening primrose (*Oenothera* sp.), galleta (*Pleuraphis* sp.), and spanishneedles (*Bidens pilosa*) (Laudenslayer and Boggs 1988). Within the BSA, species observed include sagebrush (*Artemisia* spp.), Jacumba milkvetch (*Astragalus douglasii), m*ustard (*Brassica sp.),* birchleaf mountain mahogany (*Cercocarpus betuloides),* spurge (*Chamaesyce sp.),* Gander's cholla (*Cylindropuntia ganderi),* brittlebush (*Encelia farinosa),* California ephedra (*Ephedra californica),* California buckwheat (*Eriogonum fasciculatum),* California matchweed (*Gutierrezia californica),* and holly-leaved cherry (*Prunus ilicifolia).* In the BSA, evidence of past disturbances specifically agricultural practices is present in the desert scrub habitat. As mentioned previously, the fields surrounding the Brawley WWTP are fallow agricultural fields as evidenced by the remnant berms used in irrigating the property. The fallow fields are overgrown with shrubs and therefore are classified as desert scrub.

Desert shrub habitats support a variety of wildlife species. Presence of standing water in winter and growth of herbaceous plants in spring, provide foraging areas and food for species in these seasons. Primary resident species are reptiles or rodents, however other taxa are represented. Typical species include Couch's spadefoot toad (*Scaphiopus couchii*), a variety of lizards and snakes including the desert iguana (*Dipsosaurus dorsalis*), common kingsnake (*Lampropeltis getula*), and rattlesnakes (*Crotalus* spp.). Other species that may be found in this habitat include black-throated sparrow (*Amphispiza bilineata*), greater roadrunner (*Geococcyx californianus*), various pocket mice (*Chaetodipus* spp.), kangaroo rats (*Dipodomys* spp.), kit fox (*Vulpes macrotis*), coyote, and bobcat (Laudenslayer and Boggs 1988).

Irrigation Ditches

Irrigation channels are located primarily in the agricultural lands. They are highly modified channels that vary in species composition and persistence of water. The irrigation ditches and canals within the BSA were artificially created for the purposes of irrigation. Some of which are concrete-lined. Most of the banks of the earthen ditches were unvegetated; although there were some whose banks were dominated by exotic species such as Johnson grass (Sorghum *halepense*), giant European reed (*Arundo donax*), and fivehorn smotherweed. Some areas of native vegetation include broad-leaved cattail (*Typha latifolia*), hard-stemmed bulrush (*Scirpus acutus* var. *occidentalis*), rushes (*Juncus spp.*), nutsedges (Cyperus spp.), alkali heliotrope (*Heliotropium curassavicum*), mucronate sprangletop (*Leptochloa panicea*), saltgrass (*Distichlis spicata*), and common reed (*Phragmites australis*). Mexican palo verde (*Parkinsonia aculeata*), arrowweed (*Pluchea sericea*), willows (*Salix* spp.), salt-cedar (*Tamarisk* spp.) and saltbush (*Atriplex canescens*) were found along the banks of some of the larger canals and ditches. These channels may potentially fall under the jurisdiction of the United States Army Corps of Engineers (USACE). A delineation of the channels is recommended to identify their connectivity with other waters and delineate wetlands and determine if a permit under Section 404 of the Clean Water Act would be required. Areas that contain dense emergent vegetation (cattails or reed) are noted on **Figure 5**.

Irrigation channels located adjacent to agricultural lands provide water, cover, and foraging habitat for wildlife in adjacent habitats. Mosquito fish (*Gambusia affinis*) were found in the concrete-lined ditches and canals. The berms of the irrigation ditches contained an abundance of burrows and round tailed ground squirrels. Cattle egret (*Bubulcus ibis*), great egret (*Ardea alba*), green heron (*Butoirdes virescens*), and snowy egret (*Egretta thula*) were observed foraging within the ditches.

Open Water

Lacustrine (or open water) habitats are inland depressions or dammed riverine channels containing standing water (Grenfell Jr. 1988a). Depth can vary from a few centimeters to hundreds of meters. Typical lacustrine habitats include permanently flooded lakes and reservoirs, intermittent lakes and ponds. Most permanent lacustrine systems support fish life; intermittent types usually do not. As sedimentation and accumulation of organic matter increases toward the shore, floating rooted aquatics such as water lilies (*Nymphaea* spp.) and smartweed (*Polygonum amphibium* var. *stipulaceum)* often appear. There are a few areas of open water habitat within the BSA. The wastewater treatment ponds at the Brawley WWTP are considered to be open water habitat although they are highly maintained and contain treated wastewater. There are some other open water areas to the west of the New River. These areas are used as storage basins for activities associated with the geothermal plant. Some of these basins contained clumps of common cattail.

Suspended organisms such as plankton are found in the open water of lacustrine habitats. Submerged plants such as algae and pondweeds serve as supports for smaller algae and as cover for swarms of minute aquatic animals. Floating plants offer food and support for numerous herbivorous animals that feed both on plankton and floating plants. Ruddy duck (*Oxyura jamaicensis*), mallard (*Anas platyrhynchos*), and some other waterfowl were observed wading in the basins on the west side of the New River.

Desert Riparian/Riverine

The New River is a tributary of the Salton Sea. The New River borders the western side of the Brawley WWTP. The flowing open water habitat of the New River is considered to be riverine. Since the riverine and desert riparian areas are closely intertwined they are mapped collectively. Riverine habitat only includes the open water areas and areas below the ordinary high water mark. Riverine habitats are found contiguous to riparian, lacustrine and fresh emergent wetland habitats (Grenfell, Jr. 1988b). Intermittent or continually running water distinguishes rivers and streams. Emergent vegetation grows along riverbanks, and duckweed (*Lemna* spp.) floats on the surface. Desert riparian habitats are characterized as dense groves of low, shrublike trees or tall shrubs to woodlands of small to medium-sized trees (Laudenslayer, Jr. 1988). These habitats are found adjacent to permanent surface water (e.g., streams, springs) or in naturally subirrigated areas. Overstory species include salt-cedar (*Tamarisk* spp.), velvet ash (*Fraxinus velutina*), mesquite (*Prosopis* sp.), screwbean mesquite (*Prosopis glandulosa*), Fremont cottonwood (*Populus fremontii*), and willows (*Salix* spp.) such as Gooding (*S. gooddingii*), narrowleaf (*S. exigua*), and arroyo (*S. lasiolepis*). The subcanopy includes smaller individuals of the canopy species as well as quailbush (*Atriplex lentiformis*), Mojave seablight (*Suaeda moquinii*), desert lavender (*Hyptis emoryi*), mulefat (*Baccharis salicifolia*), and arrowweed (Laudenslayer, Jr. 1988).

Desert riparian habitats support more bird species at greater densities than other desert habitats with the possible exception of some Palm Oasis habitats (Laudenslayer, Jr. 1988). Common wildlife species found among riverine habitat include gulls, terns, and raptor species that hunt over the open waters. The open water zones of large rivers provide resting and escape cover for many species of waterfowl. Near-shore waters provide food for waterfowl, herons, and shorebirds. Many species of insectivorous birds (swallows, swifts, flycatchers) hunt their prey over water.

Mitigation Site

A mitigation site is located adjacent to the New River and north of the Brawley WWTP. Vegetation is sparse. Dead or dying palm trees are the most visible plants in the area. Irrigation pipes and planted vegetation are arranged in rows at this location. See **Appendix B** for photos of the mitigation site (Plate Numbers 13 and 14).

2.6 SPECIAL-STATUS SPECIES

Special-status species are commonly characterized as species that are at potential risk or actual risk to their persistence in a given area or across their native habitat (locally, regionally, or nationally) and are identified by a state and/or federal resource agency as such. These agencies include governmental agencies such as, CDFG, and USFWS, or private organizations such as CNPS. The degree to which a species is at risk of extinction is the limiting factor on a species status designation. Risk factors to a species' persistence or population's persistence include: habitat loss, increased mortality factors (take, electrocution, etc.), invasive species, and environmental toxins. In context of environmental review, special-status species are defined by the following codes:

- Species that are listed, proposed, or candidates for listing under the Federal Endangered Species Act (FESA) (50 CFR 17.11 – listed; 61 Federal Register [FR] 7591, February 28, 1996 candidates);
- Species that are listed or proposed for listing under the California Endangered Species Act (CESA) (FGC 1992 §2050 et seq.; 14 California Code of Regulations [CCR] §670.1 et seq.);
- Species that are designated as Species of Special Concern by CDFG;
- Species with a CNPS rare plant rank of 1B or 2;
- Species that are designated as Fully Protected by CDFG (FGC, §3511, §4700, §5050, §5515); and
- Species that meet the definition of rare or endangered under California Environmental Quality Act (CEQA) (14 CCR §15380).

Each special-status species identified within the database search has been addressed individually in **Appendix A** of this report. The potential for each special-status species to occur within the BSA was assessed based on known occurrences of the species within a one-mile radius of the BSA, five-mile radius of the BSA, suitability of habitat within the BSA, known distribution and habitat requirements of the species, and professional expertise. **Figure 6** shows the previously recorded occurrences of special-status species within a one-mile radius of the BSA. **Table 2** shows the habitat types within the BSA and the special-status species associated with those habitats, which have the potential occur within the BSA.

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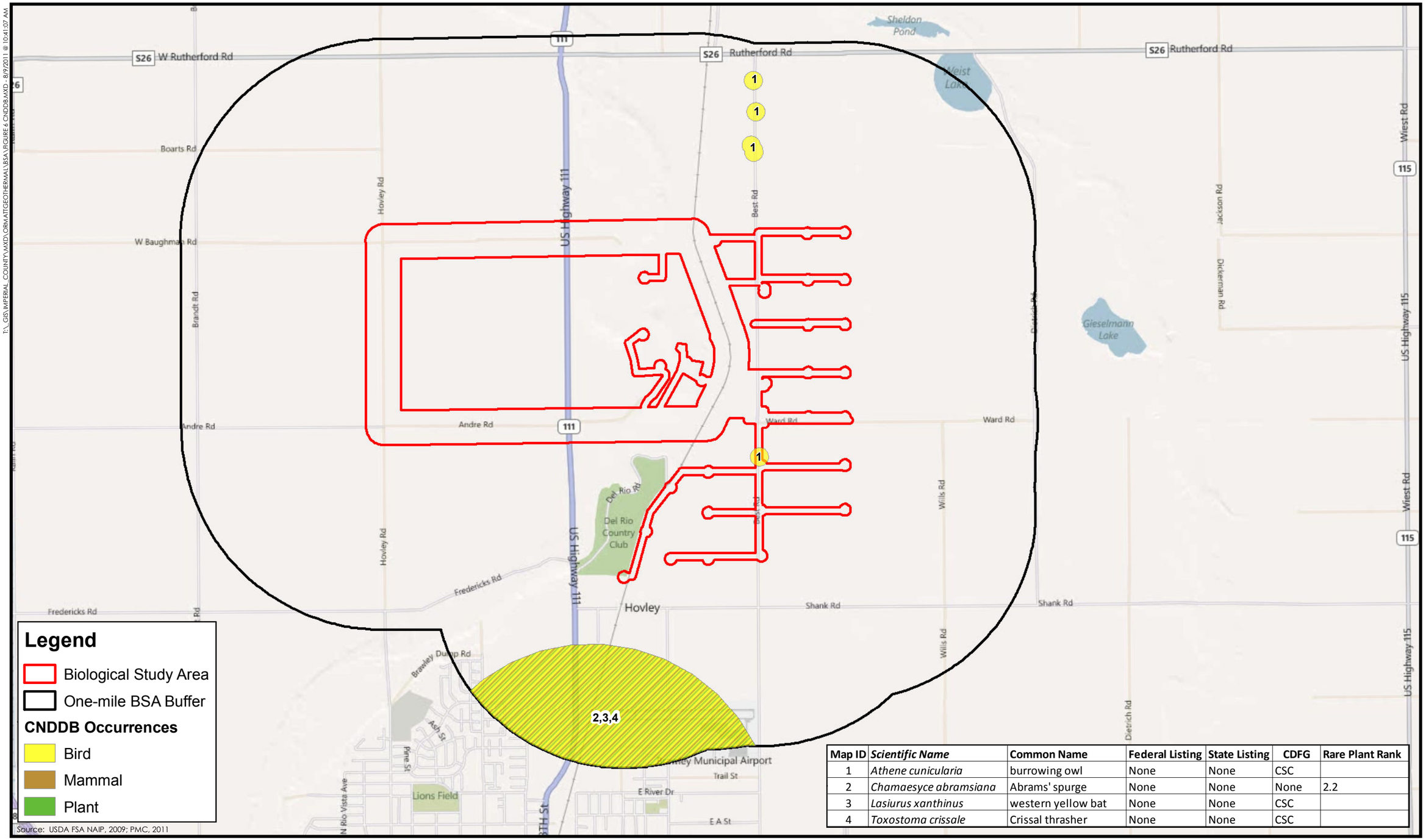

Map ID	*Scientific Name*	Common Name	Federal Listing	State Listing	CDFG	Rare Plant Rank
1	*Athene cunicularia*	burrowing owl	None	None	CSC	
2	*Chamaesyce abramsiana*	Abrams' spurge	None	None	None	2.2
3	*Lasiurus xanthinus*	western yellow bat	None	None	CSC	
4	*Toxostoma crissale*	Crissal thrasher	None	None	CSC	

Figure 6

Perviously Recorded Occurrences of Special-status Species within One-mile of the Biological Study Area

TABLE 2 – HABITAT TYPES WITHIN THE BSA AND SPECIAL-STATUS SPECIES ASSOCIATED WITH THOSE HABITAT TYPES

Habitat	Associated Special-Status Species	Acreage within the BSA
Barren	Flat-tailed horned lizard (CSC) Burrowing owl (CSC) American badger (CSC)	79
Urban/Ruderal	Burrowing owl (CSC) Western yellow bat (trees; CSC)	119
Agricultural Fields	Burrowing owl (CSC), Mountain plover (foraging; FP, ST, CSC), Western yellow bat (trees; CSC)	466
Desert Scrub (Fallow Fields)	Flat-tailed horned lizard (CSC) Burrowing owl (CSC), Mountain plover (foraging; FP, ST, CSC), Loggerhead shrike (CSC), Le Conte's thrasher (CSC) American badger (CSC)	186
Irrigation Ditches	Sonoran desert toad (CSC) Burrowing owl (CSC) Least bittern (marsh; FE, SE), Yuma clapper rail (marsh; FE, ST, CFP) and California black rail (marsh; ST, CSC) Yuma hispid cotton rat (CSC)	25
Open Water		15
Riparian/Riverine	Sonoran desert toad (CSC) Southwestern willow flycatcher (FE, SE), Least bittern (marsh; FE, SE), Yuma clapper rail (marsh; FE, ST, CFP) and California black rail (marsh; ST, CSC), Loggerhead shrike (CSC), Gila woodpecker (SE) Yuma hispid cotton rat (CSC)	24

Source: USFWS 2011; CDFG 2011a/b; CNPS 2011.

Notes: Some species listed may not occur in these associated habitats unless their essential habitat requirements are met. Migratory birds and raptors may nest in any vegetative community if suitable nesting habitat is present.

CODE DESIGNATIONS

Federal	State
FE = Listed as endangered under FESA	**SE =** Listed as Endangered under CESA
FT = Listed as threatened under the FESA	**ST =** Listed as threatened under CESA
FP = Proposed for federal listing under FESA	**CFP =** California fully protected
	CSC = California Species of Special Concern

Special-Status Plant Species

The area within the BSA is highly disturbed. Areas that are not in active industrial or agricultural use contain an abundance of invasive species. Based on the database search for special-status plants and habitat suitability within the BSA, no rare plants have the potential to occur within the BSA and therefore are not discussed further.

Special-Status Wildlife Species

Based on the database search for special-status wildlife and habitat suitability within the BSA, the species listed in **Table 2** have the potential to occur within the BSA.

Amphibians

Sonoran desert toad (*Incilius alvarius*) is a California species of special concern. This species inhabits grasslands, arid desert lowlands, mountain canyons with oaks and sycamores, and pinyon-oak-juniper mountain forests. The Sonoran desert toad is found in washes, river bottoms, springs, reservoirs, canals, irrigation ditches, streams, temporary pools, and away from water from sea level to 5,700 feet (CDFG 2011a). The Sonoran desert toad was formerly found in extreme southeast California along the lower Colorado River and in irrigated lowlands of the southern Imperial Valley. Outside California, this toad is found in southern Arizona, extreme southwest New Mexico, and in Sonora and northwest Sinaloa, Mexico (CaliforniaHerps 2011). Although there are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011a), suitable habitat is present within the BSA.

Reptiles

Flat-tailed horned lizard (*Phrynosoma mcallii*) is a California species of special concern. The flat-tailed horned lizard is more commonly found below 820 feet in elevation in areas with flat to modest slopes. Typical habitat consists of sandy desert flatlands with sparse vegetation and low plant species diversity; occasionally the species occurs on low hills, mud hills, alkali flats, or areas covered with small pebbles or desert pavement; it is most abundant where surface soils contain some loose or windblown sand but rarely occurs on dunes. Vegetation in favorable habitat may include creosote bush, bur-sage (*Ambrosia* spp.), indigo bush (*Dalea pulchra*), saltbush, and ocotillo (*Fouguieria splendens*); also salt-cedar. In southeastern California, abundance is positively correlated with density of perennial plants, and there is a strong positive association between lizard and ant densities (CaliforniaHerps 2011). This is a cryptic lizard that generally occurs on the ground; often it is immobile and difficult to detect until it moves. Periods of inactivity may be spent burrowed in loose sand. Suitable habitat is present within the desert scrub habitat within BSA, although it may also occur on barren lands. There are two previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011a).

Birds

Burrowing owl (*Athene cunicularia*) is a California species of special concern. Burrowing owl breeding habitat consists of open areas with mammal burrows. They use a wide variety of arid and semi-arid environments, with well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground. Breeding habitats include native prairie, tame pasture, hayland, fallow fields, road and railway rights-of-way, and urban habitats (e.g., campuses, airports, and golf courses). Burrowing owls require a mammal burrow or natural cavity surrounded by sparse vegetation. During fall and winter, local residents may move from nesting areas, and migrants may move in. Burrowing owls nest and take shelter in burrows in the ground, typically burrows excavated by other species such as ground squirrels. They forage in grasslands and agricultural fields. The Imperial Valley is a Southern California agricultural area that had been considered a stronghold for the species. Yet recently the burrowing owl population in the region has declined. Surveys conducted by the Imperial Irrigation District show the burrowing owl population has dropped from about 5,600 pairs in the early 1990s to 4,879 pairs in 2007, and 3,557 pairs in 2008 (Sahagun 2010). Statewide, the burrowing owl has been decreasing because

of habitat loss by urban development, elimination of rodents it feeds on, pesticides, predation by domestic animals, vehicle strikes, collisions with wind turbines and shooting (Sahagun 2010).

Suitable nesting habitat is present within BSA along canal/ditch banks and dirt roadways. Although the species may occur in barren or scrub habitats, this species were only observed along the irrigation ditches and berms in the BSA. Several individuals were observed in the portion of the BSA east of the New River. There are 28 previously recorded occurrences within a 5-mile radius of the BSA, 2 of which are within a 1-mile radius of the BSA (CDFG 2011a). **Figure 7** shows the locations of the burrowing owls observed within the BSA; points on the map correspond to locations identified in **Table 3**.

TABLE 3 – LOCATION OF BURROWING OWL OBSERVED WITHIN THE BSA

Map ID	Comment	Latitude	Longitude
1	5 individuals in burrow	33° 1' 22.263" N	115° 30' 3.366" W
2	1 individual on a perch	33° 1' 8.677" N	115° 30' 27.952" W
3	1 individual on a perch	33° 0' 55.838" N	115° 30' 4.917" W
4	1 individual in burrow	33° 0' 56.286" N	115° 30' 12.265" W
5	2 individuals in burrow	33° 0' 35.640" N	115° 30' 32.764" W
6	3 individuals in burrow	33° 0' 42.134" N	115° 30' 3.415" W
7	1 individual on a perch	33° 1' 48.483" N	115° 30' 45.722" W

Mountain plover (*Charadrius montanus*) is proposed for federal listing, state-listed as threatened and a California species of special concern. Non-breeding habitat occurs in California. Preferred habitat consists of short-grass plains and fields, plowed fields and sandy deserts, and commercial sod farms. In southern California, wintering birds preferred heavily grazed native rangelands; they used burned fields primarily for night roosting. Alkali flats were the most favored habitat, where available; the use of cultivated land may be a result of loss of native habitats; native habitats may be critical in fall before freshly cultivated fields become available. There is one previously recorded occurrence within a 5-mile radius of the BSA (CDFG 2011a). This species may forage or overwinter within the agricultural fields and desert scrub in the BSA.

Southwestern willow flycatcher (*Empidonax traillii extimus*) is federally and state-listed as endangered. This flycatcher inhabits wet meadow and riparian montane habitats nesting in dense willow and riparian vegetation typically 2,000 to 8,000 feet in elevation. Peak egg-laying occurs in June. This species breeds in dense riparian habitats along rivers, streams, or other wetlands. The vegetation can be dominated by dense growths of willows, mulefat, or other shrubs and medium-sized trees. There may be an overstory of cottonwood, salt-cedar, or other large trees, but this is not always the case. In some areas, the flycatcher will nest in habitats dominated by salt-cedar and Russian olive (*Eleagnus angustifolia*). One of the most important characteristics of the habitat appears to be the presence of dense vegetation, usually throughout all vegetation layers present. Almost all flycatcher breeding habitats are within close proximity (less than 20 yards) of water or very saturated soil. This water may be in the form of large rivers, smaller streams, springs, or marshes. This species may nest within the dense riparian vegetation along the New River in the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011a).

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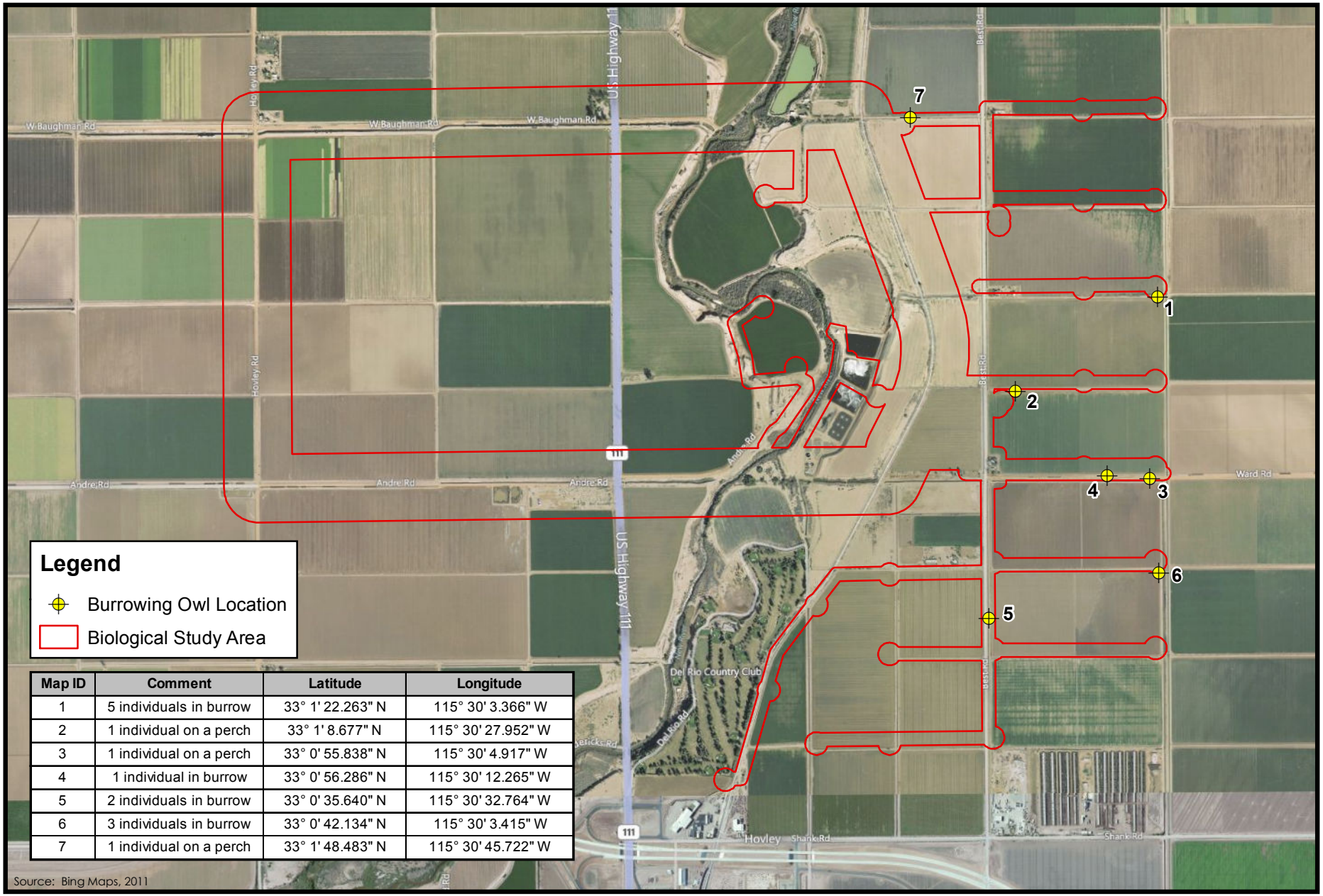
T:_GIS\IMPERIAL_COUNTY\MXD\ORMAT\GEOTHERMAL\BSA\FIGURE 7 BURROWING OWL.MXD - 8/4/2011 @ 11:49:57 AM



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6	3 individuals in burrow	33° 0' 42.134" N	115° 30' 3.415" W
7	1 individual on a perch	33° 1' 48.483" N	115° 30' 45.722" W

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Figure 7
Locations of Burrowing Owl Observed in the Biological Study Area

PMC®

Least bittern (*Ixobrychus exilis*) is federally and state-listed as endangered. During the breeding season, least bitterns can be found in freshwater and brackish marshes with dense, tall growths of aquatic or semiaquatic vegetation (particularly *Typha, Carex, Scirpus, Sagittaria, or Myriscus*) interspersed with clumps of woody vegetation and open water. In winter, they occur mainly in brackish and saline swamps and marshes. In southeastern deserts of California, suitable breeding habitats for least bitterns include freshwater and brackish marshes with tall, dense emergent vegetation and clumps of woody plants over deep water (Shuford and Gardali 2008). In the Salton Sea area, most bitterns reside in freshwater marshes in managed impoundments, along rivers or canals sustained by agricultural wastewater, and on lake edges; they are found particularly in dense stands of cattails but also in common reed (*Phragmites australis*) and even dense salt-cedar if cattail is nearby (Shuford and Gardali 2008). There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011a). There are two pockets of dense cattails and giant European reed in the BSA (see **Figure 5**). On **Figure 5**, the area to the north is an irrigation ditch that is choked with giant European reed. The area to the south is a ponded area surrounded by dense cattails; it connects irrigation ditches with the New River. Given the mean territory size calculated by Bogner and Baldassarre (2002), five acres may be regarded as the minimum patch size for this species. Within the BSA, there are no patches of emergent wetland that are 5 acres (0.5 acre in the north and 1.1 acres in the south); therefore, it is unlikely that this species occurs in the BSA.

Loggerhead shrike (*Lanius ludovicianus*) is a California species of special concern. This bird is a common resident and winter visitor in the lowlands and foothills throughout California. Loggerhead shrike occurs in open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Habitat types generally include open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Egg-laying occurs from March to May. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011a). Suitable nesting and foraging habitat is present within the BSA.

California black rail (*Laterallus jamaicensis coturniculus*) is state-listed as threatened and a California fully protected species that occurs in wetlands, marshes, and thickets. California black rails inhabit saltwater, brackish, and freshwater marshes. In coastal areas, this bird occurs in tidal salt marshes dominated by dense pickleweed (*Salicornia* spp.) with an open structure below. Away from coastal estuaries and salt marshes, black rails are restricted to breeding in freshwater marshes with stands of tule, cattail, bulrush, and sedge (*Carex* spp.). These sites are very shallow (usually less than 3 centimeters) but require a perennial water source. A relatively narrow range of conditions is required for occupancy and successful breeding. Nests with eggs have been documented from March to June. Marginal habitat is present in the giant European reed and cattail-choked vegetation found in some of the large irrigation ditches (see **Figure 5**); however, there is no documentation of black rails occurring in giant European reed. In addition, there are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011a). It is unlikely that this species occurs in the BSA.

Gila woodpecker (*Melanerpes uropygialis*) is state-listed as endangered. This species breeds throughout arid regions of southwestern U.S. and northwestern Mexico in arid lowland scrub, arid montane scrub, tropical deciduous forest, gallery forest, second-growth scrub, and secondary forest. In California, found in riparian woodlands, cottonwood groves, parklands and residential neighborhoods that have tall trees all year round. Also found in orchard-vineyard and urban habitats, particularly in shade trees and date palm groves. In otherwise suitable areas in southeastern California, availability of excavatable tree trunks for nesting seems to be the primary factor determining presence of this woodpecker. Require environments with large boles for nesting substrate, either columnar cacti or large trees, including riparian woodlands, old-

growth xeric-riparian wash woodlands, uplands with concentrations of large columnar cacti, dry subtropical forests, and urban residential areas. The gila woodpecker has been observed nesting in tamarisk (McCreedy 2008); therefore, suitable nesting habitat present within the riparian habitat in the BSA. There is one previously recorded occurrence within a 5-mile radius of the BSA (CDFG 2011a).

Yuma clapper rail (*Rallus longirostris yumanensis*) is federally listed as endangered, state-listed as threatened and a California fully protected species. This species occurs in freshwater marshes containing dense stands of cattails and bulrushes (*Scirpus* spp.). The Yuma clapper rail prefers mature stands along margins of shallow ponds with stable water levels. Generally in freshwater and alkali marshes dominated by stands of emergent vegetation interspersed with areas of open water and drier, upland benches. The rail nests probably on dry hummocks (small natural mound) or in small shrubs among dense cattails or bulrushes along the edges of shallow ponds in freshwater marshes with stable water levels. The only available habitat in the BSA for Yuma clapper rail is the European reed/ cattail choked wetlands (see **Figure 5**) although rails do not appear to select areas of giant European reed (USFWS 2005). There is one previously recorded occurrence within a 5-mile radius of the BSA (CDFG 2011a). It is unlikely that this species occurs in the BSA.

Le Conte's thrasher (*Toxostoma lecontei*) is a California species of special concern. This species is endemic to four southwestern states and northwestern Mexico. Although widespread, they are uncommon to rare residents in desert scrub habitats. The Le Conte's thrasher prefers open desert with scattered shrubs and sandy and/or alkaline soil. This species is a desert resident, primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats. It commonly nests in a dense spiny shrub or densely branched cactus in desert wash habitat usually 2 to 8 feet above ground. Marginal habitat is present within the desert scrub habitat in the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011a).

Raptors and Other Migratory Birds

Raptor nests are protected under the MBTA and Section 3503.5 of the California FGC. Suitable raptor nesting habitat occurs in the BSA. Additionally, the BSA supports suitable raptor foraging habitat. Consequently, raptor species likely forage and may also nest in the BSA. Migratory birds forage and nest in multiple habitats such as those found within the BSA. The nests of all migratory birds are protected under the MBTA, which makes it illegal to destroy any active migratory bird nest. Numerous migratory bird species have the potential to nest in the BSA.

Mammals

Western yellow bat (*Lasiurus xanthinus*) is a California species of special concern. This foliage dweller inhabits leafy vegetation (i.e., palm oases) and feeds on insects. Individuals usually roost in trees, hanging from the underside of a leaf. They are commonly found in the southwestern U.S. roosting in the skirt of dead fronds in both native and non-native palm trees. They do not migrate. Suitable roosting habitat is present where palms are found within BSA. There are two previously recorded occurrences within a 5-mile radius of the BSA, one of which is within a 1-mile radius of the BSA (CDFG 2011a).

Yuma hispid cotton rat (*Sigmodon hispidus eremicu*) is a California species of special concern. This species ranges along the southern end of the Colorado River from Palo Verde south to the Colorado River Delta, and in the irrigated portions of the Imperial Valley from the Mexican Border north to approximately Niland at the southern end of the Salton Sea. Their range in California has increased in part due to the construction of canals and ditches for transporting

water to irrigate agricultural developments throughout the Imperial and lower Colorado River valleys. Along the Colorado River, western cotton rats inhabit back-water sloughs and marshy areas adjacent to the river which are vegetated with seedling willows, sedges or tule, borders of wire grass or dense thickets of arrowweed. They also occur in association with drainage ditches, canals and seeps which have a weedy vegetative cover composed of arrowweed, saltgrass, common reed, screwbean mesquite, cattails, sedges, salt-cedar, heliotrope and annual grasses. They have invaded agricultural fields where they have caused crop damage to sugar beets and citrus (Collins 1998). This species may occur in the vegetated irrigation ditches in the BSA; however, there are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011a).

American badger (*Taxidea taxus*) is a California species of special concern. This stout-bodied, primarily solitary species hunts for ground squirrels and other small mammal prey in open grassland, cropland, deserts, savanna, and shrubland communities. Badgers have large home ranges and spend inactive periods in underground burrows. Badgers typically mate in mid- to late summer and give birth between March and April. Suitable habitat is present within BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011a).

Sensitive Habitats

For the purposes of this BRA, sensitive habitats are defined as:

- Areas of special concern to resource agencies;
- Areas protected under CEQA;
- Areas designated as sensitive natural communities by CDFG;
- Areas outlined in Section 1600 of the California Fish and Game Code;
- Areas regulated under Section 404 of the federal Clean Water Act and
- Areas protected under local regulations and policies.

The CNDDB search identified no special-status habitats occurring in the nine 7.5-minute USGS quadrangles surrounding the BSA. The desert riparian habitat within the BSA is a sensitive community. The irrigation ditches, canals, and wetlands within the BSA may also be considered sensitive habitats as they may fall under jurisdiction of the USACE, CDFG or the Regional Water Quality Control Board (RWQCB). A wetland delineation was not conducted with this survey effort; however, the irrigation ditches and canals may be jurisdictional under the USACE.

Critical Habitat

None of the habitat that would be affected by the proposed project is considered USFWS "critical habitat" based on critical habitat maps for federally listed species. USFWS defines critical habitat as a specific area that is essential for the conservation of a federally listed species and which may require special management considerations or protection. The closest area of critical habitat is approximately 13 miles to the northeast of the BSA for the federally threatened Peirson's milk-vetch (*Astralagas magdalenae peirsonii*).

3.0 REGULATORY BACKGROUND

3.1 FEDERAL LAWS AND REGULATIONS

The **Federal Endangered Species Act** (FESA) protects threatened and endangered plants and animals and their critical habitat. Candidate species are those proposed for listing; these species are usually treated by resource agencies as if they were actually listed during the environmental review process. Procedures for addressing impacts to federally listed species follow two principal pathways, both of which require consultation with the U.S. Fish and Wildlife Service (USFWS), which administers the Act for all terrestrial species. The first pathway, Section 10(a) incidental take permit, applies to situations where a non-federal government entity must resolve potential adverse impacts to species protected under the Act. The second pathway, Section 7 consultation, applies to projects directly undertaken by a federal agency or private projects requiring a federal permit or approval.

The **Migratory Bird Treaty Act** implements international treaties between the United States and other nations devised to protect migratory birds, their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the Fish and Game Code (FGC).

All raptors and their nests are protected from take or disturbance under the MBTA (16 United States Code [USC], § 703 et seq.) and California statute (FGC § 3503.5). The golden eagle and bald eagle are also afforded additional protection under the **Eagle Protection Act**, amended in 1973 (16 USC, § 669 et seq.).

Section 401 of the Clean Water Act requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards. The appropriate Regional Water Quality Control Board (in California) regulates section 401 requirements. The RWQCB's jurisdiction extends to all "waters of the State" and to all waters of the United States, including wetlands (isolated and non-isolated conditions).

Section 404 of the Clean Water Act prohibits the discharge of dredged or fill material into "waters of the United States" without a permit from the USACE. The USACE and the U.S. Environmental Protection Agency administer the Act. In addition to streams with a defined bed and bank, the definition of waters of the U.S. includes wetland areas "that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Regulations [CFR] 328.3 7b).

Substantial impacts to jurisdictional wetlands may require an individual permit. Small-scale projects may require a nationwide permit, which typically has an expedited process compared to the individual permit process. Mitigation of wetland impacts is required as a condition of the 404 permit and may include on-site preservation, restoration, or enhancement and/or off-site restoration or enhancement. The characteristics of the restored or enhanced wetlands must be equal to or better than those of the affected wetlands to achieve no net loss of wetlands.

Executive Order 13112 - Invasive Species directs all federal agencies to refrain from authorizing, funding, or carrying out actions or projects that may spread invasive species. The order further directs federal agencies to prevent the introduction of invasive species, control and monitor existing invasive species populations, restore native species to invaded ecosystems, research

and develop prevention and control methods for invasive species, and promote public education on invasive species. As part of the proposed action, USFWS and USACE would issue permits and therefore would be responsible for ensuring that the proposed action complies with Executive Order 13112 and does not contribute to the spread of invasive species.

3.2 STATE LAWS AND REGULATIONS

Pursuant to the **California Porter-Cologne Water Quality Control Act**, the SWRCB and the nine RWQCBs may require permits ("waste discharge requirements" [WDRs]) for the fill or alteration of "Waters of the State". The term "Waters of the State" is defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (*California Water Code,* §13050[e]). Although "waste" is partially defined as any waste substance associated with human habitation, the SWRCB interprets this to include fill discharge into water bodies. The SWRCB and the RWQCBs have interpreted their authority to require WDRs to extend to any proposal to fill or alter "Waters of the State", even if those same waters are not under USACE jurisdiction. Pursuant to this authority, the SWRCB and the RWQCBs may require the submission of a "report of waste discharge" under Water Code Section 13260, which is treated as an application for a WDR.

In addition, pursuant to the Porter-Cologne Water Quality Control Act, the State is given authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. As such, any person proposing to discharge waste into a water body that could affect its water quality must first file a Report of Waste Discharge if a Section 404 does not apply. "Waste" is partially defined as any waste substance associated with human habitation, including fill material discharged into water bodies.

Sections 2050 through 2098 of the FGC outline the protection provided to California's rare, endangered, and threatened species. Section 2080 of the FGC prohibits the taking of plants and animals listed under the **California Endangered Species Act** (CESA). Section 2081 established an incidental take permit program for state-listed species. In addition, the **Native Plant Protection Act of 1977** (FGC Section 1900 et seq.) gives the California Department of Fish and Game (CDFG) authority to designate state endangered, threatened, and rare plants and provides specific protection measures for designated populations.

The CDFG has also identified many "Species of Special Concern." Species with this status have limited distribution or the extent of their habitats has been reduced substantially, such that their populations may be threatened. Thus, their populations are monitored, and they may receive special attention during environmental review. While they do not have statutory protection, they may be considered rare under **California Environmental Quality Act** (CEQA) and thereby warrant specific protection measures.

Sensitive species, which would qualify for listing but are not currently listed, are afforded protection under CEQA. The CEQA Guidelines Section 15065 ("Mandatory Findings of Significance") requires that a substantial reduction in numbers of a rare or endangered species be considered a significant effect. CEQA Guidelines Section 15380 ("Rare or Endangered Species") provides for assessment of unlisted species as rare or endangered under CEQA if the species can be shown to meet the criteria for listing. Unlisted plant species on the California Native Plant Society's (CNPS) Lists 1A, 1B, and 2 would typically be considered under CEQA.

Sections 1601 to 1606 of the FGC require that a Streambed Alteration Application be submitted to the CDFG for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The CDFG reviews

the proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the CDFG and the applicant is the Streambed Alteration Agreement. Projects that require a Streambed Alteration Agreement may also require a permit from the USACE under Section 404 of the Clean Water Act. In these instances, the conditions of the Section 404 permit and the Streambed Alteration Agreement may overlap.

Sections 3500 to 5500 of the FGC outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these Sections may not be taken or possessed at any time. The CDFG cannot issue permits or licenses that authorize the "take" of any fully protected species, except under certain circumstances such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock. Specific sections of the FGC pertinent to the current project include:

- Section 3503 (which prohibits the taking, possession, or needless destruction of the nest or eggs of any bird),

- Section 3503.5 (which prohibits the taking, possession, or destruction of any bird in the order Falconiformes or Strigiformes (birds-of-prey) or the taking, possession, or destruction of the nest or eggs of any such bird), and

- Section 3513 (which prohibits the taking or possession of any migratory non-game bird as designated in the **MBTA**.

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APPENDICES

APPENDIX A:
DATABASE SEARCH RESULTS AND CONSOLIDATED LIST OF SPECIAL-STATUS SPECIES

TABLE A-1
SPECIAL-STATUS PLANT SPECIES POTENTIALLY OCCURRING WITHIN THE BSA

Scientific Name Common Name	Status			Habitat Description	Potential to Occur in the BSA	Rationale
	Federal	State	CNPS			
Abronia villosa var. *aurita* Chaparral sand-verbena	~	~	1B.1	Annual herb in the four-o'clock family (Nyctaginaceae). Found in chaparral, coastal scrub, desert dunes in sandy soils. Blooming period: January – September Elevation: 80 – 1,600 meters	No	The BSA highly disturbed. The areas of scrub/chaparral habitat are fallow agricultural fields. The BSA, therefore, does not provide suitable habitat. The BSA is outside the known elevation range for this species. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).
Chamaesyce abramsiana Abrams' spurge	~	~	2.2	Annual herb in the spurge family (Euphorbiaceae). Found in Mojavean and Sonoran desert scrub in sandy soils. Blooming period: September – November Elevation: -5 – 915 meters	No	The BSA highly disturbed. The areas of scrub/chaparral habitat are fallow agricultural fields. The BSA, therefore, does not provide suitable habitat. There is one previously recorded occurrence within a 1-mile radius of BSA (CDFG 2011).
Croton wigginsii Wiggins' croton	~	CR	2.2	Perennial shrub in the spurge family (Euphorbiaceae). Found in desert dunes and Sonoran desert scrub. Known in California from only two occurrences. Blooming period: March – May Elevation: 50 – 100 meters	No	The BSA is outside the known elevation range for this species. The BSA highly disturbed. The areas of scrub/chaparral habitat are fallow agricultural fields. The BSA, therefore, does not provide suitable habitat. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).
Cylindropuntia minzii Munz's cholla	~	~	1B.3	Succulent with a perennial stem in the cactus family (Cactaceae). Found in Sonoran desert scrub (sandy or gravelly). Known from only two occurrences in the Chocolate Mountains. Of hybrid origin, but stabilized; only reproducing vegetatively. Blooming period: May Elevation: 150 – 600 meters	No	Suitable habitat is not present within the BSA. This species has only been found in the Chocolate Mountains and is not expected to occur in the BSA. The BSA is outside the known elevation range for this species. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).

Scientific Name Common Name	Status			Habitat Description	Potential to Occur in the BSA	Rationale
	Federal	State	CNPS			
Ditaxix claryana Glandular ditaxis	~	~	2.2	Perennial herb in the spurge family (Euphorbiaceae). Found in Mojavean and Sonoran desert scrub in sandy soils. Blooming period: October – March Elevation: 0 – 465 meters	No	The BSA highly disturbed. The areas of scrub/chaparral habitat are fallow agricultural fields. The BSA, therefore, does not provide suitable habitat. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).

Source: CNPS 2011; USFWS 2011; CDFG 2011

CODE DESIGNATIONS

Federal Status	State Status	CNPS Rare Plant Rank
FT = Listed as threatened under the federal Endangered Species Act (FESA)	**SE** = Listed as endangered under the California Endangered Species Act (CESA)	**1B** = Plant species that are rare, threatened, or endangered in California and elsewhere.
	CR = Species identified as rare by CDFG	**List 2** = Plant species that are rare, threatened, or endangered in California, but more common elsewhere.
Habitat description adapted from CNPS online inventory (CNPS 2011).		**Threat Ranks** **0.1**-Seriously threatened in California (high degree/immediacy of threat) **0.2**-Fairly threatened in California (moderate degree/immediacy of threat) **0.3**-Not very threatened in California (low degree/immediacy of threats or no current threats known)

TABLE A-2
SPECIAL-STATUS WILDLIFE SPECIES POTENTIALLY OCCURRING WITHIN THE BSA

Scientific Name Common Name	Status		Habitat Description	Considered in Impact Analysis	Rationale
	Federal	State			
Fish					
Cyprinodon macularius Desert pupfish	FE	SE	Desert springs and outflow marshes, river-edge marshes, backwaters, saline pools, and streams. Original habitat probably was marshes and floodplain pools along the lower Colorado River and springs throughout the Salton Sea. Prefers areas with sand/silt substrates and aquatic plant life, limited surface flow, water less than one meter in depth. Tolerates low oxygen levels, high temperatures, and high salinity. May forage in shallows in early morning, deeper water most of day. Often rests on bottom, especially at night. May dive into anoxic bottom mud. Eggs are laid on substrate of sand, mud, or perhaps preferentially on algal mat. Currently, desert pupfish distribution in California is confined to two natural tributaries to the Salton Sea: San Felipe and Salt Creeks with their associated wetlands; some shoreline pools of the sea, and a majority of the irrigation drains leading into the sea. Introduced populations remain in ten artificial pond refuges.	No	No suitable habitat within BSA. Also, BSA outside known distribution range of this species. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).
Xyrauchen texanus Razorback sucker	FE	SE; CFP	Native to the Colorado River bordering California. Adapted for swimming in swift currents but also need quiet waters. Spawn in areas of sand, gravel, rocks in shallow water (CDFG 2011). The species originally occurred throughout the medium-sized and large rivers of the Colorado basin, but its range has shrunk to the river above the Grand Canyon, and to Lake Mead, Lake Mohave, and Lake Havasu on the lower part of the river.	No	The BSA is not within the known range for this species. This species occurs along the Colorado River. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).

Scientific Name Common Name	Status		Habitat Description	Considered in Impact Analysis	Rationale
	Federal	State			
Amphibians					
Incilius alvarius Sonoran desert toad	~	CSC	Inhabits grasslands, arid desert lowlands, mountain canyons with oaks and sycamores, and pinyon-oak-juniper mountain forests. Found in washes, river bottoms, springs, reservoirs, canals, irrigation ditches, streams, temporary pools, and away from water. From sea level to 5,700 feet. Formerly found in extreme southeast California along the lower Colorado River and in irrigated lowlands of the southern Imperial Valley. Outside California, found in southern Arizona, extreme southwest New Mexico, and in Sonora and northwest Sinaloa, Mexico (CaliforniaHerps 2011).	**Yes**	Although there are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011), suitable habitat is present within the BSA.
Rana (Lithobathes) yavapaiensis Lowland (=Yavapai & San Felipe) leopard frog	~	CSC	It is presumed to be extirpated from California. This species preferably inhabits rocky streams in canyon habitats surrounded by conifer forests or ponds and stream pools, usually in areas of scrub desert. Eggs and larvae develop in quiet water.	No	Suitable habitat is not present within BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).
Reptiles					
Phrynosoma mcallii Flat-tailed horned lizard	~	CSC	The flat-tailed horned lizard is more commonly found below 820 feet in areas with flat to modest slopes. Typical habitat consists of sandy desert flatlands with sparse vegetation and low plant species diversity; occasionally the species occurs on low hills, mud hills, alkali flats, or areas covered with small pebbles or desert pavement; it is most abundant where surface soils contain some loose or windblown sand but rarely occurs on dunes. Vegetation in favorable habitat may include creosote bush, bur-sage, indigo bush, saltbush, and ocotillo; also salt-cedar. In southeastern California, abundance is positively correlated with density of perennial plants, and there is a strong positive association between lizard and ant	**Yes**	Suitable habitat is present within the desert scrub habitat within BSA. There are two previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).

Scientific Name Common Name	Status		Habitat Description	Considered in Impact Analysis	Rationale
	Federal	State			
			densities. This is a cryptic lizard that generally occurs on the ground; often it is immobile and difficult to detect until it moves. Periods of inactivity may be spent burrowed in loose sand.		
Birds					
Asio flammeus Short-eared owl	MNBMC	CSC	An uncommon winter migrant in southern California. Broad expanses of open land with low vegetation such as grasslands, prairie, agricultural fields, salt marshes, estuaries, mountain meadows, and alpine and Arctic tundra for nesting and foraging are required. Communal roosts occur in old-growth fields, along thick hedgerows, in overgrown rubble in abandoned fields, or in clumps of dense conifers. These owls tend to roost in trees only when snow covers the ground. During migration, short-eared owls will move through high mountain passes, flying at great heights. Tends to avoid inhabited areas.	No	The breeding range does not include the Imperial Valley (Shuford and Gardali 2008). No suitable habitat is present within BSA. There is one previously recorded occurrence within a 5-mile radius of the BSA (CDFG 2011).
Athene cunicularia Burrowing owl	MNBMC	CSC	Lives in dry, open areas with no trees and short grass (grasslands and shrublands) up to 5,300 feet with low perches and small mammal burrows. Found on golf courses, cemeteries, airports, vacant lots, university campuses, pastures, and prairie dog towns. It hunts by walking, hopping, or running along the ground, or by flying from a low perch. They nest in burrows, often dug by a mammal, typically ground squirrels. Burrow can be several meters long, with numerous twists and turns. Resident year-round. Breeds March to August.	**Yes**	Suitable nesting habitat is present within BSA along canal/ditch banks and dirt roadways. Several individuals were observed in the portion of the BSA east of the New River. There are 28 previously recorded occurrences within a 5-mile radius of the BSA, 2 of which are within a 1-mile radius of the BSA (CDFG 2011).
Charadrius montanus Mountain plover	Proposed; MNBMC	ST; CSC	Non-breeding habitat in California. Preferred habitat consists of short-grass plains and fields, plowed fields and sandy deserts, and commercial sod farms. In southern California, wintering birds preferred heavily grazed native rangelands; they used burned fields primarily	**Yes**	Foraging habitat is present within the agricultural fields within and surrounding the BSA. There is one previously recorded occurrence within a 5-mile radius of the BSA (CDFG

Scientific Name Common Name	Status		Habitat Description	Considered in Impact Analysis	Rationale
	Federal	State			
			for night roosting. Alkali flats were the most favored habitat, where available; the use of cultivated land may be a result of loss of native habitats; native habitats may be critical in fall before freshly cultivated fields become available.		2011).
Dendroica petechia Yellow warbler	MNBMC	CSC	Winters in Imperial and Colorado River valleys. Found in riparian deciduous habitats in summer: cottonwoods, willows, alders, and other small trees and shrubs typical of low, open-canopy riparian woodland. In migration, visits woodland, forest, and shrub habitats.	No	The breeding range does not include the Imperial Valley (Shuford and Gardali 2008). There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).
Empidonax traillii extimus Southwestern willow flycatcher	FE; MNBMC	SE	Inhabits wet meadow and riparian montane habitats nesting in dense willow and riparian vegetation typically 2,000 to 8,000 feet in elevation. Peak egg-laying occurs in June. This species breeds in dense riparian habitats along rivers, streams, or other wetlands. The vegetation can be dominated by dense growths of willows (*Salix* spp.), mulefat (*Baccharis* spp.), or other shrubs and medium-sized trees. There may be an overstory of cottonwood (*Populus* spp.), salt cedar (*Tamarix* spp.), or other large trees, but this is not always the case. In some areas, the flycatcher will nest in habitats dominated by tamarisk and Russian olive (*Eleagnus angustifolia*). One of the most important characteristics of the habitat appears to be the presence of dense vegetation, usually throughout all vegetation layers present. Almost all flycatcher breeding habitats are within close proximity (less than 20 yards) of water or very saturated soil. This water may be in the form of large rivers, smaller streams, springs, or marshes.	**Yes**	This species may nest within the dense vegetation along the New River. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).

Scientific Name Common Name	Status		Habitat Description	Considered in Impact Analysis	Rationale
	Federal	State			
Gelochelidon nilotic *Gull-billed tern*	MNBMC	CSC	Occurs primarily as a summer resident, arriving early to mid-March and departing by mid-September; breeds from mid-April to late July (Shuford and Gardali 2008). In California, this species requires isolated nesting habitat, including small, bare islets of fine clay within impoundments at the Salton Sea or isolated sections of earthen levees at the salt works in south San Diego Bay. Vegetation, when present, is sparse. Unlike the California least tern (*Sternula antillarum browni*), but similar to other species of terns breeding in the state, it does not use beach strand, dune, or other shoreline habitats for nesting. Colonies are usually associated with shallow wetland areas and bays (Shuford and Gardali 2008).	No	The breeding range generally includes the southern boundary of the Salton Sea. Suitable habitat is not present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).
Ixobrychus exilis Least bittern	FE; MNBMC	SE	Breeding: freshwater and brackish marshes with dense, tall growths of aquatic or semiaquatic vegetation (particularly *Typha, Carex, Scirpus, Sagittaria, or Myriscus*) interspersed with clumps of woody vegetation and open water. Winter: occurs mainly in brackish and saline swamps and marshes. In southeastern deserts of California, suitable breeding habitats for Least Bitterns include freshwater and brackish marshes with tall, dense emergent vegetation and clumps of woody plants over deep water (Shuford and Gardali 2008). In the Salton Sea area, most bitterns reside in freshwater marshes in managed impoundments, along rivers or canals sustained by agricultural wastewater, and on lake edges; they are found particularly in dense stands of cattails but also in common reed (*Phragmites australis*) and even dense salt cedar if cattail is nearby (Shuford and Gardali 2008).	**Yes**	There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011). Dense freshwater emergent vegetation occurs in portions of the BSA and therefore suitable breeding habitat is present.

Scientific Name Common Name	Status		Habitat Description	Considered in Impact Analysis	Rationale
	Federal	State			
Lanius ludovicianus Loggerhead shrike	MNBMC	CSC	A common resident and winter visitor in lowlands and foothills throughout California. Open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Egg-laying occurs from March to May.	**Yes**	Suitable nesting and foraging habitat is present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).
Laterallus jamaicensis coturniculus California black rail	MNBMC	ST; CFP	Wetlands, marshes, and thickets. California black rails inhabit saltwater, brackish, and freshwater marshes. In coastal areas, this bird occurs in tidal salt marshes dominated by dense pickleweed (*Salicornia* spp.) with an open structure below. Away from coastal estuaries and salt marshes, black rails are restricted to breeding in freshwater marshes with stands of tule, cattail, bulrush, and sedge (*Carex* spp.). These sites are very shallow (usually less than 3 cm) but require a perennial water source. A relatively narrow range of conditions is required for occupancy and successful breeding. Recent sightings in near oak foothill woodlands in eastern Yuba County. Nests with eggs have been documented from March to June.	**Yes**	Marginal habitat is present in the dense emergent vegetation found in some of the large irrigation ditches. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).
Melanerpes uropygialis Gila woodpecker	MNBMC	SE	Breeds throughout arid regions of southwestern U.S. and northwestern Mexico in arid lowland scrub, arid montane scrub, tropical deciduous forest, gallery forest, second-growth scrub, and secondary forest. In California, found in riparian woodlands, cottonwood groves, parklands and residential neighborhoods that have tall trees all year round. Also found in orchard-vineyard and urban habitats, particularly in shade trees and date palm groves. In otherwise suitable areas in southeastern California, availability of excavatable tree trunks for nesting seems to be the primary factor determining presence of this	**Yes**	Suitable nesting habitat present within the riparian habitat in the BSA. There is one previously recorded occurrence within a 5-mile radius of the BSA (CDFG 2011).

Scientific Name Common Name	Status		Habitat Description	Considered in Impact Analysis	Rationale
	Federal	State			
			woodpecker. Require environments with large boles for nesting substrate, either columnar cacti or large trees, including riparian woodlands, old-growth xeric-riparian wash woodlands, uplands with concentrations of large columnar cacti, dry subtropical forests, and urban residential areas.		
Pelecanus occidentalis californicus California brown pelican	FD; MNBMC	SD; CFP	(Nesting colony) Colonial nester on coastal islands just outside the surf line; nests on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators. Nests in small numbers at the Salton Sea.	No	Suitable habitat is not present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).
Rallus longirostris yumanensis Yuma clapper rail	FE; MNBMC	ST; CFP	Freshwater marshes containing dense stands of cattails (*Typha* spp.) and bulrushes (*Scirpus* spp.). Prefers mature stands along margins of shallow ponds with stable water levels. Generally in freshwater and alkali marshes dominated by stands of emergent vegetation interspersed with areas of open water and drier, upland benches. Nests probably on dry hummocks (small natural mound) or in small shrubs among dense cattails or bulrushes along the edges of shallow ponds in freshwater marshes with stable water levels.	**Yes**	Marginal habitat is present within BSA. There is one previously recorded occurrence within a 5-mile radius of the BSA (CDFG 2011).
Rynchops niger Black skimmer	MNBMC	CSC	The black skimmer breeds in loose groups on gravel bars, low islets, and sandy beaches, in unvegetated sites. Nesting colonies are usually less than 200 pairs. The chicks leave the nest as soon as they hatch and lie inconspicuously in the nest depression or "scrape" where they are shaded from high temperatures by the parents. They may dig their own depressions in the sand at times. Parents feed the young almost exclusively during the day with almost no feeding occurring at night, due to the entire population of adults sometimes departing the colony to forage.	No	No suitable habitat is present within BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).

Scientific Name Common Name	Status		Habitat Description	Considered in Impact Analysis	Rationale
	Federal	State			
Toxostoma crissale Crissal thrasher	MNBMC	CSC	Found in dense, low scrubby vegetation, such as desert and foothill scrub and riparian brush. Nest consists of an open cup of twigs, lined with finer vegetation, placed in middle of dense shrub. The California thrasher prefers chaparral, brush, thickets, or riparian woodlands	No	The breeding range does include the Imperial Valley (Shuford and Gardali 2008). No suitable habitat within BSA. There are two previously recorded occurrences within a 5-mile radius of the BSA, one of which is within a 1-mile radius of the BSA (CDFG 2011).
Toxostoma lecontei Le Conte's thrasher	MNBMC	CSC	Endemic to four southwestern states and northwestern Mexico. Although widespread, they are uncommon to rare residents in desert scrub habitats. The Le Conte's thrasher prefers open desert with scattered shrubs and sandy and/or alkaline soil. This species is a desert resident, primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats. It commonly nests in a dense spiny shrub or densely branched cactus in desert wash habitat usually 2 to 8 feet above ground.	**Yes**	Marginal habitat is present within the desert scrub habitat in the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).
Mammals					
Antrozous pallidus Pallid bat	~	CSC	Pallid bats roost in rock crevices, tree hollows, mines, caves, and a variety of anthropogenic structures, including vacant and occupied buildings and buildings, mines, and natural caves are utilized as roosts. Occurrence is primarily in arid habitats. Colonies are usually small and may contain 12 to 100 bats.	No	No suitable roosting habitat within BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).
Lasiurus xanthinus Western yellow bat	~	CSC	This foliage dweller inhabits leafy vegetation (i.e., palm oases) and feeds on insects. Individuals usually roost in trees, hanging from the underside of a leaf. They are commonly found in the southwestern U.S. roosting in the skirt of dead fronds in both native and non-native palm trees. They are often found in Spanish moss. They do not migrate.	**Yes**	Suitable roosting habitat is present within BSA. There are two previously recorded occurrences within a 5-mile radius of the BSA, one of which is within a 1-mile radius of the BSA (CDFG 2011).

Scientific Name Common Name	Status		Habitat Description	Considered in Impact Analysis	Rationale
	Federal	State			
Perognathus longimembris Little pocket mouse	~	CSC	Habitat includes lower elevation grasslands and coastal sage communities. It requires open ground with fine, sandy soils, and may not dig extensive burrows, using vegetation for cover instead. It is found in Baja California and Sonora in Mexico and in Arizona, California, Idaho, Nevada, Oregon and Utah. Its natural habitat is subtropical or tropical dry lowland grassland.	No	Suitable habitat is not present within the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).
Sigmodon hispidus eremicu Yuma hispid cotton rat	~	CSC	This species ranges along the southern end of the Colorado River from Palo Verde south to the Colorado River Delta, and in the irrigated portions of the Imperial Valley from the Mexican Border north to approximately Niland at the southern end of the Salton Sea. Their range in California has increased in part due to the construction of canals and ditches for transporting water to irrigate agricultural developments throughout the Imperial and lower Colorado River valleys. Along the Colorado River, western cotton rats inhabit back-water sloughs and marshy areas adjacent to the river which are vegetated with seedling willows, sedges or tule, borders of wire grass or dense thickets of arrowweed. They also occur in association with drainage ditches, canals and seeps which have a weedy vegetative cover composed of arrowweed, saltgrass, common reed, screwbean mesquite, cattails, sedges, tamarisk, heliotrope and annual grasses. They have invaded agricultural fields where they have caused crop damage to sugar beets and citrus (Collins 1998).	**Yes**	This species may occur in the vegetated irrigation ditches in the BSA. There are no previously recorded occurrences within a 5-mile radius of the BSA (CDFG 2011).
Taxidea taxus American badger	~	CSC	Stout-bodied, primarily solitary species that hunts for ground squirrels and other small mammal prey in open grassland, cropland, deserts, savanna, and shrubland communities.	**Yes**	Suitable habitat is present within BSA. There are no previously recorded occurrences within a 5-mile

Scientific Name Common Name	Status		Habitat Description	Considered in Impact Analysis	Rationale
	Federal	State			
			Badgers have large home ranges and spend inactive periods in underground burrows. Badgers typically mate in mid- to late summer and give birth between March and April.		radius of the BSA (CDFG 2011).

Source: USFWS 2011; CDFG 2011

CODE DESIGNATIONS

Federal Status	State Status
ESU = Evolutionary Significant Unit is a distinctive population.	**SE** = Listed as endangered under the California Endangered Species Act (CESA)
FE = Listed as endangered under the federal Endangered Species Act (FESA)	**ST** = Listed as threatened under the CESA
FT = Listed as threatened under FESA	**CSC** = Species of Concern as identified by the CDFG
FC = Candidate for listing (threatened or endangered) under FESA	**CFP** = Listed as fully protected under CDFG code
FD = Delisted in accordance with the FESA	
FPD = Federally Proposed to be Delisted	
MNBMC = Migratory Nongame Bird of Management Concern, protected under the Migratory Bird Treaty Act	**Habitat description information from the California Wildlife Habitat Relationships System maintained by the CDFG**

References:

California Department of Fish and Game (CDFG). 2011. California Natural Diversity Database (CNDDB) Rarefind 3 computer program, Version 3.1.1. Commercial version dated July 02, 2011. CDFG, Biogeographic Data Branch. Sacramento, CA.

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CaliforniaHerps. 2011. *Bufo alvarius* - Sonoran Desert Toad Species account. Accessed online July 27, 2011 at http://www.californiaherps.com/frogs/pages/b.alvarius.html

Collins, Paul W. 1998. Watch Lists Accounts in Terrestrial Mammal Species of Special Concern in California, Bolster, B.C., Ed., 1998

Shuford, W.D., and T. Gardali (eds.). 2008. *California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California*. Studies of Western Birds, No. 1. Western Field Ornithologists, Camarillo, California and California Department of Fish and Game, Sacramento, California.

United States Fish and Wildlife Service (USFWS). 2011. *Species List for the East Brawley Geothermal Development Project, Brawley, Imperial County, California*. Letter dated July 15, 2011 from the Carlsbad Fish and Wildlife Office, Carlsbad, California.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

In Reply Refer To:
FWS-IMP-11B0309-11SL0476

JUL 15 2011

Ms. Angela Calderaro
PMC
2729 Prospect Park Drive, Suite 220
Rancho Cordova, California 95670

Subject: Species List for the East Brawley Geothermal Development Project, Brawley, Imperial County, California

Dear Ms. Calderaro:

This letter is in response to your written request, received on July 11, 2011, for a list of federally endangered, threatened, proposed, and candidate species and critical habitat that may occur in the vicinity of the East Brawley Geothermal Development Project along the New River north of Brawley in Imperial County, California. Although we do not have site-specific survey or habitat information, we are providing the enclosed list of species to assist PMC and its client in land use planning for the energy project. No designated critical habitat occurs in the project's vicinity.

Should you have any questions regarding the species listed or if we can provide any other technical assistance related to fish and wildlife resource planning, please contact James Thiede of this office at (760) 431-9440, extension 243.

Sincerely,

Carl A. Roberts

for Kennon A. Corey
Assistant Field Supervisor

Enclosure

TAKE PRIDE® IN AMERICA

Endangered and Threatened Species, and other special-status species
that may occur in the vicinity of the
East Brawley Geothermal Development Project
July 2011

Common Name	Scientific Name	Federal Status	State Status
Birds			
southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered	Endangered
Gila woodpecker	*Melanerpes uropygialis*	B.C. Concern	Endangered
burrowing owl	*Athene cunicularia*	Spec. Concern	Spec. Concern

Spec. Concern: Species of Concern

B.C. Concern: This species has been designated as a "Bird Species of Conservation Concern" by the USFWS in our report by the same name. This publication identifies species, subspecies, and populations of migratory and nonmigratory birds in need of additional conservation actions. We hope to stimulate coordinated and collaborative proactive conservation actions among Federal, State, tribal, and private partners. The species that appear in "Birds of Conservation Concern 2008" are deemed to be the highest priority for conservation actions. We anticipate that the document will be consulted by Federal agencies and their partners prior to undertaking cooperative research, monitoring, and management actions that might directly or indirectly affect migratory birds. *http://www.fws.gov/migratorybirds/NewReportsPublications/SpecialTopics/BCC2008/BCC2008.pdf*

We wish to inform you that the U.S. Fish and Wildlife Service (Service) has concerns about the potential for this project's electrical transmission lines to affect migratory birds. Migratory birds are protected under the Migratory Bird Treaty Act, and eagles are also protected by the Bald and Golden Eagle Protection Act, as explained below:

> The **Migratory Bird Treaty Act** (16 U.S.C. 703-712; MBTA) protects migratory birds, and their nests, eggs, young, and parts from possession, sale, purchase, barter, transport, import, and export, and take. For purposes of the MBTA, "take" is defined as "*to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect.*" (50 C.F.R. § 10.12). It is a strict liability statute wherein proof of intent is not an element of a taking violation. The MBTA applies to migratory birds that are identified in 50 C.F.R. § 10.13 (defined hereafter as "migratory

birds"). Generally speaking, the MBTA protects all birds occurring in the United States except for house (English) sparrows, European starlings, rock doves (pigeons), any recently listed unprotected species in the Federal Register and non-migratory upland game birds. Many migratory birds, including raptor species, are sensitive to disturbance when nesting and roosting. Should such disturbance result in the wounding or killing of adult birds, chicks, or eggs, including abandonment of a nest with eggs or young, the activity causing the disturbance would violate the MBTA, thus necessitating additional measures be incorporated into the activities in question to avoid such take.

Under the authority of the **Bald and Golden Eagle Protection Act** (16 U.S.C. 668-668d; BGEPA), bald eagles and golden eagles are afforded additional legal protection. "Take" under this statute was defined as "*pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, or molest or disturb.*" 50 C.F.R. § 22.3. "Disturb," in turn, was defined as "*to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.*" *Id.* If a proposed project or action would occur in areas where nesting, feeding, or roosting eagles occur, then project proponents may need to incorporate additional conservation measures into projects to achieve compliance with the BGEPA.

Federal agencies and applicants are encouraged to work closely with Service biologists to identify available protective measures when developing project plans and/or avian protection plans, and to implement those measures prior to/during construction and/or operation of power generation and transmission activities.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name - Landscape
East Brawley Geothermal
9-Quad Search around Westmorland

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
1	Asio flammeus	short-eared owl	ABNSB13040			G5	S3		SC
2	Athene cunicularia	burrowing owl	ABNSB10010			G4	S2		SC
3	Buteo regalis	ferruginous hawk	ABNKC19120			G4	S3S4		
4	Chamaesyce abramsiana	Abrams' spurge	PDEUP0D010			G4	S1.2	2.2	
5	Charadrius montanus	mountain plover	ABNNB03100	Proposed Threatened		G2	S2?		SC
6	Cylindropuntia munzii	Munz's cholla	PDCAC0D0V0			G3	S1.2	1B.3	
7	Cyprinodon macularius	desert pupfish	AFCNB02060	Endangered	Endangered	G1	S1		
8	Dendroica petechia brewsteri	yellow warbler	ABPBX03018			G5T3?	S2		SC
9	Ditaxis claryana	glandular ditaxis	PDEUP080L0			G4G5	S1	2.2	
10	Falco columbarius	merlin	ABNKD06030			G5	S3		
11	Gelochelidon nilotica	gull-billed tern	ABNNM08010			G5	S1		SC
12	Hydroprogne caspia	Caspian tern	ABNNM08020			G5	S4		
13	Incilius alvarius	Sonoran desert toad	AAABB01010			G5	SH		SC
14	Junco hyemalis caniceps	gray-headed junco	ABPBXA5021			G5T5	S1		
15	Lanius ludovicianus	loggerhead shrike	ABPBR01030			G4	S4		SC
16	Larus californicus	California gull	ABNNM03110			G5	S2		
17	Lasiurus xanthinus	western yellow bat	AMACC05070			G5	S3		SC
18	Laterallus jamaicensis coturniculus	California black rail	ABNME03041		Threatened	G4T1	S1		
19	Lithobates yavapaiensis	lowland (=Yavapai, San Sebastian & San Felipe) leopard frog	AAABH01250			G4	SX		SC
20	Melanerpes uropygialis	Gila woodpecker	ABNYF04150		Endangered	G5	S1S2		
21	Melitta californica	A mellitid bee	IIHYM74010			G4?	S2?		
22	Pelecanus occidentalis californicus	California brown pelican	ABNFC01021	Delisted	unknown code...	G4T3	S1S2		
23	Perognathus longimembris bangsi	Palm Springs pocket mouse	AMAFD01043			G5T2T3	S2S3		SC
24	Phrynosoma mcallii	flat-tailed horned lizard	ARACF12040			G3	S2		SC
25	Pilostyles thurberi	Thurber's pilostyles	PDRAF01010			G5	S3.3	4.3	
26	Plegadis chihi	white-faced ibis	ABNGE02020			G5	S1		
27	Polioptila melanura	black-tailed gnatcatcher	ABPBJ08030			G5	S4		
28	Rallus longirostris yumanensis	Yuma clapper rail	ABNME0501A	Endangered	Threatened	G5T3	S1		
29	Rynchops niger	black skimmer	ABNNM14010			G5	S1S3		SC
30	Sigmodon hispidus eremicus	Yuma hispid cotton rat	AMAFF07013			G5T2T3	S2		SC

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
31	Taxidea taxus	American badger	AMAJF04010			G5	S4		SC
32	Toxostoma crissale	Crissal thrasher	ABPBK06090			G5	S3		SC
33	Toxostoma lecontei	Le Conte's thrasher	ABPBK06100			G3	S3		SC
34	Xyrauchen texanus	razorback sucker	AFCJC11010	Endangered	Endangered	G1	S1		

Inventory of Rare and Endangered Plants

v7-11jun 6-9-11

Status: search results - Fri, Jul. 8, 2011, 14:14 b

{QUADS_123} =~ m/029D|016A|016B|028B|028C|015B|029A|029E Search

Tip: `CNPS_LIST:"List 3"` (note the field name) returns only taxa on List 3. `"List 3"` by itself, matches the phrase wherever found. Browse the list of **field names**.[all tips and help.] [search history]

Your Quad Selection: Westmorland (029D) 3311515, Brawley (016A) 3211585, Brawley NW (016B) 3211586, Iris (028B) 3311524, Wiest (028C) 3311514, Alamorio (015B) 3211584, Niland (029A) 3311525, Obsidian Butte (029B) 3311526, Calipatria SW (029C) 3311516

Hits 1 to 5 of 5

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Abronia villosa var. aurita**	chaparral sand-verbena	Nyctaginaceae	List 1B.1
		1	**Chamaesyce abramsiana**	Abrams' spurge	Euphorbiaceae	List 2.2
		1	**Croton wigginsii**	Wiggins' croton	Euphorbiaceae	List 2.2
		1	**Cylindropuntia munzii**	Munz's cholla	Cactaceae	List 1B.3
		1	**Ditaxis claryana**	glandular ditaxis	Euphorbiaceae	List 2.2

No more hits.

Appendix B:
Photos of the Biological Study Area

1. View of a concrete-lined irrigation ditch and the adjacent disked agricultural field.

2. Burrow within the BSA with 6 burrowing owls present.

3. View of earthen irrigation ditch within the BSA.

4. View of irrigation ditch and hay field with burrowing owl in the background.

5. View earthen irrigation ditch and dirt road adjacent to hay field.

6. View looking up at a burrowing owl on a telephone wire within the BSA.

7. View of concrete-lined channel in the eastern portion of the BSA.

8. View of.

9. View of earthen channel and adjacent dirt roadway.

10. View of disked field and adjacent irrigation channel in the eastern portion of the BSA.

11. View of dry earthen channel within the BSA in the southeastern portion of the BSA facing north.

12. View of the irrigation channel and mowed hay fields in the SE portion of the BSA (golf course in background).

13. View of concrete-lined irrigation channels in the BSA.

14. View facing west of the mitigation site and the New River in the background.

15. View of the central portion of the mitigation site facing south.

16. View of partially developed well pad in the northern portion of the BSA.

17. View of existing pipeline on the west side of the New River facing south.

18. View of existing pipeline crossing the New River facing east.

19. View of earthen canal south of Andre Road facing east.

20. View of open water habitat south of Andre Road west of Highway 111.

21. View existing Ormat North Brawley Geothermal Power Plant.

22. View of earthen irrigation channel facing west at the NW corner of BSA.

23. View of the New River facing south from the west side of the river.

24. View of irrigation channel to the east of the Brawley WWTP.

25. View of emergent wetland vegetation in a tributary to the New River (southern potential clapper rail habitat on Figure 5).

26. View of the invasive giant European reed in the northern portion of the BSA (see Figure 5 potential clapper rail habitat).

27. View of existing well pad adjacent to the New River.

28. View of the New River adjacent to the Brawley WWTP.

29. View of the mitigation site facing north from the Brawley WWTP.

30. View of the wastewater treatment ponds at the Brawley WWTP.

31. View of concrete-lined irrigation channel facing south on Best Road.

32. View of barren land adjacent to Best Road in the BSA.

Appendix C: Species Observed within the Biological Study Area

TABLE 1 – PLANT SPECIES OBSERVED IN THE BSA

Scientific Name	Common Name	Status
Arundo donax	Giant European reed	In some of the ditches
Atriplex canescens	Saltbush	Common
Bassia hyssopifolia	Fivehorn smotherweed	Invasive; FAC
Brassica spp.	Mustard	Ruderal
Cynodon dactylon	Bermuda grass	Agricultural fields
Cyperus sp.	Nutsedge	In irrigation ditches
Distichlis spicata	Saltgrass	In irrigation ditches; FACW
Erodium spp.	Filaree	Ruderal
Eucalyptus sp.	Eucalyptus	Ornamental
Heliotropium curassavicum	Alkali heliotrope	In Irrigation ditches; OBL
Lactuca serriola	Prickly lettuce	Ruderal
Lemna spp.	Duckweed	In irrigation ditches; OBL
Leptochloa spp.	Sprangletop	In irrigation ditches
Leptochloa panicea	Mucronate sprangletop	In irrigation ditches; OBL
Malva neglecta	Common mallow	Along roadways
Malvella leprosa	Alkali mallow	Ruderal; FAC*
Medicago sativa	Alfalfa	Agricultural fields
Nerium oleander	Oleander	Ornamental
Parkinsonia aculeata	Mexican palo verde	Adjacent to irrigation ditches; FACW*
Phoenix dactylifera	Date palm	Bordering agricultural fields
Phragmites australis	Common reed	In irrigation ditches; FACW
Pluchea sericea	Arrowweed	Adjacent to irrigation ditches; FACW
Populus fremontii	Fremont's cottonwood	Within the mitigation site and adjacent to the New River;
Prosopis sp.	Mesquite	Bordering agricultural fields
Salicornia subterminalis	Pickleweed	Near wetland
Salix exigua	Sandbar willow	Along drainageways
Solanum elaeagnifolium	Silverleaf nightshade	Uncommon
Sorghum vulgare var. sudanense	Sudan grass	Adjacent agricultural fields
Tamarisk sp.	Salt cedar	Abundant; Invasive
Typha latifolia	Common cattail	In some of the ditches and open water
Washingtonia filifera	California fan palm	Bordering agricultural fields
Washingtonia robusta	Mexican fan palm	Bordering agricultural fields

TABLE 2 – WILDLIFE SPECIES OBSERVED IN THE BSA

Scientific Name	Common Name	Status
Fish		
Gambusia affinis	Mosquito fish	Within drainages
Cyprinidae	Carp	Within large drainage connected to the New River
Reptiles		
Sceloporus occidentalis	Western fence lizard	Observed
Birds		
Agelaius phoeniceus	Red-winged blackbird	Observed
Anas platyrhynchos	Mallard	Observed
Ardea alba	Great egret	Observed
Athene cunicularia hypugea	Western burrowing owl	Observed more than 10
Bubulcus ibis	Cattle egret	Abundant
Butoirdes virescens	Green heron	Observed
Callipepla gambelii	Gambel's quail	Observed
Cathartes aura	Turkey vulture	Foraging overhead
Charadrius vociferus	Killdeer	Observed
Columba livia	Rock pigeon	Observed
Columbina inca	Inca dove	Observed
Egretta thula	Snowy egret	Observed
Fulica americana	American coot	Observed
Geococcyx californianus	Greater roadrunner	Observed
Himantopus mexicanus	Black-necked stilt	Observed
Hirundo rustica	Barn swallow	Observed
Mimus polyglottos	Northern mockingbird	Observed
Oxyura jamaicensis	Ruddy duck	Observed
Plegadis chihi	White-faced ibis	Abundant
Quiscalus mexicanus	Great tailed grackle	Observed
Sayornis nigricans	Black phoebe	Observed
Zenaida macroura	Mourning dove	Observed
Mammals		
Canis latrans	Coyote	Observed
Procyon lotor	Raccoon	Scat/tracks
Sylvilagus audubonii	Desert cottontail	Observed
Thomomys bottae	Botta's pocket gopher	Mounds
Xerospermophilus tereticaudus	Round tailed ground squirrel	Abundant

Appendix B - Imperial Irrigation District Letter Dated May 4, 2011

May 4, 2011

Mr. Bob Sullivan
Ormat Nevada, Inc.
6225 Neil Road
Reno, NV 89511

Re: Water Supply Request for Ormat East Brawley and Wister Projects

Dear Mr. Sullivan:

I write to address two separate requests from Ormat for the commitment of an industrial water supply from Imperial Irrigation District for two Ormat geothermal projects known as the East Brawley project, located near Best Road in Brawley, and the Wister project, east of English Road near Niland.

As I understand it, Ormat requests a raw water supply for the East Brawley project:

- in the amount of 5,500 afy,
- at a peak flow level of 9.1 CFS, and
- for an unspecified term.

Similarly, for the Wister project, Ormat requests a raw water supply:

- in the amount of 5,500 afy,
- at an unspecified peak flow level, and
- for an unspecified term.

If all necessary conditions and requirements are met, IID can supply raw Colorado River water to these two projects under the IID Interim Water Supply Policy (IWSP) for Non-Agricultural Projects (see - iid.com/Modules/ShowDocument.aspx?documentid=269).

In order for IID to be able to deliver water to the projects there must be appropriate and sufficient infrastructure and facilities in place, including but not limited to, delivery canal system, connection, and onsite raw water storage to provide a minimum water supply storage capacity of six days. To the extent that improvements or modifications to the IID delivery system are required in order for the projects to achieve necessary water delivery capacity, Ormat will be required to fund such work in advance.

IID has not yet determined the maximum volume of water that will be supplied to these projects. However, the full annual amount of water identified above for the two projects is currently within the total remaining balance of water available for new industrial uses

as designated by the IWSP. That industrial water is made available to users as water supply agreements are awarded by IID under the IWSP on a first come - first served basis. The amount of water available under the IWSP is subject to change over time, but the current balance is 24,200 af.

Please also note that the IWSP may not permit the provision of more than 5,000 afy for any one project. To the extent that your requests exceed that amount for each project, it may be necessary to seek clarification of this issue with the IID board.

In order to obtain a water supply from IID for the projects, Ormat must comply with all applicable IID policies and regulations and must enter into a water supply agreement with IID. Such policies and regulations require, among other things, that potential environmental impacts caused by the supply of industrial water to the Project be adequately assessed, and that appropriate mitigation be developed, if warranted. IID may rely on the requirements and conditions established by the relevant land use and permitting agencies, or IID may impose independent requirements as a condition of supplying water to the projects.

As a further requirement for the provision of an IID water supply to the projects under the IWSP, Ormat must meet standards for water use efficiency and best management practices, including but not limited to, those established by the CEC, as well as other water use efficiency standards, adopted by IID and other agencies. Under the IWSP the efficiency and BMP standards must apply to the specific project seeking water supply – not other unrelated projects.

Lastly, with regard to the Wister project, some physical aspects of that project may not be located within the water service territory of IID. This issue will have to be further researched as it could limit or prohibit the availability of IID water supplies to the project.

Sincerely,

Tina Shields

TINA ANDERHOLT SHIELDS, PE
Assistant Water Department Manager
Water Supply Planning,
Colorado River & QSA Issues

APPENDIX C -
ADDITIONAL AIR QUALITY ANALYSES

ENVIRONMENTAL MANAGEMENT ASSOCIATES

January 29, 2012

Mr. Ron Leiken
Environmental/Regulatory Affairs Administrator
Ormat Nevada, Inc.
6225 Neil Road
Reno, Nevada 89511

Re: Updated Air Pollutant Emission Assessment, East Brawley Project Construction, Imperial County, California

Dear Mr. Leiken:

Environmental Management Associates, Inc. (EMA) has prepared the following updated assessment of the air pollutant emissions from the construction of the East Brawley Geothermal Project, Imperial County, California (Project).

The Imperial County Air Pollution Control District "CEQA Air Quality Handbook" (November 2007) provides guidance to assist CEQA Lead Agencies in making a determination on the type of environmental document to prepare.

Table 4 of the Handbook ("Thresholds of Significance for Construction Activities") "is intended to serve as a guide for project developers and interested parties in determining the recommended type of mitigation measures." (page 19). Table 1 provides the "Thresholds of Significance for Construction Activities" listed in Table 4 of the Handbook.

Table 1: ICAPCD "Thresholds of Significance for Construction Activities"

Air Pollutant	ROG	NO_X	CO	PM_{10}
Threshold (<lbs/day)	75.00	100.00	550.00	150.00

As the ICAPCD construction activities table does not present "significance thresholds" for $PM_{2.5}$, the thresholds adopted or proposed by other agencies may be used as thresholds for a similar determination of CEQA significance. Table 2 presents the $PM_{2.5}$ CEQA significance threshold proposed by the South Coast Air Quality Management District (SCAQMD) [October 2006]. This will be applied to the $PM_{2.5}$ emissions from Project construction activities.

Table 2: Supplemental Thresholds of Significance – $PM_{2.5}$

Air Pollutant	$PM_{2.5}$
Threshold (<lbs/day)	55.00

588 Explorer Street, Brea, California 92821-3108
(714) 529-3695 • FAX (714) 529-8543

Air pollutant emissions for most of the Project construction activities were estimated using the California Emission Estimator Model (CalEEMod) (version 2011.1). CalEEMod is a computer program developed by ENVIRON International Corporation in collaboration with the South Coast Air Quality Management District (SCAQMD) that can be used to estimate air pollution emissions for various land uses, area sources, construction projects, and project operations. The program also produces estimates of air pollution emissions from vehicle travel. Mitigation measures can also be specified and their emission reductions calculated.

The Project drill rig "construction" (drilling) air pollutant emissions were calculated using the drill rig engine emission information contained in filings with the California Air Resources Board (CARB) for the Portable Equipment Registration Program (PERP) and historic diesel fuel use for the East Brawley Geothermal Project wells drilled to date.

Project construction would consist of different activities which would be undertaken in phases, through to the operation of the Project. The power plant activities are categorized as: power plant site preparation; power plant grading; power plant foundation construction, power plant mechanical construction, coating, and paving. The City of Brawley waste water treatment facility (WWTF) activities, proposed and evaluated to provide cooling tower makeup water to the East Brawley Project, are categorized as: WWTF site preparation; WWTF grading; and WWTF construction. The East Brawley Project well site activities are categorized as: well pad site preparation; well pad grading; well field construction; and well pad construction (drill rig assembly, well drilling and testing). Each activity has the potential to produce air pollutant emissions which vary in both the specific type and quantity of the air pollutants emitted. Although the CalEEMod model is capable of calculating air pollutant emissions across all activities for a number of different projects, its default project types do not include a "geothermal power plant" project. Thus, in order to best utilize the capabilities of the CalEEMod model for the Project, EMA has calculated the daily air pollutant emissions from these Project construction activities in thirteen separate CalEEMod models and one calculation using the drill rig engine information.

Table 3 and Table 4 outline the six CalEEMod models used to calculate the daily air pollutant emissions from the power plant construction activity. Table 5 outlines the three CalEEMod models used to calculate the daily air pollutant emissions from the WWTF construction activity. Table 6 and Table 7 outline the four CalEEMod models and the drill rig engine information used to calculate the daily air pollutant emissions from the well pad/field construction activities. Table 3, Table 4, Table 5, Table 6, and Table 7 identify the Project construction activities, air pollutant sources, daily air pollutant emissions, type of model used, the name of the model run specific to each activity and the Attachment to this letter report in which the input and output files for each specific model are located.

Table 3: CalEEMod Air Pollutant Emissions Calculation Models – Power Plant Construction Activities

Project Phase(s)	Power Plant Site Preparation				Power Plant Grading				Power Plant Foundation Construction		
Air Pollutant Source	Site Prep	On-Site Equipment	Off-Site Traffic		Grading	On-Site Equipment	Off-Site Traffic		On-Site Equipment	Off-Site Traffic	
Air Pollutant Emissions	Fugitive Dust	Combustion Emissions	Fugitive Dust	Combustion Emissions	Fugitive Dust	Combustion Emissions	Fugitive Dust	Combustion Emissions	Combustion Emissions	Fugitive Dust	Combustion Emissions
Model Using	CalEEMod				CalEEMod				CalEEMod		
Model Name	CalEEMod East Brawley – PP Site Preparation V02.xls				CalEEMod East Brawley – PP Grading V02.xls				CalEEMod East Brawley – PP Foundation Construction V03.xls		
Attachment	Attachment A				Attachment B				Attachment C		

Table 4: CalEEMod Air Pollutant Emissions Calculation Models – Power Plant Construction Activities (continued)

Project Phase(s)	Power Plant Mechanical Construction			Coating			Paving		
Air Pollutant Source	On-Site Equipment	Off-Site Traffic		Coating and Equipment	Off-Site Traffic		Paving and Equipment	Off-Site Traffic	
Air Pollutant Emissions	Combustion Emissions	Fugitive Dust	Combustion Emissions	Combustion and VOCs	Fugitive Dust	Combustion Emissions	Combustion and VOCs	Fugitive Dust	Combustion Emissions
Model Using	CalEEMod			CalEEMod			CalEEMod		
Model Name	CalEEMod East Brawley – PP Mechanical Construction V08.xls			CalEEMod East Brawley – Coating V02.xls			CalEEMod East Brawley – Paving V02.xls		
Attachment	Attachment D			Attachment E			Attachment F		

Table 5: CalEEMod Air Pollutant Emissions Calculation Models –WWTF Construction Activities

Project Phase(s)	WWTF Site Preparation				WWTF Grading				WWTF Construction		
Air Pollutant Source	Site Prep	On-Site Equipment	Off-Site Traffic		Grading	On-Site Equipment	Off-Site Traffic		On-Site Equipment	Off-Site Traffic	
Air Pollutant Emissions	Fugitive Dust	Combustion Emissions	Fugitive Dust	Combustion Emissions	Fugitive Dust	Combustion Emissions	Fugitive Dust	Combustion Emissions	Combustion Emissions	Fugitive Dust	Combustion Emissions
Model Using	CalEEMod				CalEEMod				CalEEMod		
Model Name	CalEEMod East Brawley – WWTF Site Preparation V02.xls				CalEEMod East Brawley – WWTF Grading V02.xls				CalEEMod East Brawley – WWTF Construction V02.xls		
Attachment	Attachment G				Attachment H				Attachment I		

Table 6: CalEEMod and AP-42 Air Pollutant Emissions Calculation Models –Well Pad/Field Construction Activities

Project Phase(s)	Well Pad Site Preparation				Well Pad Grading				Drill Rig Assembly, Well Drilling & Testing			
Air Pollutant Source	Site Prep	On-Site Equipment	Off-Site Traffic		Grading	On-Site Equipment	Off-Site Traffic		Drill Rig	On-Site Equipment	Off-Site Traffic	
Air Pollutant Emissions	Fugitive Dust	Combustion Emissions	Fugitive Dust	Combustion Emissions	Fugitive Dust	Combustion Emissions	Fugitive Dust	Combustion Emissions	Combustion Emissions	Combustion Emissions	Fugitive Dust	Combustion Emissions
Model Using	CalEEMod				CalEEMod				PERP	CalEEMod		
Model Name	CalEEMod East Brawley – Well Pad Site Preparation V03.xls				CalEEMod East Brawley – Well Pad Grading V03.xls				N/A	CalEEMod East Brawley – Drill Rig Assembly, Well Drilling & Testing V03.xls		
Attachment	Attachment J				Attachment K				Attach. N	Attachment L		

Table 7: CalEEMod and AP-42 Air Pollutant Emissions Calculation Models –Well Pad/Field Construction Activities (continued)

Project Phase(s)	Well Field Construction		
Air Pollutant Source	On-Site Equipment	Off-Site Traffic	
Air Pollutant Emissions	Combustion Emissions	Fugitive Dust	Combustion Emissions
Model Using	CalEEMod		
Model Name	CalEEMod East Brawley – Well Field Construction V07.xls		
Attachment	Attachment M		

Each of the thirteen attachments to this letter report describing the CalEEMod models (Attachments A through M) contain a "Remarks" summary (see Attachments A-1 through M-1). "Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this "remarks" summary replaces the "remarks" sections of each CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When CalEEMod model defaults were retained and no further explanation was necessary, no "remarks" were recorded.

As CalEEMod does not have a land use category for a geothermal power plant project, the "user defined industrial" land use category was selected as a surrogate. Where applicable, CalEEMod defaults were retained as the model inputs. However, CalEEMod defaults were replaced with specific Project information where available (such as the number of worker-commute and truck traffic, and the percentage of off-site roads to be traveled by off-site traffic which were paved and unpaved). Defaults were also replaced if applicable Project information was available through consultation with the Applicant. Examples of this latter information include the acreage of the land be graded and the mix of construction equipment expected to be used.

In each of the thirteen CalEEMod construction activities models, the "demolition" construction phase was eliminated by specifying a one-day phase length (as specifying a "zero" day phase produces model error messages) in the construction activity tab and changing the quantity of each off-road equipment type associated with this specific activity to zero. For the power plant, WWTF and well pad CalEEMod site preparation models, the "grading," "building construction," "paving," and "architectural coating" construction phases were also eliminated in the same manner. For the power plant, WWTF and well pad CalEEMod grading models, the same approach was taken to eliminate the "site preparation," "building construction," "paving," and "architectural coating" construction phases. For the power plant foundation and mechanical construction, the WWTF construction, the well field construction and the drill rig assembly and well drilling and testing CalEEMod models, the "site preparation," "grading," "paving," and "architectural coating," construction phases were also similarly eliminated. For the CalEEMod coating model, "site preparation," "grading," "building construction," and "paving," construction phases were eliminated. For the CalEEMod paving model, "site preparation," "grading," "building construction," and "architectural coating," construction phases were eliminated in the same manner. The number of worker, vendor and haul trips for each of these eliminated phases were also changed to zero in the "Trips and VMT" tab.

The well pad site preparation, well pad grading, and drill rig assembly and well drilling and testing CalEEMod models assumed that the off-site unpaved roads to the Project would be watered (stabilized) at least three times daily. All construction activity CalEEMod models assumed that the construction contractor would use diesel powered construction equipment using engines with certified NO_X emissions rated as Tier 2 or better to reduce NO_X emissions. The site preparation and grading CalEEMod models assumed on-site watering three times daily during site preparation and grading activities.

Attachments A through M also contain the CalEEMod-generated reports of the model outputs for each activity – one each for the summer months (Attachments A-2 through M-2), and for the winter months (Attachments A-3 through M-3). All of the output reports contain calculated daily air pollution emissions for both "unmitigated" and "mitigated" activities. "Unmitigated" emissions are those calculated by CalEEMod when none of the air pollutant mitigation measures contained within the CalEEMod program are selected. "Mitigated" emissions are those calculated by CalEEMod after the application of the air pollutant mitigation measures described above which are contained within, and can be calculated by, CalEEMod.

Attachment N contains tables summarizing the specific daily air pollutant emissions calculated by CalEEMod for each of the Project activities: power plant activities (power plant site preparation; power plant grading; power plant foundation construction, power plant mechanical construction, coating, and paving), WWTF activities (WWTF site preparation; WWTF grading; and WWTF construction) and well pad activities (well pad site preparation; well pad grading; well field construction; and well pad construction (drill rig assembly, well drilling and testing)). Also included in Attachment N are the calculations of the drill rig emissions.

In order to determine the daily Project-wide construction air pollutant emissions, the daily air pollutant emissions presented in Attachment N must be summed across each activity which would be occurring at the same time. Table 8 identifies the Project construction activities and how they are expected to overlap in time. Attachment O presents tables providing the winter and summer unmitigated and mitigated daily air pollution emissions (from Attachment N) summed by applicable activities across the twelve time periods outlined in Table 8.

Attachment O also compares the daily construction activities air pollution emissions summed by activities across all applicable time periods against the daily construction activities emission thresholds listed in Table 1 and Table 2. Attachment O shows that the unmitigated daily emissions (both winter and summer) of CO, SO_2 and $PM_{2.5}$ during construction were calculated to be below the construction thresholds for the air pollutants.

Attachment O shows that the unmitigated daily PM_{10} emissions (both winter and summer) during construction were calculated as above the ICAPCD construction threshold for PM_{10}. However, as shown in Attachment G and documented in Attachment C-1, the watering of off-site unpaved roads utilized to access the Project during well pad construction activities, and watering on-site areas during site preparation and grading, reduces the calculated Project PM_{10} emissions during construction to below the ICAPCD construction threshold for PM_{10}.

Table 8: Project Construction Timeline

	2012																2013				
	Jan	Jan	Feb	Mar	Apr	May	Jun	Jun	Jul	Jul	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
	3 wks	1 wk	All	All	All	All	1st half	2nd half	1st Two Days	Next 5 Days	Last 3 weeks	All	All	All	All	All	All	All	All	All	All
PP Site Preparation	X																				
PP Site Grading		X	X	X																	
PP Foundation Construction					X	X	X														
PP Mechanical Construction								X	X	X	X	X	X	X	X	X	X	X	X		
Coating (Painting)													X								
Paving														X							
WWTF Site Preparation									X												
WWTF Grading										X											
WWTF Construction											X										
Well Site Preparation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Well Site Grading	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Drill Rig Assembly, Well Drilling/Testing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Well Field Construction								X	X	X	X	X	X	X	X	X	X	X	X		

Finally, Attachment O shows that the unmitigated daily NO_X emissions (both winter and summer) during all construction activities, and daily ROG emissions (both winter and summer) during most construction activities, are above the applicable ICAPCD thresholds. Although the use of "Tier 2" engines in the on-site, off-road equipment reduces the calculated Project NO_X emissions, the daily NO_X and ROG emission rates still exceed the applicable ICAPCD construction emission thresholds. EMA has conducted a separate ambient air quality impact analysis to determine if these East Brawley Project daily construction NO_X emissions have the potential to create an exceedence of any applicable 1-hour or annual NO_2 air quality standard.

Please do not hesitate to contact us if you have any questions or require any additional information. EMA appreciates this opportunity to be of service to Ormat Nevada, Inc.

Sincerely:

ENVIRONMENTAL MANAGEMENT ASSOCIATES, INC.

Dwight L. Carey, D.Env.
Principal

Attachments:

ATTACHMENT A

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “CalEEMod East Brawley – PP Site Preparation V02.xls”

ATTACHMENT A-1

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL "REMARKS"
MODEL "CalEEMod East Brawley – PP Site Preparation V02.xls"

"Remarks" for East Brawley Geothermal CalEEMod Models

"Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this document replaces the "remarks" section of the referenced CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When defaults were retained and no further explanation was necessary, no "remarks" are recorded below.

Model Title: East Brawley – PP Site Preparation
CalEEMod East Brawley – PP Site Preparation V02.xls

Project Characteristics Tab

- **Project Characteristics** –Imperial County; Rural; Operational Year 2012; Utility Company IID

Land Use Tab

- **Land Use** - This model calculates the emissions from equipment and traffic associated with site preparation. The 'User Defined Industrial' land use subtype represents the East Brawley Geothermal Project. For this model in particular the 'User Defined Industrial' 'Lot Acreage' is the acreage to be site prepped that is associated with the power plant. 'Lot Acreage' totals to 22 acres.

Construction Tabs

- **Construction Phase** - This model calculates the emissions from power plant area site preparation fugitive dust, power plant area site preparation equipment, and the worker, vendor and haul traffic associated with the site preparation of the power plant area. All other phases except site preparation are zeroed out by placing a 1 in 'total days' column. Site Preparation- 1/1/2012 – 1/25/2012
    - Demolition- 12/26/2011 – 12/26/2011 (1 day)
    - Grading- 12/27/2011 – 12/27/2011 (1 day)
    - Building Construction- 12/28/2011 – 12/28/2011 (1 day)
    - Paving- 12/29/2011 – 12/29/2011 (1 day)
    - Architectural Coating- 12/30/2011 – 12/31/2011 (1 day)
- **Off-road Equipment (Coating)** – Coating emissions are calculated in a separate CalEEMod Model. Default coating equipment has been zeroed out.
- **Off-road Equipment (Building)** - Building Construction emissions are calculated in a separate CalEEMod Model. Default building construction equipment has been zeroed out.
- **Off-road Equipment (Demolition)** - No Demolition is required for this project. Default demolition equipment has been zeroed out.
- **Off-road Equipment (Grading)** – Grading emissions are calculated in a separate CalEEMod Model. Default grading equipment has been zeroed out.
- **Off-road Equipment (Paving)** – Paving emissions are calculated in a separate CalEEMod Model. Default paving equipment has been zeroed out.
- **Off-road Equipment (Site Preparation)** – Power plant area site preparation equipment emissions are calculated in this model. Default equipment is altered to reflect the equipment below. The off-highway truck was added to represent the on-site water truck (changed to 300HP from default HP).

Equipment Type	Amount	Daily Usage (Hours)
Graders	2	8
Off Highway Truck	1	8
Rubber Tired Dozers	2	8
Tractors/Loaders/Backhoes	2	8

- **Trips and VMT** – Only site preparation trips and VMT emissions are calculated in this model. Power plant area site preparation requires 8 worker trips/day.

- **On-road Fugitive Dust** – Only site preparation on-road off-site fugitive dust emissions are calculated in this model. Traffic is expected to access the power plant project area via State Highway 111 to Shank Road, and then to Best Road (all paved roads). No unpaved roads would be traveled by traffic accessing the power plant project area.
    - CalEEMod default worker trip length= 10.2 miles
        - % Paved Worker = 1-(0 miles unpaved roads to Project / 10.2 miles)=100% paved
    - CalEEMod default vendor trip length= 11.9 miles
        - % Paved Vendor= 1-(0 miles unpaved roads to Project / 11.9 miles)=100% paved
    - CalEEMod default haul trip length= 20 miles
        - % Paved Haul= 1-(0 miles unpaved roads to Project / 20 miles)=100% paved
- **Demolition** - No Demolition for this project.
- **Dust from Material Movement** - Power plant area site preparation fugitive dust emissions are calculated in this model. The amount of acres to be site prepped is 22 acres. These 22 acres will require up to 4 passes, which makes the 'total acres disturbed' 88 acres. Grading PM emissions are calculated in a separate CalEEMod Model.
- **Architectural Coating** - Coating emissions are calculated in a separate CalEEMod Model. Default coating VOC g/l has been zeroed out.

Operational Tabs

- **Vehicle Trips** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Road Dust** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Woodstoves** - Operations – Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Consumer Products** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Area Coating** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Landscape Equipment** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Energy Use** - Operations – Energy Use emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Water And Wastewater** - Operations - Water and Wastewater emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Solid Waste** - Operations - Solid Waste emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)

Vegetation Tabs

- **Land Use Change –**
- **Sequestration –**

Mitigation Tabs

- **Construction Off-road Equipment Mitigation** - On-site watering will occur 3 times a day; All equipment is Tier 2
- **Mobile Land Use Mitigation** –

- **Mobile Commute Mitigation –**
- **Area Mitigation –**
- **Energy Mitigation –**
- **Water Mitigation –**
- **Waste Mitigation -**

ATTACHMENT A-2

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - SUMMER
MODEL “CalEEMod East Brawley – PP Site Preparation V02.xls”

East Brawley - PP Site Preparation

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	22	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	10.57	85.27	47.04	0.08	17.33	4.16	21.49	6.62	4.16	10.78	0.00	8,818.81	0.00	0.94	0.00	8,838.60
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	31.52	66.13	46.56	0.08	6.82	2.77	9.59	2.59	2.77	5.36	0.00	8,818.81	0.00	0.94	0.00	8,838.60
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Grading - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Grading - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					17.23	0.00	17.23	6.62	0.00	6.62						0.00
Off-Road	10.45	85.16	45.93	0.08		4.16	4.16		4.16	4.16		8,747.93		0.93		8,767.56
Total	**10.45**	**85.16**	**45.93**	**0.08**	**17.23**	**4.16**	**21.39**	**6.62**	**4.16**	**10.78**		**8,747.93**		**0.93**		**8,767.56**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.11	1.11	0.00	0.10	0.00	0.10	0.00	0.00	0.01		70.88		0.01		71.04
Total	**0.12**	**0.11**	**1.11**	**0.00**	**0.10**	**0.00**	**0.10**	**0.00**	**0.00**	**0.01**		**70.88**		**0.01**		**71.04**

3.7 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.72	0.00	6.72	2.58	0.00	2.58						0.00
Off-Road	31.40	66.02	45.45	0.08		2.77	2.77		2.77	2.77	0.00	8,747.93		0.93		8,767.56
Total	**31.40**	**66.02**	**45.45**	**0.08**	**6.72**	**2.77**	**9.49**	**2.58**	**2.77**	**5.35**	**0.00**	**8,747.93**		**0.93**		**8,767.56**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.11	1.11	0.00	0.10	0.00	0.10	0.00	0.00	0.01		70.88		0.01		71.04
Total	**0.12**	**0.11**	**1.11**	**0.00**	**0.10**	**0.00**	**0.10**	**0.00**	**0.00**	**0.01**		**70.88**		**0.01**		**71.04**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.43					0.00	0.00		0.00	0.00						0.00
Consumer Products	20.51					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.43					0.00	0.00		0.00	0.00						0.00
Consumer Products	20.51					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT A-3

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - WINTER
MODEL “CalEEMod East Brawley – PP Site Preparation V02.xls”

East Brawley - PP Site Preparation

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	22	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	10.55	85.27	46.85	0.08	17.33	4.16	21.49	6.62	4.16	10.78	0.00	8,815.03	0.00	0.94	0.00	8,834.81
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	31.50	66.13	46.38	0.08	6.82	2.77	9.59	2.59	2.77	5.36	0.00	8,815.03	0.00	0.94	0.00	8,834.81
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Grading - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Grading - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					17.23	0.00	17.23	6.62	0.00	6.62						0.00
Off-Road	10.45	85.16	45.93	0.08		4.16	4.16		4.16	4.16		8,747.93		0.93		8,767.56
Total	**10.45**	**85.16**	**45.93**	**0.08**	**17.23**	**4.16**	**21.39**	**6.62**	**4.16**	**10.78**		**8,747.93**		**0.93**		**8,767.56**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.10	0.11	0.93	0.00	0.10	0.00	0.10	0.00	0.00	0.01		67.10		0.01		67.25
Total	**0.10**	**0.11**	**0.93**	**0.00**	**0.10**	**0.00**	**0.10**	**0.00**	**0.00**	**0.01**		**67.10**		**0.01**		**67.25**

3.7 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.72	0.00	6.72	2.58	0.00	2.58						0.00
Off-Road	31.40	66.02	45.45	0.08		2.77	2.77		2.77	2.77	0.00	8,747.93		0.93		8,767.56
Total	**31.40**	**66.02**	**45.45**	**0.08**	**6.72**	**2.77**	**9.49**	**2.58**	**2.77**	**5.35**	**0.00**	**8,747.93**		**0.93**		**8,767.56**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.10	0.11	0.93	0.00	0.10	0.00	0.10	0.00	0.00	0.01		67.10		0.01		67.25
Total	**0.10**	**0.11**	**0.93**	**0.00**	**0.10**	**0.00**	**0.10**	**0.00**	**0.00**	**0.01**		**67.10**		**0.01**		**67.25**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.43					0.00	0.00		0.00	0.00						0.00
Consumer Products	20.51					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.43					0.00	0.00		0.00	0.00						0.00
Consumer Products	20.51					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT B

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “CalEEMod East Brawley – PP Grading V02.xls”

ATTACHMENT B-1

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL "REMARKS"
MODEL "CalEEMod East Brawley – PP Grading V02.xls"

"Remarks" for East Brawley Geothermal CalEEMod Models

"Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this document replaces the "remarks" section of the referenced CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When defaults were retained and no further explanation was necessary, no "remarks" are recorded below.

Model Title: East Brawley – PP Grading
CalEEMod East Brawley – PP Grading V02.xls

Project Characteristics Tab

- **Project Characteristics** –Imperial County; Rural; Operational Year 2012; Utility Company IID

Land Use Tab

- **Land Use** - This model calculates the emissions from equipment and traffic associated with grading. The 'User Defined Industrial' land use subtype represents the East Brawley Geothermal Project. For this model in particular the 'User Defined Industrial' 'Lot Acreage' is the acreage to be graded that is associated with the power plant. 'Lot Acreage' totals to 22 acres.

Construction Tabs

- **Construction Phase** - This model calculates the emissions from power plant area grading fugitive dust, power plant area grading equipment, and the worker, vendor and haul traffic associated with grading of the power plant area. All other phases except grading are zeroed out by placing a 1 in 'total days' column. Grading- 1/26/2012 – 3/31/2012
    - Demolition- 1/19/2012 – 1/19/2012 (1 day)
    - Site Preparation- 1/20/2012 – 1/22/2012 (1 day)
    - Building Construction- 1/23/2012 – 1/23/2012 (1 day)
    - Paving- 1/24/2012 – 1/24/2012 (1 day)
    - Architectural Coating- 1/25/2012 – 1/25/2012 (1 day)
- **Off-road Equipment (Coating)** – Coating emissions are calculated in a separate CalEEMod Model. Default coating equipment has been zeroed out.
- **Off-road Equipment (Building)** - Building Construction emissions are calculated in a separate CalEEMod Model. Default building construction equipment has been zeroed out.
- **Off-road Equipment (Demolition)** - No Demolition is required for this project. Default demolition equipment has been zeroed out.
- **Off-road Equipment (Grading)** – Power plant area grading equipment emissions are calculated in this model. Default equipment is altered to reflect the equipment below. The off-highway truck was added to represent the on-site water truck (changed to 300HP from default HP).

Equipment Type	Amount	Daily Usage (Hours)
Excavators	2	8
Graders	3	8
Off Highway Truck	1	8
Roller	2	8
Rubber Tired Dozers	1	8
Scrapers	2	8
Tractors/Loaders/Backhoes	2	8

- **Off-road Equipment (Paving)** – Paving emissions are calculated in a separate CalEEMod Model. Default paving equipment has been zeroed out.

- **Off-road Equipment (Site Preparation)** – Site prep emissions are calculated in a separate CalEEMod Model. Default site prep equipment has been zeroed out.
- **Trips and VMT** – Only grading trips and VMT emissions are calculated in this model. Power plant area grading requires 30 worker and 4 vendor trips/day.
- **On-road Fugitive Dust** – Only grading on-road off-site fugitive dust emissions are calculated in this model. Traffic is expected to access the power plant project area via State Highway 111 to Shank Road, and then to Best Road (all paved roads). No unpaved roads would be traveled by traffic accessing the power plant project area.
    - CalEEMod default worker trip length= 10.2 miles
        - % Paved Worker = 1-(0 miles unpaved roads to Project / 10.2 miles)=100% paved
    - CalEEMod default vendor trip length= 11.9 miles
        - % Paved Vendor= 1-(0 miles unpaved roads to Project / 11.9 miles)=100% paved
    - CalEEMod default haul trip length= 20 miles
        - % Paved Haul= 1-(0 miles unpaved roads to Project / 20 miles)=100% paved
- **Demolition** - No Demolition for this project.
- **Dust from Material Movement** - Power plant area grading fugitive dust emissions are calculated in this model. The amount of acres to be graded is 22 acres. These 22 acres will require up to 4 passes, which makes the 'total acres disturbed' 88 acres. Site Prep PM emissions are calculated in a separate CalEEMod Model.
- **Architectural Coating** - Coating emissions are calculated in a separate CalEEMod Model. Default coating VOC g/l has been zeroed out.

Operational Tabs

- **Vehicle Trips** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Road Dust** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Woodstoves** - Operations – Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Consumer Products** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Area Coatin**g - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Landscape Equipment** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Energy Use** - Operations – Energy Use emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Water And Wastewater** - Operations - Water and Wastewater emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Solid Waste** - Operations - Solid Waste emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)

Vegetation Tabs

- **Land Use Change –**
- **Sequestration –**

Mitigation Tabs

- **Construction Off-road Equipment Mitigation** - On-site watering will occur 3 times a day; All equipment is Tier 2
- **Mobile Land Use Mitigation** –
- **Mobile Commute Mitigation** –
- **Area Mitigation** –
- **Energy Mitigation** –
- **Water Mitigation** –
- **Waste Mitigation** -

ATTACHMENT B-2

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - SUMMER
MODEL “CalEEMod East Brawley – PP Grading V02.xls”

East Brawley - PP Grading

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	22	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	18.64	147.27	82.41	0.15	8.44	7.51	15.95	3.33	7.51	10.84	0.00	15,931.47	0.00	1.65	0.00	15,966.21
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	54.32	119.01	88.30	0.15	3.55	5.19	8.74	1.31	5.19	6.50	0.00	15,931.47	0.00	1.65	0.00	15,966.21
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.01	0.00	8.01	3.31	0.00	3.31						0.00
Off-Road	18.08	145.76	77.62	0.15		7.46	7.46		7.46	7.46		15,490.28		1.62		15,524.31
Total	**18.08**	**145.76**	**77.62**	**0.15**	**8.01**	**7.46**	**15.47**	**3.31**	**7.46**	**10.77**		**15,490.28**		**1.62**		**15,524.31**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.12	1.09	0.63	0.00	0.06	0.04	0.10	0.00	0.04	0.04		175.40		0.00		175.50
Worker	0.43	0.42	4.16	0.00	0.37	0.01	0.38	0.01	0.01	0.02		265.79		0.03		266.40
Total	**0.55**	**1.51**	**4.79**	**0.00**	**0.43**	**0.05**	**0.48**	**0.01**	**0.05**	**0.06**		**441.19**		**0.03**		**441.90**

3.7 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.12	0.00	3.12	1.29	0.00	1.29						0.00
Off-Road	53.77	117.50	83.51	0.15		5.14	5.14		5.14	5.14	0.00	15,490.28		1.62		15,524.31
Total	**53.77**	**117.50**	**83.51**	**0.15**	**3.12**	**5.14**	**8.26**	**1.29**	**5.14**	**6.43**	**0.00**	**15,490.28**		**1.62**		**15,524.31**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.12	1.09	0.63	0.00	0.06	0.04	0.10	0.00	0.04	0.04		175.40		0.00		175.50
Worker	0.43	0.42	4.16	0.00	0.37	0.01	0.38	0.01	0.01	0.02		265.79		0.03		266.40
Total	**0.55**	**1.51**	**4.79**	**0.00**	**0.43**	**0.05**	**0.48**	**0.01**	**0.05**	**0.06**		**441.19**		**0.03**		**441.90**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.43					0.00	0.00		0.00	0.00						0.00
Consumer Products	20.51					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.43					0.00	0.00		0.00	0.00						0.00
Consumer Products	20.51					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT B-3

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - WINTER
MODEL “CalEEMod East Brawley – PP Grading V02.xls”

East Brawley - PP Grading

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	22	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	18.57	147.28	81.75	0.15	8.44	7.51	15.95	3.33	7.51	10.84	0.00	15,916.16	0.00	1.65	0.00	15,950.86
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	54.25	119.02	87.64	0.15	3.55	5.19	8.74	1.31	5.19	6.50	0.00	15,916.16	0.00	1.65	0.00	15,950.86
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.01	0.00	8.01	3.31	0.00	3.31						0.00
Off-Road	18.08	145.76	77.62	0.15		7.46	7.46		7.46	7.46		15,490.28		1.62		15,524.31
Total	**18.08**	**145.76**	**77.62**	**0.15**	**8.01**	**7.46**	**15.47**	**3.31**	**7.46**	**10.77**		**15,490.28**		**1.62**		**15,524.31**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.12	1.11	0.65	0.00	0.06	0.04	0.10	0.00	0.04	0.04		174.26		0.00		174.36
Worker	0.36	0.41	3.48	0.00	0.37	0.01	0.38	0.01	0.01	0.02		251.62		0.03		252.19
Total	**0.48**	**1.52**	**4.13**	**0.00**	**0.43**	**0.05**	**0.48**	**0.01**	**0.05**	**0.06**		**425.88**		**0.03**		**426.55**

3.7 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.12	0.00	3.12	1.29	0.00	1.29						0.00
Off-Road	53.77	117.50	83.51	0.15		5.14	5.14		5.14	5.14	0.00	15,490.28		1.62		15,524.31
Total	**53.77**	**117.50**	**83.51**	**0.15**	**3.12**	**5.14**	**8.26**	**1.29**	**5.14**	**6.43**	**0.00**	**15,490.28**		**1.62**		**15,524.31**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.12	1.11	0.65	0.00	0.06	0.04	0.10	0.00	0.04	0.04		174.26		0.00		174.36
Worker	0.36	0.41	3.48	0.00	0.37	0.01	0.38	0.01	0.01	0.02		251.62		0.03		252.19
Total	**0.48**	**1.52**	**4.13**	**0.00**	**0.43**	**0.05**	**0.48**	**0.01**	**0.05**	**0.06**		**425.88**		**0.03**		**426.55**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	22.94	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.43					0.00	0.00		0.00	0.00						0.00
Consumer Products	20.51					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.43					0.00	0.00		0.00	0.00						0.00
Consumer Products	20.51					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**22.94**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT C

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “CalEEMod East Brawley – PP Foundation Construction V03.xls”

ATTACHMENT C-1

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “REMARKS”
CalEEMod MODEL “CalEEMod East Brawley – PP Foundation Construction V03.xls”

"Remarks" for East Brawley Geothermal CalEEMod Models

"Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this document replaces the "remarks" section of the referenced CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When defaults were retained and no further explanation was necessary, no "remarks" are recorded below.

Model Title: East Brawley – PP Construction A - Foundation Work
CalEEMod East Brawley – PP Foundation Construction V03.xls

Project Characteristics Tab

- **Project Characteristics** –Imperial County; Rural; Operational Year 2012; Utility Company IID

Land Use Tab

- **Land Use** - This model calculates the emissions from equipment and traffic associated with power plant foundation construction. The 'User Defined Industrial' land use subtype represents the East Brawley Geothermal Project. For this model in particular the 'User Defined Industrial' 'Lot Acreage' is the acreage of the power plant site. 'Lot Acreage' totals to 15 acres.

Construction Tabs

- **Construction Phase** - This model calculates the emissions from power plant foundation construction equipment, and the worker, vendor and haul traffic associated with the power plant foundation construction. All other phases except building construction are zeroed out by placing a 1 in 'total days' column. Building Construction - 4/1/2012 – 6/8/2012
    - Demolition- 3/26/2012 – 3/26/2012 (1 day)
    - Site Preparation - 3/27/2012 – 3/27/2012 (1 day)
    - Grading - 3/28/2012 – 3/28/2012 (1 day)
    - Paving- 3/29/2012 – 3/29/2012 (1 day)
    - Architectural Coating- 3/30/2012 – 3/31/2012 (1 day)
- **Off-road Equipment (Coating)** – Coating emissions are calculated in a separate CalEEMod Model. Default coating equipment has been zeroed out.
- **Off-road Equipment (Building)** - Building Construction (power plant foundation work) emissions are calculated in this model. Default building construction equipment is altered to reflect the equipment below.

Equipment Type	Amount	Daily Usage (Hours)
Generator Set	1	8
Other General Industrial Equipment	4	8
Plate Compactor	5	8
Tractors/Loaders/Backhoes	5	7

- **Off-road Equipment (Demolition)** - No Demolition is required for this project. Default demolition equipment has been zeroed out.
- **Off-road Equipment (Grading)** – Grading emissions are calculated in a separate CalEEMod Model. Default grading equipment has been zeroed out.
- **Off-road Equipment (Paving)** – Paving emissions are calculated in a separate CalEEMod Model. Default paving equipment has been zeroed out.
- **Off-road Equipment (Site Preparation)** – Site preparation emissions are calculated in a separate CalEEMod Model. Default site preparation equipment is has been zeroed out.

- **Trips and VMT** – Only power plant foundation construction trips and VMT emissions are calculated in this model. Power plant foundation construction requires 132 worker and 80 vendor trips/day.
- **On-road Fugitive Dust** – Only power plant foundation construction on-road off-site fugitive dust emissions are calculated in this model. Traffic is expected to access the power plant project area via State Highway 111 to Shank Road, and then to Best Road (all paved roads). No unpaved roads would be traveled by traffic accessing the power plant project area.
    - CalEEMod default worker trip length= 10.2 miles
        - % Paved Worker = 1-(0 miles unpaved roads to Project / 10.2 miles)=100% paved
    - CalEEMod default vendor trip length= 11.9 miles
        - % Paved Vendor= 1-(0 miles unpaved roads to Project / 11.9 miles)=100% paved
    - CalEEMod default haul trip length= 20 miles
        - % Paved Haul= 1-(0 miles unpaved roads to Project / 20 miles)=100% paved
- **Demolition** - No Demolition for this project.
- **Dust from Material Movement** – Site preparation PM emissions are calculated in a separate CalEEMod Model. Grading PM emissions are calculated in a separate CalEEMod Model.
- **Architectural Coating** - Coating emissions are calculated in a separate CalEEMod Model. Default coating VOC g/l has been zeroed out.

Operational Tabs

- **Vehicle Trips** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Road Dust** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Woodstoves** - Operations – Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Consumer Products** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Area Coating** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Landscape Equipment** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Energy Use** - Operations – Energy Use emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Water And Wastewater** - Operations - Water and Wastewater emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Solid Waste** - Operations - Solid Waste emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)

Vegetation Tabs

- **Land Use Change –**
- **Sequestration –**

Mitigation Tabs

- **Construction Off-road Equipment Mitigation** - All equipment is Tier 2
- **Mobile Land Use Mitigation** –
- **Mobile Commute Mitigation** –

- **Area Mitigation** –
- **Energy Mitigation** –
- **Water Mitigation** –
- **Waste Mitigation** -

ATTACHMENT C-2

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - SUMMER
CalEEMod MODEL “CalEEMod East Brawley – PP Foundation Construction V03.xls”

East Brawley - Construction A - Foundation Work

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	15	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Trips and VMT - See "Remarks" Summary

On-road Fugitive Dust - See "Remarks" Summary

Grading - See "Remarks" Summary

Architectural Coating - See "Remarks" Summary

Construction Off-road Equipment Mitigation - See "Remarks" Summary

Demolition - See "Remarks" Summary

Vehicle Trips - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Road Dust - See "Remarks" Summary

Woodstoves - See "Remarks" Summary

Consumer Products - See "Remarks" Summary

Area Coating - See "Remarks" Summary

Landscape Equipment - See "Remarks" Summary

Energy Use - See "Remarks" Summary

Water And Wastewater - See "Remarks" Summary

Solid Waste - See "Remarks" Summary

Land Use Change - See "Remarks" Summary

Sequestration - See "Remarks" Summary

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	12.38	80.05	66.76	0.11	2.83	4.70	7.52	0.15	4.70	4.85	0.00	10,343.70	0.00	0.95	0.00	10,363.56
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	23.20	67.82	66.76	0.11	2.83	3.22	6.04	0.15	3.22	3.37	0.00	10,343.70	0.00	0.95	0.00	10,363.56
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	8.05	56.37	35.77	0.06		3.95	3.95		3.95	3.95		5,666.15		0.72		5,681.36
Total	**8.05**	**56.37**	**35.77**	**0.06**		**3.95**	**3.95**		**3.95**	**3.95**		**5,666.15**		**0.72**		**5,681.36**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	2.44	21.83	12.70	0.03	1.20	0.70	1.90	0.09	0.70	0.80		3,508.09		0.09		3,510.03
Worker	1.90	1.86	18.30	0.01	1.63	0.05	1.67	0.06	0.05	0.11		1,169.46		0.13		1,172.17
Total	**4.34**	**23.69**	**31.00**	**0.04**	**2.83**	**0.75**	**3.57**	**0.15**	**0.75**	**0.91**		**4,677.55**		**0.22**		**4,682.20**

3.7 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	18.87	44.13	35.77	0.06		2.47	2.47		2.47	2.47	0.00	5,666.15		0.72		5,681.36
Total	**18.87**	**44.13**	**35.77**	**0.06**		**2.47**	**2.47**		**2.47**	**2.47**	**0.00**	**5,666.15**		**0.72**		**5,681.36**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	2.44	21.83	12.70	0.03	1.20	0.70	1.90	0.09	0.70	0.80		3,508.09		0.09		3,510.03
Worker	1.90	1.86	18.30	0.01	1.63	0.05	1.67	0.06	0.05	0.11		1,169.46		0.13		1,172.17
Total	**4.34**	**23.69**	**31.00**	**0.04**	**2.83**	**0.75**	**3.57**	**0.15**	**0.75**	**0.91**		**4,677.55**		**0.22**		**4,682.20**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.66					0.00	0.00		0.00	0.00						0.00
Consumer Products	13.98					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.66					0.00	0.00		0.00	0.00						0.00
Consumer Products	13.98					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT C-3

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - WINTER
CalEEMod MODEL “CalEEMod East Brawley – PP Foundation Construction V03.xls”

East Brawley - Construction A - Foundation Work

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	15	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Trips and VMT - See "Remarks" Summary

On-road Fugitive Dust - See "Remarks" Summary

Grading - See "Remarks" Summary

Architectural Coating - See "Remarks" Summary

Construction Off-road Equipment Mitigation - See "Remarks" Summary

Demolition - See "Remarks" Summary

Vehicle Trips - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Road Dust - See "Remarks" Summary

Woodstoves - See "Remarks" Summary

Consumer Products - See "Remarks" Summary

Area Coating - See "Remarks" Summary

Landscape Equipment - See "Remarks" Summary

Energy Use - See "Remarks" Summary

Water And Wastewater - See "Remarks" Summary

Solid Waste - See "Remarks" Summary

Land Use Change - See "Remarks" Summary

Sequestration - See "Remarks" Summary

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	12.13	80.39	64.14	0.11	2.83	4.71	7.54	0.15	4.71	4.87	0.00	10,258.47	0.00	0.94	0.00	10,278.18
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	22.95	68.15	64.14	0.11	2.83	3.23	6.06	0.15	3.23	3.39	0.00	10,258.47	0.00	0.94	0.00	10,278.18
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	8.05	56.37	35.77	0.06		3.95	3.95		3.95	3.95		5,666.15		0.72		5,681.36
Total	**8.05**	**56.37**	**35.77**	**0.06**		**3.95**	**3.95**		**3.95**	**3.95**		**5,666.15**		**0.72**		**5,681.36**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	2.50	22.20	13.07	0.03	1.20	0.72	1.92	0.09	0.72	0.81		3,485.19		0.09		3,487.19
Worker	1.58	1.82	15.30	0.01	1.63	0.05	1.67	0.06	0.05	0.11		1,107.13		0.12		1,109.63
Total	**4.08**	**24.02**	**28.37**	**0.04**	**2.83**	**0.77**	**3.59**	**0.15**	**0.77**	**0.92**		**4,592.32**		**0.21**		**4,596.82**

3.7 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	18.87	44.13	35.77	0.06		2.47	2.47		2.47	2.47	0.00	5,666.15		0.72		5,681.36
Total	**18.87**	**44.13**	**35.77**	**0.06**		**2.47**	**2.47**		**2.47**	**2.47**	**0.00**	**5,666.15**		**0.72**		**5,681.36**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	2.50	22.20	13.07	0.03	1.20	0.72	1.92	0.09	0.72	0.81		3,485.19		0.09		3,487.19
Worker	1.58	1.82	15.30	0.01	1.63	0.05	1.67	0.06	0.05	0.11		1,107.13		0.12		1,109.63
Total	**4.08**	**24.02**	**28.37**	**0.04**	**2.83**	**0.77**	**3.59**	**0.15**	**0.77**	**0.92**		**4,592.32**		**0.21**		**4,596.82**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.66					0.00	0.00		0.00	0.00						0.00
Consumer Products	13.98					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.66					0.00	0.00		0.00	0.00						0.00
Consumer Products	13.98					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT D

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “CalEEMod East Brawley PP Mechanical Construction V08.xls”

ATTACHMENT D-1

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “REMARKS”
CalEEMod MODEL “CalEEMod East Brawley PP Mechanical Construction V08.xls”

"Remarks" for East Brawley Geothermal CalEEMod Models

"Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this document replaces the "remarks" section of the referenced CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When defaults were retained and no further explanation was necessary, no "remarks" are recorded below.

Model Title: East Brawley – PP Construction B - Mechanical Work
CalEEMod East Brawley – PP Mechanical Construction V08.xls

Project Characteristics Tab

- **Project Characteristics** –Imperial County; Rural; Operational Year 2012; Utility Company IID

Land Use Tab

- **Land Use** - This model calculates the emissions from equipment and traffic associated with power plant mechanical construction. The 'User Defined Industrial' land use subtype represents the East Brawley Geothermal Project. For this model in particular the 'User Defined Industrial' 'Lot Acreage' is the acreage of the power plant site. 'Lot Acreage' totals to 15 acres.

Construction Tabs

- **Construction Phase** - This model calculates the emissions from power plant mechanical construction equipment, and the worker, vendor and haul traffic associated with the power plant mechanical construction. All other phases except building construction are zeroed out by placing a 1 in 'total days' column. Building Construction - 6/9/2012 – 3/31/2013
    - Demolition- 6/4/2012 – 6/4/2012 (1 day)
    - Site Preparation - 6/5/2012 – 6/5/2012 (1 day)
    - Grading - 6/6/2012 – 6/6/2012 (1 day)
    - Paving- 6/7/2012 – 6/7/2012 (1 day)
    - Architectural Coating- 6/8/2012 – 6/8/2012 (1 day)
- **Off-road Equipment (Coating)** – Coating emissions are calculated in a separate CalEEMod Model. Default coating equipment has been zeroed out.
- **Off-road Equipment (Building)** - Building Construction (power plant mechanical work) emissions are calculated in this model. Default building construction equipment is altered to reflect the equipment below.

Equipment Type	Amount	Daily Usage (Hours)
Air Compressor	4	6
Cranes	4	8
Forklifts	6	8
Generator Set	4	8
Other General Industrial Equipment	4	4
Welder	15	8

- **Off-road Equipment (Demolition)** - No Demolition is required for this project. Default demolition equipment has been zeroed out.
- **Off-road Equipment (Grading)** – Grading emissions are calculated in a separate CalEEMod Model. Default grading equipment has been zeroed out.
- **Off-road Equipment (Paving)** – Paving emissions are calculated in a separate CalEEMod Model. Default paving equipment has been zeroed out.
- **Off-road Equipment (Site Preparation)** – Site preparation emissions are calculated in a separate CalEEMod Model. Default site preparation equipment is has been zeroed out.

- **Trips and VMT** – Power plant mechanical construction and well field construction trips and VMT emissions are calculated in this model. Power plant mechanical construction and well field construction requires 132 worker and 80 vendor trips/day.
- **On-road Fugitive Dust** – Power plant mechanical construction and well field construction on-road off-site fugitive dust emissions are calculated in this model. Traffic is expected to access the power plant project area via State Highway 111 to Shank Road, and then to Best Road (all paved roads). No unpaved roads would be traveled by traffic accessing the power plant project area.
    - CalEEMod default worker trip length= 10.2 miles
        - % Paved Worker = 1-(0 miles unpaved roads to Project / 10.2 miles)=100% paved
    - CalEEMod default vendor trip length= 11.9 miles
        - % Paved Vendor= 1-(0 miles unpaved roads to Project / 11.9 miles)=100% paved
    - CalEEMod default haul trip length= 20 miles
        - % Paved Haul= 1-(0 miles unpaved roads to Project / 20 miles)=100% paved
- **Demolition** - No Demolition for this project.
- **Dust from Material Movement** – Site preparation PM emissions are calculated in a separate CalEEMod Model. Grading PM emissions are calculated in a separate CalEEMod Model.
- **Architectural Coating** - Coating emissions are calculated in a separate CalEEMod Model. Default coating VOC g/l has been zeroed out.

Operational Tabs

- **Vehicle Trips** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Road Dust** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Woodstoves** - Operations – Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Consumer Products** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Area Coating** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Landscape Equipment** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Energy Use** - Operations – Energy Use emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Water And Wastewater** - Operations - Water and Wastewater emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Solid Waste** - Operations - Solid Waste emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)

Vegetation Tabs

- **Land Use Change –**
- **Sequestration –**

Mitigation Tabs

- **Construction Off-road Equipment Mitigation** - All equipment is Tier 2
- **Mobile Land Use Mitigation** –

- **Mobile Commute Mitigation –**
- **Area Mitigation –**
- **Energy Mitigation –**
- **Water Mitigation –**
- **Waste Mitigation -**

ATTACHMENT D-2

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - SUMMER
CalEEMod MODEL “CalEEMod East Brawley PP Mechanical Construction V08.xls”

East Brawley - PP Construction B - Mechanical Work

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	15	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Trips and VMT - See "Remarks" Summary

On-road Fugitive Dust - See "Remarks" Summary

Demolition - See "Remarks" Summary

Grading - See "Remarks" Summary

Architectural Coating - See "Remarks" Summary

Vehicle Trips - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Road Dust - See "Remarks" Summary

Woodstoves - See "Remarks" Summary

Consumer Products - See "Remarks" Summary

Area Coating - See "Remarks" Summary

Landscape Equipment - See "Remarks" Summary

Energy Use - See "Remarks" Summary

Water And Wastewater - See "Remarks" Summary

Solid Waste - See "Remarks" Summary

Land Use Change - See "Remarks" Summary

Sequestration - See "Remarks" Summary

Construction Off-road Equipment Mitigation - See "Remarks" Summary

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	31.40	165.58	123.36	0.20	2.83	10.49	13.31	0.15	10.49	10.64	0.00	19,201.89	0.00	2.65	0.00	19,257.64
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	54.39	140.68	120.81	0.20	2.83	7.70	10.52	0.15	7.70	7.85	0.00	19,201.89	0.00	2.65	0.00	19,257.64
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	27.07	141.89	92.37	0.16		9.74	9.74		9.74	9.74		14,524.34		2.43		14,575.44
Total	**27.07**	**141.89**	**92.37**	**0.16**		**9.74**	**9.74**		**9.74**	**9.74**		**14,524.34**		**2.43**		**14,575.44**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	2.44	21.83	12.70	0.03	1.20	0.70	1.90	0.09	0.70	0.80		3,508.09		0.09		3,510.03
Worker	1.90	1.86	18.30	0.01	1.63	0.05	1.67	0.06	0.05	0.11		1,169.46		0.13		1,172.17
Total	**4.34**	**23.69**	**31.00**	**0.04**	**2.83**	**0.75**	**3.57**	**0.15**	**0.75**	**0.91**		**4,677.55**		**0.22**		**4,682.20**

3.7 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	50.06	117.00	89.82	0.16		6.95	6.95		6.95	6.95	0.00	14,524.34		2.43		14,575.44
Total	**50.06**	**117.00**	**89.82**	**0.16**		**6.95**	**6.95**		**6.95**	**6.95**	**0.00**	**14,524.34**		**2.43**		**14,575.44**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	2.44	21.83	12.70	0.03	1.20	0.70	1.90	0.09	0.70	0.80		3,508.09		0.09		3,510.03
Worker	1.90	1.86	18.30	0.01	1.63	0.05	1.67	0.06	0.05	0.11		1,169.46		0.13		1,172.17
Total	**4.34**	**23.69**	**31.00**	**0.04**	**2.83**	**0.75**	**3.57**	**0.15**	**0.75**	**0.91**		**4,677.55**		**0.22**		**4,682.20**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.66					0.00	0.00		0.00	0.00						0.00
Consumer Products	13.98					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.66					0.00	0.00		0.00	0.00						0.00
Consumer Products	13.98					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT D-3

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - WINTER
CalEEMod MODEL “CalEEMod East Brawley PP Mechanical Construction V08.xls”

East Brawley - PP Construction B - Mechanical Work

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	15	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Trips and VMT - See "Remarks" Summary

On-road Fugitive Dust - See "Remarks" Summary

Demolition - See "Remarks" Summary

Grading - See "Remarks" Summary

Architectural Coating - See "Remarks" Summary

Vehicle Trips - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Road Dust - See "Remarks" Summary

Woodstoves - See "Remarks" Summary

Consumer Products - See "Remarks" Summary

Area Coating - See "Remarks" Summary

Landscape Equipment - See "Remarks" Summary

Energy Use - See "Remarks" Summary

Water And Wastewater - See "Remarks" Summary

Solid Waste - See "Remarks" Summary

Land Use Change - See "Remarks" Summary

Sequestration - See "Remarks" Summary

Construction Off-road Equipment Mitigation - See "Remarks" Summary

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	31.15	165.91	120.73	0.20	2.83	10.50	13.33	0.15	10.50	10.66	0.00	19,116.66	0.00	2.65	0.00	19,172.26
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	54.14	141.02	118.18	0.20	2.83	7.71	10.54	0.15	7.71	7.87	0.00	19,116.66	0.00	2.65	0.00	19,172.26
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	27.07	141.89	92.37	0.16		9.74	9.74		9.74	9.74		14,524.34		2.43		14,575.44
Total	**27.07**	**141.89**	**92.37**	**0.16**		**9.74**	**9.74**		**9.74**	**9.74**		**14,524.34**		**2.43**		**14,575.44**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	2.50	22.20	13.07	0.03	1.20	0.72	1.92	0.09	0.72	0.81		3,485.19		0.09		3,487.19
Worker	1.58	1.82	15.30	0.01	1.63	0.05	1.67	0.06	0.05	0.11		1,107.13		0.12		1,109.63
Total	**4.08**	**24.02**	**28.37**	**0.04**	**2.83**	**0.77**	**3.59**	**0.15**	**0.77**	**0.92**		**4,592.32**		**0.21**		**4,596.82**

3.7 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	50.06	117.00	89.82	0.16		6.95	6.95		6.95	6.95	0.00	14,524.34		2.43		14,575.44
Total	**50.06**	**117.00**	**89.82**	**0.16**		**6.95**	**6.95**		**6.95**	**6.95**	**0.00**	**14,524.34**		**2.43**		**14,575.44**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	2.50	22.20	13.07	0.03	1.20	0.72	1.92	0.09	0.72	0.81		3,485.19		0.09		3,487.19
Worker	1.58	1.82	15.30	0.01	1.63	0.05	1.67	0.06	0.05	0.11		1,107.13		0.12		1,109.63
Total	**4.08**	**24.02**	**28.37**	**0.04**	**2.83**	**0.77**	**3.59**	**0.15**	**0.77**	**0.92**		**4,592.32**		**0.21**		**4,596.82**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	15.64	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.66					0.00	0.00		0.00	0.00						0.00
Consumer Products	13.98					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.66					0.00	0.00		0.00	0.00						0.00
Consumer Products	13.98					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**15.64**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT E

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “CalEEMod East Brawley – Coating V02.xls”

ATTACHMENT E-1

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL "REMARKS"
MODEL "CalEEMod East Brawley – Coating V02.xls"

"Remarks" for East Brawley Geothermal CalEEMod Models

"Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this document replaces the "remarks" section of the referenced CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When defaults were retained and no further explanation was necessary, no "remarks" are recorded below.

Model Title: East Brawley – Coating
CalEEMod East Brawley – Coating V02.xls

Project Characteristics Tab

- **Project Characteristics** –Imperial County; Rural; Operational Year 2012; Utility Company IID

Land Use Tab

- **Land Use** - This model calculates the emissions from equipment and traffic associated with the coating (touch-up) of all the non-insulated pipes, skids, pipe supports, and buildings/structures. The 'User Defined Industrial' land use subtype represents the East Brawley Geothermal Project. For this model in particular the 'User Defined Industrial' 'Lot Acreage' is double the acreage to be coated. The default square footage to be coated (interior and exterior) cannot be changed in the 'Architectural Coating' tab of the CalEEMod model. To account for the 8,100 square feet of touch up coating for the East Brawley Geothermal Project, 16,200 square feet (0.37 acres) was used on the 'Land Use' tab. When 'Land Use' square footage is equal to 16,200 square feet the Non- Residential Exterior Area (square feet) in the 'Architectural Coatings' tab is equal to 8,100 square feet (half).

Construction Tabs

- **Construction Phase** - This model calculates the emissions from architectural coating equipment, and the worker, vendor and haul traffic associated with architectural coating. All other phases except architectural coating are zeroed out by placing a 1 in 'total days' column. Architectural Coating - 9/1/2012 – 9/30/2012
    - Demolition- 8/27/2012 – 8/27/2012 (1 day)
    - Grading - 8/28/2012 – 8/28/2012 (1 day)
    - Site Preparation - 8/29/2012 – 8/29/2012 (1 day)
    - Building Construction - 8/30/2012 – 8/30/2012 (1 day)
    - Paving - 8/31/2012 – 8/31/2012 (1 day)
- **Off-road Equipment (Coating)** – Coating emissions are calculated in a this model. Default coating equipment is altered to reflect the equipment below.

Equipment Type	Amount	Daily Usage (Hours)
Air Compressor	1	6

- **Off-road Equipment (Building)** - Building Construction emissions are calculated in a separate CalEEMod Model. Default building construction equipment has been zeroed out.
- **Off-road Equipment (Demolition)** - No Demolition is required for this project. Default demolition equipment has been zeroed out.
- **Off-road Equipment (Grading)** – Grading equipment emissions are calculated in a separate CalEEMod Model. Default grading equipment is has been zeroed out.
- **Off-road Equipment (Paving)** – Paving emissions are calculated in a separate CalEEMod Model. Default paving equipment has been zeroed out.
- **Off-road Equipment (Site Preparation)** – Site prep emissions are calculated in a separate CalEEMod Model. Default site prep equipment has been zeroed out.
- **Trips and VMT** – Only architectural coating trips and VMT emissions are calculated in this model. Architectural coating requires 4 worker and 1 vendor trips/day.

- **On-road Fugitive Dust** – Only architectural coating on-road off-site fugitive dust emissions are calculated in this model. Traffic is expected to access the power plant project area via State Highway 111 to Shank Road, and then to Best Road (all paved roads). No unpaved roads would be traveled by traffic accessing the power plant project area.
    - CalEEMod default worker trip length= 10.2 miles
        - % Paved Worker = 1-(0 miles unpaved roads to Project / 10.2 miles)=100% paved
    - CalEEMod default vendor trip length= 11.9 miles
        - % Paved Vendor= 1-(0 miles unpaved roads to Project / 11.9 miles)=100% paved
    - CalEEMod default haul trip length= 20 miles
        - % Paved Haul= 1-(0 miles unpaved roads to Project / 20 miles)=100% paved
- **Demolition** - No Demolition for this project.
- **Dust from Material Movement** - Grading PM emissions are calculated in a separate CalEEMod Model. Site Prep PM emissions are calculated in a separate CalEEMod Model.
- **Architectural Coating** - Coating emissions are calculated in this model. To account for the 8,100 square feet of touch up coating for the East Brawley Geothermal Project, 16,200 square feet (0.37 acres) was used on the 'Land Use' tab. When 'Land Use' square footage is equal to 16,200 square feet the Non- Residential Exterior Area (square feet) in the 'Architectural Coatings' tab is equal to 8,100 square feet (half). Default Non-Residential Interior Area (24,300 square feet) VOC g/l was zeroed out. Default Non-Residential Exterior Area (8,100 square feet) VOC g/l was not altered.

Operational Tabs

- **Vehicle Trips** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Road Dust** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Woodstoves** - Operations – Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Consumer Products** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Area Coating** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Landscape Equipment** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Energy Use** - Operations – Energy Use emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Water And Wastewater** - Operations - Water and Wastewater emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Solid Waste** - Operations - Solid Waste emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)

Vegetation Tabs

- **Land Use Change –**
- **Sequestration –**

Mitigation Tabs

- **Construction Off-road Equipment Mitigation** -

- **Mobile Land Use Mitigation** –
- **Mobile Commute Mitigation** –
- **Area Mitigation** –
- **Energy Mitigation** –
- **Water Mitigation** –
- **Waste Mitigation** -

ATTACHMENT E-2

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - SUMMER
MODEL “CalEEMod East Brawley – Coating V02.xls”

East Brawley - Coating

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	16200	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	2.49	3.49	2.67	0.00	0.06	0.30	0.36	0.00	0.30	0.30	0.00	360.48	0.00	0.05	0.00	361.57
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	2.49	3.49	2.67	0.00	0.06	0.30	0.36	0.00	0.30	0.30	0.00	360.48	0.00	0.05	0.00	361.57
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.39	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.39**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.39	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.39**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.88					0.00	0.00		0.00	0.00						0.00
Off-Road	0.52	3.16	1.96	0.00		0.29	0.29		0.29	0.29		281.19		0.05		282.18
Total	**2.40**	**3.16**	**1.96**	**0.00**		**0.29**	**0.29**		**0.29**	**0.29**		**281.19**		**0.05**		**282.18**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.03	0.27	0.16	0.00	0.02	0.01	0.02	0.00	0.01	0.01		43.85		0.00		43.88
Worker	0.06	0.06	0.55	0.00	0.05	0.00	0.05	0.00	0.00	0.00		35.44		0.00		35.52
Total	**0.09**	**0.33**	**0.71**	**0.00**	**0.07**	**0.01**	**0.07**	**0.00**	**0.01**	**0.01**		**79.29**		**0.00**		**79.40**

3.7 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.88					0.00	0.00		0.00	0.00						0.00
Off-Road	0.52	3.16	1.96	0.00		0.29	0.29		0.29	0.29	0.00	281.19		0.05		282.18
Total	**2.40**	**3.16**	**1.96**	**0.00**		**0.29**	**0.29**		**0.29**	**0.29**	**0.00**	**281.19**		**0.05**		**282.18**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.03	0.27	0.16	0.00	0.02	0.01	0.02	0.00	0.01	0.01		43.85		0.00		43.88
Worker	0.06	0.06	0.55	0.00	0.05	0.00	0.05	0.00	0.00	0.00		35.44		0.00		35.52
Total	**0.09**	**0.33**	**0.71**	**0.00**	**0.07**	**0.01**	**0.07**	**0.00**	**0.01**	**0.01**		**79.29**		**0.00**		**79.40**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.39	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.39	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.04					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.35					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.39**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.04					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.35					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.39**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT E-3

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - WINTER
MODEL “CalEEMod East Brawley – Coating V02.xls”

East Brawley - Coating

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	16200	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	2.48	3.49	2.59	0.00	0.06	0.30	0.37	0.00	0.30	0.30	0.00	358.30	0.00	0.05	0.00	359.39
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	2.48	3.49	2.59	0.00	0.06	0.30	0.37	0.00	0.30	0.30	0.00	358.30	0.00	0.05	0.00	359.39
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.39	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.39**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.39	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.39**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.88					0.00	0.00		0.00	0.00						0.00
Off-Road	0.52	3.16	1.96	0.00		0.29	0.29		0.29	0.29		281.19		0.05		282.18
Total	**2.40**	**3.16**	**1.96**	**0.00**		**0.29**	**0.29**		**0.29**	**0.29**		**281.19**		**0.05**		**282.18**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.03	0.28	0.16	0.00	0.02	0.01	0.02	0.00	0.01	0.01		43.56		0.00		43.59
Worker	0.05	0.06	0.46	0.00	0.05	0.00	0.05	0.00	0.00	0.00		33.55		0.00		33.63
Total	**0.08**	**0.34**	**0.62**	**0.00**	**0.07**	**0.01**	**0.07**	**0.00**	**0.01**	**0.01**		**77.11**		**0.00**		**77.22**

3.7 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	1.88					0.00	0.00		0.00	0.00						0.00
Off-Road	0.52	3.16	1.96	0.00		0.29	0.29		0.29	0.29	0.00	281.19		0.05		282.18
Total	**2.40**	**3.16**	**1.96**	**0.00**		**0.29**	**0.29**		**0.29**	**0.29**	**0.00**	**281.19**		**0.05**		**282.18**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.03	0.28	0.16	0.00	0.02	0.01	0.02	0.00	0.01	0.01		43.56		0.00		43.59
Worker	0.05	0.06	0.46	0.00	0.05	0.00	0.05	0.00	0.00	0.00		33.55		0.00		33.63
Total	**0.08**	**0.34**	**0.62**	**0.00**	**0.07**	**0.01**	**0.07**	**0.00**	**0.01**	**0.01**		**77.11**		**0.00**		**77.22**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.39	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.39	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.04					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.35					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.39**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.04					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.35					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.39**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT F

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “CalEEMod East Brawley – Paving V02.xls”

ATTACHMENT F-1

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL "REMARKS"
MODEL "CalEEMod East Brawley – Paving V02.xls"

"Remarks" for East Brawley Geothermal CalEEMod Models

"Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this document replaces the "remarks" section of the referenced CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When defaults were retained and no further explanation was necessary, no "remarks" are recorded below.

Model Title: East Brawley – PP Paving
CalEEMod East Brawley –Paving V02.xls

Project Characteristics Tab

- **Project Characteristics** –Imperial County; Rural; Operational Year 2012; Utility Company IID

Land Use Tab

- **Land Use** - This model calculates the emissions from equipment and traffic associated with paving. The 'User Defined Industrial' land use subtype represents the East Brawley Geothermal Project. For this model in particular the 'User Defined Industrial' 'Lot Acreage' is the acreage to be paved that is associated with the power plant area. 'Lot Acreage' totals to 4 acres (1,742,000 square feet).

Construction Tabs

- **Construction Phase** - This model calculates the emissions from power plant area paving equipment, and the worker, vendor and haul traffic associated with power plant area paving. All other phases except paving are zeroed out by placing a 1 in 'total days' column. Paving - 10/1/2012 – 10/31/2012
    - Demolition- 9/24/2012 – 9/24/2012 (1 day)
    - Site Preparation- 9/25/2012 – 9/25/2012 (1 day)
    - Grading - 9/26/2012 – 9/26/2012 (1 day)
    - Building Construction - 9/27/2012 – 9/27/2012 (1 day)
    - Architectural Coating- 9/28/2012 – 9/30/2012 (1 day)
- **Off-road Equipment (Coating)** – Coating emissions are calculated in a separate CalEEMod Model. Default coating equipment has been zeroed out.
- **Off-road Equipment (Building)** - Building Construction emissions are calculated in a separate CalEEMod Model. Default building construction equipment has been zeroed out.
- **Off-road Equipment (Demolition)** - No Demolition is required for this project. Default demolition equipment has been zeroed out.
- **Off-road Equipment (Grading)** – Grading equipment emissions are calculated in a separate CalEEMod Model. Default grading equipment has been zeroed out.
- **Off-road Equipment (Paving)** – Paving emissions are calculated in this model. Default paving equipment has been altered to reflect the equipment below.

Equipment Type	Amount	Daily Usage (Hours)
Paver	1	8
Roller	2	8

- **Off-road Equipment (Site Preparation)** – Site prep emissions are calculated in a separate CalEEMod Model. Default site prep equipment has been zeroed out.
- **Trips and VMT** – Only paving trips and VMT emissions are calculated in this model. Power plant area paving requires 8 worker and 20 haul trips/day.
- **On-road Fugitive Dust** – Only paving on-road off-site fugitive dust emissions are calculated in this model. Traffic is expected to access the power plant project area via State Highway 111 to Shank Road, and then to Best Road (all paved roads). No unpaved roads would be traveled by traffic accessing the power plant project area.

  - CalEEMod default worker trip length= 10.2 miles
    - % Paved Worker = 1-(0 miles unpaved roads to Project / 10.2 miles)=100% paved
  - CalEEMod default vendor trip length= 11.9 miles
    - % Paved Vendor= 1-(0 miles unpaved roads to Project / 11.9 miles)=100% paved
  - CalEEMod default haul trip length= 20 miles
    - % Paved Haul= 1-(0 miles unpaved roads to Project / 20 miles)=100% paved
- **Demolition** - No Demolition for this project.
- **Dust from Material Movement** - Grading PM emissions are calculated in a separate CalEEMod model. Site Prep PM emissions are calculated in a separate CalEEMod Model.
- **Architectural Coating** - Coating emissions are calculated in a separate CalEEMod Model. Default coating VOC g/l has been zeroed out.

Operational Tabs

- **Vehicle Trips** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Road Dust** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Woodstoves** - Operations – Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Consumer Products** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Area Coatin**g - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Landscape Equipment** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Energy Use** - Operations – Energy Use emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Water And Wastewater** - Operations - Water and Wastewater emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Solid Waste** - Operations - Solid Waste emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)

Vegetation Tabs

- **Land Use Change –**
- **Sequestration –**

Mitigation Tabs

- **Construction Off-road Equipment Mitigation** - All equipment is Tier 2
- **Mobile Land Use Mitigation** –
- **Mobile Commute Mitigation** –
- **Area Mitigation** –
- **Energy Mitigation** –
- **Water Mitigation** –
- **Waste Mitigation** -

ATTACHMENT F-2

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - SUMMER
MODEL “CalEEMod East Brawley – Paving V02.xls”

East Brawley - PP Paving

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Parking Lot	174.2	1000sqft

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Trips and VMT - See "Remarks" Summary

On-road Fugitive Dust - See "Remarks" Summary

Grading -

Architectural Coating - See "Remarks" Summary

Vehicle Trips - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Road Dust - See "Remarks" Summary

Woodstoves - See "Remarks" Summary

Consumer Products - See "Remarks" Summary

Area Coating - See "Remarks" Summary

Landscape Equipment - See "Remarks" Summary

Energy Use - See "Remarks" Summary

Water And Wastewater - See "Remarks" Summary

Solid Waste - See "Remarks" Summary

Land Use Change - See "Remarks" Summary

Sequestration - See "Remarks" Summary

Construction Off-road Equipment Mitigation - See "Remarks" Summary

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	3.47	18.21	11.92	0.02	0.57	1.56	2.12	0.01	1.56	1.56	0.00	1,639.23	0.00	0.27	0.00	1,644.80
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	8.24	13.51	11.03	0.02	0.57	0.81	1.38	0.01	0.81	0.82	0.00	1,639.23	0.00	0.27	0.00	1,644.80
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**4.17**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**4.17**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.85	17.59	10.62	0.02		1.54	1.54		1.54	1.54		1,494.67		0.26		1,500.05
Paving	0.46					0.00	0.00		0.00	0.00						0.00
Total	**3.31**	**17.59**	**10.62**	**0.02**		**1.54**	**1.54**		**1.54**	**1.54**		**1,494.67**		**0.26**		**1,500.05**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.04	0.51	0.19	0.00	0.47	0.02	0.49	0.00	0.02	0.02		73.68		0.00		73.72
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.11	1.11	0.00	0.10	0.00	0.10	0.00	0.00	0.01		70.88		0.01		71.04
Total	**0.16**	**0.62**	**1.30**	**0.00**	**0.57**	**0.02**	**0.59**	**0.00**	**0.02**	**0.03**		**144.56**		**0.01**		**144.76**

3.7 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.63	12.89	9.73	0.02		0.79	0.79		0.79	0.79	0.00	1,494.67		0.26		1,500.05
Paving	0.46					0.00	0.00		0.00	0.00						0.00
Total	**8.09**	**12.89**	**9.73**	**0.02**		**0.79**	**0.79**		**0.79**	**0.79**	**0.00**	**1,494.67**		**0.26**		**1,500.05**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.04	0.51	0.19	0.00	0.47	0.02	0.49	0.00	0.02	0.02		73.68		0.00		73.72
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.12	0.11	1.11	0.00	0.10	0.00	0.10	0.00	0.00	0.01		70.88		0.01		71.04
Total	**0.16**	**0.62**	**1.30**	**0.00**	**0.57**	**0.02**	**0.59**	**0.00**	**0.02**	**0.03**		**144.56**		**0.01**		**144.76**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Parking Lot	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
Parking Lot	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
Parking Lot	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	4.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.44					0.00	0.00		0.00	0.00						0.00
Consumer Products	3.73					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**4.17**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.44					0.00	0.00		0.00	0.00						0.00
Consumer Products	3.73					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**4.17**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT F-3

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - WINTER
MODEL “CalEEMod East Brawley – Paving V02.xls”

East Brawley - PP Paving

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Parking Lot	174.2	1000sqft

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Trips and VMT - See "Remarks" Summary

On-road Fugitive Dust - See "Remarks" Summary

Grading -

Architectural Coating - See "Remarks" Summary

Vehicle Trips - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Road Dust - See "Remarks" Summary

Woodstoves - See "Remarks" Summary

Consumer Products - See "Remarks" Summary

Area Coating - See "Remarks" Summary

Landscape Equipment - See "Remarks" Summary

Energy Use - See "Remarks" Summary

Water And Wastewater - See "Remarks" Summary

Solid Waste - See "Remarks" Summary

Land Use Change - See "Remarks" Summary

Sequestration - See "Remarks" Summary

Construction Off-road Equipment Mitigation - See "Remarks" Summary

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	3.45	18.22	11.76	0.02	0.57	1.56	2.12	0.01	1.56	1.56	0.00	1,634.95	0.00	0.27	0.00	1,640.52
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	8.22	13.52	10.86	0.02	0.57	0.81	1.38	0.01	0.81	0.82	0.00	1,634.95	0.00	0.27	0.00	1,640.52
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**4.17**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	4.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**4.17**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.85	17.59	10.62	0.02		1.54	1.54		1.54	1.54		1,494.67		0.26		1,500.05
Paving	0.46					0.00	0.00		0.00	0.00						0.00
Total	**3.31**	**17.59**	**10.62**	**0.02**		**1.54**	**1.54**		**1.54**	**1.54**		**1,494.67**		**0.26**		**1,500.05**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.04	0.52	0.21	0.00	0.47	0.02	0.49	0.00	0.02	0.02		73.18		0.00		73.22
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.10	0.11	0.93	0.00	0.10	0.00	0.10	0.00	0.00	0.01		67.10		0.01		67.25
Total	**0.14**	**0.63**	**1.14**	**0.00**	**0.57**	**0.02**	**0.59**	**0.00**	**0.02**	**0.03**		**140.28**		**0.01**		**140.47**

3.7 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	7.63	12.89	9.73	0.02		0.79	0.79		0.79	0.79	0.00	1,494.67		0.26		1,500.05
Paving	0.46					0.00	0.00		0.00	0.00						0.00
Total	**8.09**	**12.89**	**9.73**	**0.02**		**0.79**	**0.79**		**0.79**	**0.79**	**0.00**	**1,494.67**		**0.26**		**1,500.05**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.04	0.52	0.21	0.00	0.47	0.02	0.49	0.00	0.02	0.02		73.18		0.00		73.22
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.10	0.11	0.93	0.00	0.10	0.00	0.10	0.00	0.00	0.01		67.10		0.01		67.25
Total	**0.14**	**0.63**	**1.14**	**0.00**	**0.57**	**0.02**	**0.59**	**0.00**	**0.02**	**0.03**		**140.28**		**0.01**		**140.47**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Parking Lot	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
Parking Lot	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
Parking Lot	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	4.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.44					0.00	0.00		0.00	0.00						0.00
Consumer Products	3.73					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**4.17**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.44					0.00	0.00		0.00	0.00						0.00
Consumer Products	3.73					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**4.17**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT G

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “CalEEMod East Brawley – WWTF Site Preparation V02.xls”

ATTACHMENT G-1

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL "REMARKS"
MODEL "CalEEMod East Brawley – WWTF Site Preparation V02.xls"

"Remarks" for East Brawley Geothermal CalEEMod Models

"Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this document replaces the "remarks" section of the referenced CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When defaults were retained and no further explanation was necessary, no "remarks" are recorded below.

Model Title: East Brawley – WWTF Site Prep
CalEEMod East Brawley – WWTF Site Preparation V02.xls

Project Characteristics Tab

- **Project Characteristics** –Imperial County; Rural; Operational Year 2012; Utility Company IID

Land Use Tab

- **Land Use** - This model calculates the emissions from equipment and traffic associated with site preparation. The 'User Defined Industrial' land use subtype represents the East Brawley Geothermal Project. For this model in particular the 'User Defined Industrial' 'Lot Acreage' is the acreage to be site prepped that is associated with the Waste Water Treatment Facility (WWTF). 'Lot Acreage' totals to 3 acres.

Construction Tabs

- **Construction Phase** - This model calculates the emissions from WWTF area site preparation fugitive dust, WWTF area site preparation equipment, and the worker, vendor and haul traffic associated with the site preparation of the WWTF area. All other phases except site preparation are zeroed out by placing a 1 in 'total days' column. Site Preparation- 7/1/2012 – 7/3/2012
    - Demolition- 6/25/2011 – 6/25/2011 (1 day)
    - Grading- 6/26/2011 – 6/26/2011 (1 day)
    - Building Construction- 6/27/2011 – 6/27/2011 (1 day)
    - Paving- 6/28/2011 – 6/28/2011 (1 day)
    - Architectural Coating- 6/29/2011 – 6/31/2011 (1 day)
- **Off-road Equipment (Coating)** – No coating is required for the WWTF area. Default coating equipment has been zeroed out.
- **Off-road Equipment (Building)** - Building Construction emissions are calculated in a separate CalEEMod Model. Default building construction equipment has been zeroed out.
- **Off-road Equipment (Demolition)** - No Demolition is required for this project. Default demolition equipment has been zeroed out.
- **Off-road Equipment (Grading)** – Grading emissions are calculated in a separate CalEEMod Model. Default grading equipment has been zeroed out.
- **Off-road Equipment (Paving)** – No paving is required for the WWTF area. Default paving equipment has been zeroed out.
- **Off-road Equipment (Site Preparation)** – WWTF area site preparation equipment emissions are calculated in this model. Default equipment is altered to reflect the equipment below. The off-highway truck was added to represent the on-site water truck (changed to 300HP from default HP).

Equipment Type	Amount	Daily Usage (Hours)
Graders	1	8
Off Highway Truck	1	8
Scraper	1	8
Tractors/Loaders/Backhoes	1	7

- **Trips and VMT** – Only site preparation trips and VMT emissions are calculated in this model. WWTF area site preparation requires 6 worker trips/day.
- **On-road Fugitive Dust** – Only WWTF site preparation on-road off-site fugitive dust emissions are calculated in this model. Traffic is expected to access the WWTF area via State Highway 111 to Shank Road and to Best Road (all paved roads). No unpaved roads would be traveled by traffic accessing the WWTF area.
    - CalEEMod default worker trip length= 10.2 miles
        - % Paved Worker = 1-(0 miles unpaved roads to Project / 10.2 miles)=100% paved
    - CalEEMod default vendor trip length= 11.9 miles
        - % Paved Vendor= 1-(0 miles unpaved roads to Project / 11.9 miles)=100% paved
    - CalEEMod default haul trip length= 20 miles
        - % Paved Haul= 1-(0 miles unpaved roads to Project / 20 miles)=100% paved
- **Demolition** - No Demolition for this project.
- **Dust from Material Movement** - WWTF area site preparation fugitive dust emissions are calculated in this model. The amount of acres to be site prepped is 3 acres. These 3 acres will require up to 4 passes, which makes the 'total acres disturbed' 12 acres. Grading PM emissions are calculated in a separate CalEEMod Model.
- **Architectural Coating** - No coating is required for the WWTF area. Default coating VOC g/l has been zeroed out.

Operational Tabs

- **Vehicle Trips** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Road Dust** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Woodstoves** - Operations – Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Consumer Products** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Area Coating** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Landscape Equipment** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Energy Use** - Operations – Energy Use emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Water And Wastewater** - Operations - Water and Wastewater emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Solid Waste** - Operations - Solid Waste emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)

Vegetation Tabs

- **Land Use Change –**
- **Sequestration –**

Mitigation Tabs

- **Construction Off-road Equipment Mitigation** - On-site watering will occur 3 times a day; All equipment is Tier 2
- **Mobile Land Use Mitigation** –
- **Mobile Commute Mitigation** –
- **Area Mitigation** –
- **Energy Mitigation** –
- **Water Mitigation** –
- **Waste Mitigation** -

ATTACHMENT G-2

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - SUMMER
MODEL “CalEEMod East Brawley – WWTF Site Preparation V02.xls”

East Brawley - WWTF Site Prep

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	3	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	5.94	49.36	23.76	0.05	6.44	2.24	8.68	0.00	2.24	2.25	0.00	5,683.30	0.00	0.53	0.00	5,694.45
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	20.59	42.31	29.20	0.05	2.56	1.71	4.26	0.00	1.71	1.71	0.00	5,683.30	0.00	0.53	0.00	5,694.45
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.36	0.00	6.36	0.00	0.00	0.00						0.00
Off-Road	5.85	49.28	22.93	0.05		2.24	2.24		2.24	2.24		5,630.14		0.53		5,641.17
Total	**5.85**	**49.28**	**22.93**	**0.05**	**6.36**	**2.24**	**8.60**	**0.00**	**2.24**	**2.24**		**5,630.14**		**0.53**		**5,641.17**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.09	0.08	0.83	0.00	0.07	0.00	0.08	0.00	0.00	0.00		53.16		0.01		53.28
Total	**0.09**	**0.08**	**0.83**	**0.00**	**0.07**	**0.00**	**0.08**	**0.00**	**0.00**	**0.00**		**53.16**		**0.01**		**53.28**

3.7 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.48	0.00	2.48	0.00	0.00	0.00						0.00
Off-Road	20.50	42.23	28.37	0.05		1.70	1.70		1.70	1.70	0.00	5,630.14		0.53		5,641.17
Total	**20.50**	**42.23**	**28.37**	**0.05**	**2.48**	**1.70**	**4.18**	**0.00**	**1.70**	**1.70**	**0.00**	**5,630.14**		**0.53**		**5,641.17**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.09	0.08	0.83	0.00	0.07	0.00	0.08	0.00	0.00	0.00		53.16		0.01		53.28
Total	**0.09**	**0.08**	**0.83**	**0.00**	**0.07**	**0.00**	**0.08**	**0.00**	**0.00**	**0.00**		**53.16**		**0.01**		**53.28**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT G-3

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - WINTER
MODEL “CalEEMod East Brawley – WWTF Site Preparation V02.xls”

East Brawley - WWTF Site Prep

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	3	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	5.93	49.36	23.62	0.05	6.44	2.24	8.68	0.00	2.24	2.25	0.00	5,680.47	0.00	0.53	0.00	5,691.61
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	20.57	42.31	29.07	0.05	2.56	1.71	4.26	0.00	1.71	1.71	0.00	5,680.47	0.00	0.53	0.00	5,691.61
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.36	0.00	6.36	0.00	0.00	0.00						0.00
Off-Road	5.85	49.28	22.93	0.05		2.24	2.24		2.24	2.24		5,630.14		0.53		5,641.17
Total	**5.85**	**49.28**	**22.93**	**0.05**	**6.36**	**2.24**	**8.60**	**0.00**	**2.24**	**2.24**		**5,630.14**		**0.53**		**5,641.17**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.07	0.08	0.70	0.00	0.07	0.00	0.08	0.00	0.00	0.00		50.32		0.01		50.44
Total	**0.07**	**0.08**	**0.70**	**0.00**	**0.07**	**0.00**	**0.08**	**0.00**	**0.00**	**0.00**		**50.32**		**0.01**		**50.44**

3.7 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.48	0.00	2.48	0.00	0.00	0.00						0.00
Off-Road	20.50	42.23	28.37	0.05		1.70	1.70		1.70	1.70	0.00	5,630.14		0.53		5,641.17
Total	**20.50**	**42.23**	**28.37**	**0.05**	**2.48**	**1.70**	**4.18**	**0.00**	**1.70**	**1.70**	**0.00**	**5,630.14**		**0.53**		**5,641.17**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.07	0.08	0.70	0.00	0.07	0.00	0.08	0.00	0.00	0.00		50.32		0.01		50.44
Total	**0.07**	**0.08**	**0.70**	**0.00**	**0.07**	**0.00**	**0.08**	**0.00**	**0.00**	**0.00**		**50.32**		**0.01**		**50.44**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT H

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “CalEEMod East Brawley – WWTF Grading V02.xls”

ATTACHMENT H-1

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL "REMARKS"
MODEL "CalEEMod East Brawley – WWTF Grading V02.xls"

"Remarks" for East Brawley Geothermal CalEEMod Models

"Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this document replaces the "remarks" section of the referenced CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When defaults were retained and no further explanation was necessary, no "remarks" are recorded below.

Model Title: East Brawley – WWTF Grading
CalEEMod East Brawley – WWTF Grading V02.xls

Project Characteristics Tab

- **Project Characteristics** –Imperial County; Rural; Operational Year 2012; Utility Company IID

Land Use Tab

- **Land Use** - This model calculates the emissions from equipment and traffic associated with grading. The 'User Defined Industrial' land use subtype represents the East Brawley Geothermal Project. For this model in particular the 'User Defined Industrial' 'Lot Acreage' is the acreage to be graded that is associated with the Waste Water Treatment Facility (WWTF). 'Lot Acreage' totals to 3 acres.

Construction Tabs

- **Construction Phase** - This model calculates the emissions from WWTF area grading fugitive dust, power WWTF area grading equipment, and the worker, vendor and haul traffic associated with grading of the WWTF area. All other phases except grading are zeroed out by placing a 1 in 'total days' column.
  Grading- 7/4/2012 – 7/10/2012
  - Demolition- 6/27/2012 – 6/27/2012 (1 day)
  - Site Preparation- 6/28/2012 – 6/28/2012 (1 day)
  - Building Construction- 6/29/2012 – 6/29/2012 (1 day)
  - Paving- 6/30/2012 – 7/2/2012 (1 day)
  - Architectural Coating- 7/3/2012 – 7/3/2012 (1 day)
- **Off-road Equipment (Coating)** – No coating is required for the WWTF area. Default coating equipment has been zeroed out.
- **Off-road Equipment (Building)** - Building Construction emissions are calculated in a separate CalEEMod Model. Default building construction equipment has been zeroed out.
- **Off-road Equipment (Demolition)** - No Demolition is required for this project. Default demolition equipment has been zeroed out.
- **Off-road Equipment (Grading)** – WWTF area grading equipment emissions are calculated in this model. Default equipment is altered to reflect the equipment below. The off-highway truck was added to represent the on-site water truck (changed to 300HP from default HP).

Equipment Type	Amount	Daily Usage (Hours)
Graders	1	8
Off Highway Truck	1	8
Rubber Tired Dozers	1	8
Tractors/Loaders/Backhoes	2	7

- **Off-road Equipment (Paving)** – No paving is required for the WWTF area. Default paving equipment has been zeroed out.
- **Off-road Equipment (Site Preparation)** – Site prep emissions are calculated in a separate CalEEMod Model. Default site prep equipment has been zeroed out.
- **Trips and VMT** – Only grading trips and VMT emissions are calculated in this model. WWTF grading requires 6 worker trips/day.

- **On-road Fugitive Dust** – Only WWTF grading on-road off-site fugitive dust emissions are calculated in this model. Traffic is expected to access the WWTF area via State Highway 111 to Shank Road and then to Best Road (all paved roads). No unpaved roads would be traveled by traffic accessing the WWTF area.
    - CalEEMod default worker trip length= 10.2 miles
        - % Paved Worker = 1-(0 miles unpaved roads to Project / 10.2 miles)=100% paved
    - CalEEMod default vendor trip length= 11.9 miles
        - % Paved Vendor= 1-(0 miles unpaved roads to Project / 11.9 miles)=100% paved
    - CalEEMod default haul trip length= 20 miles
        - % Paved Haul= 1-(0 miles unpaved roads to Project / 20 miles)=100% paved
- **Demolition** - No Demolition for this project.
- **Dust from Material Movement** - WWTF area grading fugitive dust emissions are calculated in this model. The amount of acres to be graded is 3 acres. These 3 acres will require up to 4 passes, which makes the 'total acres disturbed' 12 acres. Site Prep PM emissions are calculated in a separate CalEEMod Model.
- **Architectural Coating** - No coating is required for the WWTF area. Default coating VOC g/l has been zeroed out.

Operational Tabs

- **Vehicle Trips** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Road Dust** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Woodstoves** - Operations – Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Consumer Products** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Area Coating** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Landscape Equipment** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Energy Use** - Operations – Energy Use emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Water And Wastewater** - Operations - Water and Wastewater emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Solid Waste** - Operations - Solid Waste emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)

Vegetation Tabs

- **Land Use Change –**
- **Sequestration –**

Mitigation Tabs

- **Construction Off-road Equipment Mitigation** - On-site watering will occur 3 times a day; All equipment is Tier 2
- **Mobile Land Use Mitigation** –
- **Mobile Commute Mitigation** –
- **Area Mitigation** –

- **Energy Mitigation** –
- **Water Mitigation** –
- **Waste Mitigation** -

ATTACHMENT H-2

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - SUMMER
MODEL “CalEEMod East Brawley – WWTF Grading V02.xls”

East Brawley - WWTF Grading

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	3	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	6.48	51.72	28.02	0.05	8.64	2.56	11.20	3.31	2.56	5.87	0.00	5,593.11	0.00	0.58	0.00	5,605.24
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	20.68	42.09	29.49	0.05	3.42	1.78	5.19	1.29	1.78	3.07	0.00	5,593.11	0.00	0.58	0.00	5,605.24
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.57	0.00	8.57	3.31	0.00	3.31						0.00
Off-Road	6.39	51.64	27.19	0.05		2.56	2.56		2.56	2.56		5,539.96		0.57		5,551.96
Total	**6.39**	**51.64**	**27.19**	**0.05**	**8.57**	**2.56**	**11.13**	**3.31**	**2.56**	**5.87**		**5,539.96**		**0.57**		**5,551.96**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.09	0.08	0.83	0.00	0.07	0.00	0.08	0.00	0.00	0.00		53.16		0.01		53.28
Total	**0.09**	**0.08**	**0.83**	**0.00**	**0.07**	**0.00**	**0.08**	**0.00**	**0.00**	**0.00**		**53.16**		**0.01**		**53.28**

3.7 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.34	0.00	3.34	1.29	0.00	1.29						0.00
Off-Road	20.60	42.01	28.66	0.05		1.77	1.77		1.77	1.77	0.00	5,539.96		0.57		5,551.96
Total	**20.60**	**42.01**	**28.66**	**0.05**	**3.34**	**1.77**	**5.11**	**1.29**	**1.77**	**3.06**	**0.00**	**5,539.96**		**0.57**		**5,551.96**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.09	0.08	0.83	0.00	0.07	0.00	0.08	0.00	0.00	0.00		53.16		0.01		53.28
Total	**0.09**	**0.08**	**0.83**	**0.00**	**0.07**	**0.00**	**0.08**	**0.00**	**0.00**	**0.00**		**53.16**		**0.01**		**53.28**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT H-3

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - WINTER
MODEL “CalEEMod East Brawley – WWTF Grading V02.xls”

East Brawley - WWTF Grading

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	3	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	6.46	51.72	27.88	0.05	8.64	2.56	11.20	3.31	2.56	5.87	0.00	5,590.28	0.00	0.58	0.00	5,602.40
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	20.67	42.09	29.36	0.05	3.42	1.78	5.19	1.29	1.78	3.07	0.00	5,590.28	0.00	0.58	0.00	5,602.40
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.57	0.00	8.57	3.31	0.00	3.31						0.00
Off-Road	6.39	51.64	27.19	0.05		2.56	2.56		2.56	2.56		5,539.96		0.57		5,551.96
Total	**6.39**	**51.64**	**27.19**	**0.05**	**8.57**	**2.56**	**11.13**	**3.31**	**2.56**	**5.87**		**5,539.96**		**0.57**		**5,551.96**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.07	0.08	0.70	0.00	0.07	0.00	0.08	0.00	0.00	0.00		50.32		0.01		50.44
Total	**0.07**	**0.08**	**0.70**	**0.00**	**0.07**	**0.00**	**0.08**	**0.00**	**0.00**	**0.00**		**50.32**		**0.01**		**50.44**

3.7 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.34	0.00	3.34	1.29	0.00	1.29						0.00
Off-Road	20.60	42.01	28.66	0.05		1.77	1.77		1.77	1.77	0.00	5,539.96		0.57		5,551.96
Total	**20.60**	**42.01**	**28.66**	**0.05**	**3.34**	**1.77**	**5.11**	**1.29**	**1.77**	**3.06**	**0.00**	**5,539.96**		**0.57**		**5,551.96**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.07	0.08	0.70	0.00	0.07	0.00	0.08	0.00	0.00	0.00		50.32		0.01		50.44
Total	**0.07**	**0.08**	**0.70**	**0.00**	**0.07**	**0.00**	**0.08**	**0.00**	**0.00**	**0.00**		**50.32**		**0.01**		**50.44**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT I

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “CalEEMod East Brawley – WWTF Construction V02.xls”

ATTACHMENT I-1

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “REMARKS”
MODEL “CalEEMod East Brawley – WWTF Construction V02.xls”

"Remarks" for East Brawley Geothermal CalEEMod Models

"Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this document replaces the "remarks" section of the referenced CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When defaults were retained and no further explanation was necessary, no "remarks" are recorded below.

Model Title: East Brawley – WWTF Construction
CalEEMod East Brawley – WWTF Construction V02.xls

Project Characteristics Tab

- **Project Characteristics** –Imperial County; Rural; Operational Year 2012; Utility Company IID

Land Use Tab

- **Land Use** - This model calculates the emissions from equipment and traffic associated with the Waste Water Treatment Facility (WWTF) construction. The 'User Defined Industrial' land use subtype represents the East Brawley Geothermal Project. For this model in particular the 'User Defined Industrial' 'Lot Acreage' is the acreage of the WWTF area. 'Lot Acreage' totals to 3 acres.

Construction Tabs

- **Construction Phase** - This model calculates the emissions from the WWTF construction equipment, and the worker, vendor and haul traffic associated with the WWTF construction. All other phases except building construction are zeroed out by placing a 1 in 'total days' column.
  Building Construction - 7/11/2012 – 7/31/2012
  - Demolition- 7/4/2012 – 7/4/2012 (1 day)
  - Site Preparation - 7/5/2012 – 7/5/2012 (1 day)
  - Grading - 7/6/2012 – 7/6/2012 (1 day)
  - Paving- 7/7/2012 – 7/9/2012 (1 day)
  - Architectural Coating- 7/10/2012 – 7/10/2012 (1 day)
- **Off-road Equipment (Coating)** – No coating is required for the WWTF. Default coating equipment has been zeroed out.
- **Off-road Equipment (Building)** - Building Construction (WWTF) emissions are calculated in this model. Default building construction equipment is altered to reflect the equipment below.

Equipment Type	Amount	Daily Usage (Hours)
Crane	1	7
Forklift	1	8
Generator Set	1	8
Tractors/Loaders/Backhoes	1	7
Welder	1	8

- **Off-road Equipment (Demolition)** - No Demolition is required for this project. Default demolition equipment has been zeroed out.
- **Off-road Equipment (Grading)** – Grading emissions are calculated in a separate CalEEMod Model. Default grading equipment has been zeroed out.
- **Off-road Equipment (Paving)** – No paving is required for the WWTF. Default paving equipment has been zeroed out.
- **Off-road Equipment (Site Preparation)** – Site preparation emissions are calculated in a separate CalEEMod Model. Default site preparation equipment is has been zeroed out.
- **Trips and VMT** – Only WWTF construction trips and VMT emissions are calculated in this model. WWTF construction requires 12 worker trips/day.

- **On-road Fugitive Dust** – Only WWTF construction on-road off-site fugitive dust emissions are calculated in this model. Traffic is expected to access the WWTF area via State Highway 111 to Shank Road, and then to Best Road (all paved roads). No unpaved roads would be traveled by traffic accessing the WWTF area.
    - CalEEMod default worker trip length= 10.2 miles
        - % Paved Worker = 1-(0 miles unpaved roads to Project / 10.2 miles)=100% paved
    - CalEEMod default vendor trip length= 11.9 miles
        - % Paved Vendor= 1-(0 miles unpaved roads to Project / 11.9 miles)=100% paved
    - CalEEMod default haul trip length= 20 miles
        - % Paved Haul= 1-(0 miles unpaved roads to Project / 20 miles)=100% paved
- **Demolition** - No Demolition for this project.
- **Dust from Material Movement** – Site preparation PM emissions are calculated in a separate CalEEMod Model. Grading PM emissions are calculated in a separate CalEEMod Model.
- **Architectural Coating** - No coating is required for the WWTF. Default coating VOC g/l has been zeroed out.

Operational Tabs

- **Vehicle Trips** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Road Dust** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Woodstoves** - Operations – Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Consumer Products** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Area Coating** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Landscape Equipment** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Energy Use** - Operations – Energy Use emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Water And Wastewater** - Operations - Water and Wastewater emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Solid Waste** - Operations - Solid Waste emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)

Vegetation Tabs

- **Land Use Change –**
- **Sequestration –**

Mitigation Tabs

- **Construction Off-road Equipment Mitigation** - All equipment is Tier 2
- **Mobile Land Use Mitigation** –
- **Mobile Commute Mitigation** –
- **Area Mitigation** –
- **Energy Mitigation** –
- **Water Mitigation** –
- **Waste Mitigation** -

ATTACHMENT I-2

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - SUMMER
MODEL “CalEEMod East Brawley – WWTF Construction V02.xls”

East Brawley - WWTF Construction

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	3	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	3.75	23.28	15.15	0.03	0.15	1.50	1.65	0.01	1.50	1.51	0.00	2,528.81	0.00	0.33	0.00	2,535.81
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	9.86	19.76	16.06	0.03	0.15	1.07	1.22	0.01	1.07	1.07	0.00	2,528.81	0.00	0.33	0.00	2,535.81
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.58	23.11	13.49	0.03		1.50	1.50		1.50	1.50		2,422.50		0.32		2,429.25
Total	**3.58**	**23.11**	**13.49**	**0.03**		**1.50**	**1.50**		**1.50**	**1.50**		**2,422.50**		**0.32**		**2,429.25**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.17	0.17	1.66	0.00	0.15	0.00	0.15	0.01	0.00	0.01		106.31		0.01		106.56
Total	**0.17**	**0.17**	**1.66**	**0.00**	**0.15**	**0.00**	**0.15**	**0.01**	**0.00**	**0.01**		**106.31**		**0.01**		**106.56**

3.7 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	9.68	19.59	14.40	0.03		1.06	1.06		1.06	1.06	0.00	2,422.50		0.32		2,429.25
Total	**9.68**	**19.59**	**14.40**	**0.03**		**1.06**	**1.06**		**1.06**	**1.06**	**0.00**	**2,422.50**		**0.32**		**2,429.25**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.17	0.17	1.66	0.00	0.15	0.00	0.15	0.01	0.00	0.01		106.31		0.01		106.56
Total	**0.17**	**0.17**	**1.66**	**0.00**	**0.15**	**0.00**	**0.15**	**0.01**	**0.00**	**0.01**		**106.31**		**0.01**		**106.56**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT I-3

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - WINTER
MODEL “CalEEMod East Brawley – WWTF Construction V02.xls”

East Brawley - WWTF Construction

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	3	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	3.72	23.28	14.88	0.03	0.15	1.50	1.65	0.01	1.50	1.51	0.00	2,523.14	0.00	0.33	0.00	2,530.13
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	9.83	19.75	15.79	0.03	0.15	1.07	1.22	0.01	1.07	1.07	0.00	2,523.14	0.00	0.33	0.00	2,530.13
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.58	23.11	13.49	0.03		1.50	1.50		1.50	1.50		2,422.50		0.32		2,429.25
Total	**3.58**	**23.11**	**13.49**	**0.03**		**1.50**	**1.50**		**1.50**	**1.50**		**2,422.50**		**0.32**		**2,429.25**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.14	0.17	1.39	0.00	0.15	0.00	0.15	0.01	0.00	0.01		100.65		0.01		100.88
Total	**0.14**	**0.17**	**1.39**	**0.00**	**0.15**	**0.00**	**0.15**	**0.01**	**0.00**	**0.01**		**100.65**		**0.01**		**100.88**

3.7 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	9.68	19.59	14.40	0.03		1.06	1.06		1.06	1.06	0.00	2,422.50		0.32		2,429.25
Total	**9.68**	**19.59**	**14.40**	**0.03**		**1.06**	**1.06**		**1.06**	**1.06**	**0.00**	**2,422.50**		**0.32**		**2,429.25**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.14	0.17	1.39	0.00	0.15	0.00	0.15	0.01	0.00	0.01		100.65		0.01		100.88
Total	**0.14**	**0.17**	**1.39**	**0.00**	**0.15**	**0.00**	**0.15**	**0.01**	**0.00**	**0.01**		**100.65**		**0.01**		**100.88**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT J

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “CalEEMod East Brawley – Well Pad Site Preparation V03.xls”

ATTACHMENT J-1

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL "REMARKS"
MODEL "CalEEMod East Brawley – Well Pad Site Preparation V03.xls"

"Remarks" for East Brawley Geothermal CalEEMod Models

"Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this document replaces the "remarks" section of the referenced CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When defaults were retained and no further explanation was necessary, no "remarks" are recorded below.

Model Title: East Brawley – Well Pad Site Prep
CalEEMod East Brawley – Well Pad Site Preparation V03.xls

Project Characteristics Tab

- **Project Characteristics** –Imperial County; Rural; Operational Year 2012; Utility Company IID

Land Use Tab

- **Land Use** - This model calculates the emissions from equipment and traffic associated with well pad site preparation. The 'User Defined Industrial' land use subtype represents the East Brawley Geothermal Project. For this model in particular the 'User Defined Industrial' 'Lot Acreage' is the acreage to be site prepped that is associated with one well pad. 'Lot Acreage' totals to 3 acres.

Construction Tabs

- **Construction Phase** - This model calculates the emissions from well pad site preparation fugitive dust, well pad site preparation equipment, and the worker, vendor and haul traffic associated with the site preparation of one well pad. All other phases except site preparation are zeroed out by placing a 1 in 'total days' column. Site Preparation- 1/1/2012 – 1/4/2012
    - Demolition- 12/26/2011 – 12/26/2011 (1 day)
    - Grading- 12/27/2011 – 12/27/2011 (1 day)
    - Building Construction- 12/28/2011 – 12/28/2011 (1 day)
    - Paving- 12/29/2011 – 12/29/2011 (1 day)
    - Architectural Coating- 12/30/2011 – 12/31/2011 (1 day)
- **Off-road Equipment (Coating)** – No coating is required for the well pads. Default coating equipment has been zeroed out.
- **Off-road Equipment (Building)** - Building Construction emissions are calculated in a separate CalEEMod Model. Default building construction equipment has been zeroed out.
- **Off-road Equipment (Demolition)** - No Demolition is required for this project. Default demolition equipment has been zeroed out.
- **Off-road Equipment (Grading)** – Grading emissions are calculated in a separate CalEEMod Model. Default grading equipment has been zeroed out.
- **Off-road Equipment (Paving)** – No paving is required for the well pads. Default paving equipment has been zeroed out.
- **Off-road Equipment (Site Preparation)** – Well pad site preparation equipment emissions are calculated in this model. Default equipment is altered to reflect the equipment below.

Equipment Type	Amount	Daily Usage (Hours)
Graders	1	8
Off Highway Truck	1	8

- **Trips and VMT** – Only well pad site preparation trips and VMT emissions are calculated in this model. Well pad site preparation requires 6 worker trips/day.
- **On-road Fugitive Dust** – Only well pad site preparation on-road off-site fugitive dust emissions are calculated in this model. Traffic is expected to access the well pads via approximately 1.25 miles of unpaved roads.

  - CalEEMod default worker trip length= 10.2 miles
    - % Paved Worker = 1-(1.25 miles unpaved roads to Project / 10.2 miles)=87.7% paved
  - CalEEMod default vendor trip length= 11.9 miles
    - % Paved Vendor= 1-(1.25 miles unpaved roads to Project / 11.9 miles)=89.5% paved
  - CalEEMod default haul trip length= 20 miles
    - % Paved Haul= 1-(1.25 miles unpaved roads to Project / 20 miles)=93.8% paved
- **Demolition** - No Demolition for this project.
- **Dust from Material Movement** - Well pad site preparation fugitive dust emissions are calculated in this model. The amount of acres to be site prepped is 3 acres. These 3 acres will require up to 4 passes, which makes the 'total acres disturbed' 12 acres. Grading PM emissions are calculated in a separate CalEEMod Model.
- **Architectural Coating** - No coating is required for the well pads. Default coating VOC g/l has been zeroed out.

Operational Tabs

- **Vehicle Trips** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Road Dust** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Woodstoves** - Operations – Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Consumer Products** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Area Coatin**g - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Landscape Equipment** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Energy Use** - Operations – Energy Use emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Water And Wastewater** - Operations - Water and Wastewater emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Solid Waste** - Operations - Solid Waste emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)

Vegetation Tabs

- **Land Use Change –**
- **Sequestration –**

Mitigation Tabs

- **Construction Off-road Equipment Mitigation** - On-site watering will occur 3 times a day; Off-site unpaved road watering will occur 3 times a day (soil stabilizer 61% reduction=watering 3 times daily); All equipment is Tier 2
- **Mobile Land Use Mitigation** –
- **Mobile Commute Mitigation** –
- **Area Mitigation** –
- **Energy Mitigation** –
- **Water Mitigation** –
- **Waste Mitigation** -

ATTACHMENT J-2

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - SUMMER
MODEL “CalEEMod East Brawley – Well Pad Site Preparation V03.xls”

East Brawley - Well Pad Site Prep

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	3	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	3.13	25.15	12.03	0.03	15.39	1.11	16.50	1.11	1.11	2.22	0.00	3,217.44	0.00	0.28	0.00	3,223.28
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	10.59	23.64	17.22	0.03	6.04	0.96	7.00	0.43	0.96	1.39	0.00	3,217.44	0.00	0.28	0.00	3,223.28
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2011

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

3.2 Demolition - 2011

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Grading - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Grading - 2011

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

3.3 Grading - 2011

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2011

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2011

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2011

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

3.5 Paving - 2011

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2011

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2011

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.24	0.00	4.24	0.00	0.00	0.00						0.00
Off-Road	3.05	25.07	11.19	0.03		1.11	1.11		1.11	1.11		3,164.29		0.27		3,170.00
Total	**3.05**	**25.07**	**11.19**	**0.03**	**4.24**	**1.11**	**5.35**	**0.00**	**1.11**	**1.11**		**3,164.29**		**0.27**		**3,170.00**

3.7 Site Preparation - 2012

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.09	0.08	0.83	0.00	11.14	0.00	11.15	1.11	0.00	1.11		53.16		0.01		53.28
Total	**0.09**	**0.08**	**0.83**	**0.00**	**11.14**	**0.00**	**11.15**	**1.11**	**0.00**	**1.11**		**53.16**		**0.01**		**53.28**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.65	0.00	1.65	0.00	0.00	0.00						0.00
Off-Road	10.51	23.56	16.39	0.03		0.96	0.96		0.96	0.96	0.00	3,164.29		0.27		3,170.00
Total	**10.51**	**23.56**	**16.39**	**0.03**	**1.65**	**0.96**	**2.61**	**0.00**	**0.96**	**0.96**	**0.00**	**3,164.29**		**0.27**		**3,170.00**

3.7 Site Preparation - 2012

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.09	0.08	0.83	0.00	4.39	0.00	4.39	0.43	0.00	0.44		53.16		0.01		53.28
Total	**0.09**	**0.08**	**0.83**	**0.00**	**4.39**	**0.00**	**4.39**	**0.43**	**0.00**	**0.44**		**53.16**		**0.01**		**53.28**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT J-3

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - WINTER
MODEL “CalEEMod East Brawley – Well Pad Site Preparation V03.xls”

East Brawley - Well Pad Site Prep

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	3	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	3.12	25.15	11.89	0.03	15.39	1.11	16.50	1.11	1.11	2.22	0.00	3,214.61	0.00	0.28	0.00	3,220.44
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	10.58	23.64	17.09	0.03	6.04	0.96	7.00	0.43	0.96	1.39	0.00	3,214.61	0.00	0.28	0.00	3,220.44
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2011

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

3.2 Demolition - 2011

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Grading - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Grading - 2011

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

3.3 Grading - 2011

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2011

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2011

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2011

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

3.5 Paving - 2011

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2011

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2011

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.24	0.00	4.24	0.00	0.00	0.00						0.00
Off-Road	3.05	25.07	11.19	0.03		1.11	1.11		1.11	1.11		3,164.29		0.27		3,170.00
Total	**3.05**	**25.07**	**11.19**	**0.03**	**4.24**	**1.11**	**5.35**	**0.00**	**1.11**	**1.11**		**3,164.29**		**0.27**		**3,170.00**

3.7 Site Preparation - 2012

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.07	0.08	0.70	0.00	11.14	0.00	11.15	1.11	0.00	1.11		50.32		0.01		50.44
Total	**0.07**	**0.08**	**0.70**	**0.00**	**11.14**	**0.00**	**11.15**	**1.11**	**0.00**	**1.11**		**50.32**		**0.01**		**50.44**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.65	0.00	1.65	0.00	0.00	0.00						0.00
Off-Road	10.51	23.56	16.39	0.03		0.96	0.96		0.96	0.96	0.00	3,164.29		0.27		3,170.00
Total	**10.51**	**23.56**	**16.39**	**0.03**	**1.65**	**0.96**	**2.61**	**0.00**	**0.96**	**0.96**	**0.00**	**3,164.29**		**0.27**		**3,170.00**

3.7 Site Preparation - 2012

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.07	0.08	0.70	0.00	4.39	0.00	4.39	0.43	0.00	0.44		50.32		0.01		50.44
Total	**0.07**	**0.08**	**0.70**	**0.00**	**4.39**	**0.00**	**4.39**	**0.43**	**0.00**	**0.44**		**50.32**		**0.01**		**50.44**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT K

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “CalEEMod East Brawley – Well Pad Grading V03.xls”

ATTACHMENT K-1

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL "REMARKS"
MODEL "CalEEMod East Brawley – Well Pad Grading V03.xls"

"Remarks" for East Brawley Geothermal CalEEMod Models

"Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this document replaces the "remarks" section of the referenced CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When defaults were retained and no further explanation was necessary, no "remarks" are recorded below.

Model Title: East Brawley – Well Pad Grading/Construction
CalEEMod East Brawley – Well Pad Grading V03.xls

Project Characteristics Tab

- **Project Characteristics** –Imperial County; Rural; Operational Year 2012; Utility Company IID

Land Use Tab

- **Land Use** - This model calculates the emissions from equipment and traffic associated with well pad grading. The 'User Defined Industrial' land use subtype represents the East Brawley Geothermal Project. For this model in particular the 'User Defined Industrial' 'Lot Acreage' is the acreage to be graded that is associated with one well pad. 'Lot Acreage' totals to 3 acres.

Construction Tabs

- **Construction Phase** - This model calculates the emissions from well pad grading fugitive dust, well pad grading equipment, and the worker, vendor and haul traffic associated with grading of one well pad. All other phases except grading are zeroed out by placing a 1 in 'total days' column.
  Grading- 1/5/2012 – 1/12/2012
  - Demolition- 12/29/2011 – 12/29/2011 (1 day)
  - Site Preparation- 12/30/2011 – 1/1/2012 (1 day)
  - Building Construction- 1/2/2012 – 1/2/2012 (1 day)
  - Paving- 1/3/2012 – 1/3/2012 (1 day)
  - Architectural Coating- 1/4/2012 – 1/4/2012 (1 day)
- **Off-road Equipment (Coating)** – No coating is required for the well pads. Default coating equipment has been zeroed out.
- **Off-road Equipment (Building)** - Building Construction emissions are calculated in a separate CalEEMod Model. Default building construction equipment has been zeroed out.
- **Off-road Equipment (Demolition)** - No Demolition is required for this project. Default demolition equipment has been zeroed out.
- **Off-road Equipment (Grading)** – Well pad grading equipment emissions are calculated in this model. Default equipment is altered to reflect the equipment below. The off-highway truck was added to represent the on-site water truck (changed to 300HP from default HP).

Equipment Type	Amount	Daily Usage (Hours)
Graders	1	8
Off Highway Truck	1	8
Plate Compactor	1	4
Tractors/Loaders/Backhoes	1	8

- **Off-road Equipment (Paving)** – No paving is required for the well pads. Default paving equipment has been zeroed out.
- **Off-road Equipment (Site Preparation)** – Site prep emissions are calculated in a separate CalEEMod Model. Default site prep equipment has been zeroed out.
- **Trips and VMT** – Only grading trips and VMT emissions are calculated in this model. Well pad grading requires 14 worker and 50 haul truck trips/day.

- **On-road Fugitive Dust** – Only well site grading on-road off-site fugitive dust emissions are calculated in this model. Traffic is expected to access the well pads via approximately 1.25 miles of unpaved roads.
    - CalEEMod default worker trip length= 10.2 miles
        - % Paved Worker = 1-(1.25 miles unpaved roads to Project / 10.2 miles)=87.7% paved
    - CalEEMod default vendor trip length= 11.9 miles
        - % Paved Vendor= 1-(1.25 miles unpaved roads to Project / 11.9 miles)=89.5% paved
    - CalEEMod default haul trip length= 20 miles
        - % Paved Haul= 1-(1.25 miles unpaved roads to Project / 20 miles)=93.8% paved
- **Demolition** - No Demolition for this project.
- **Dust from Material Movement** - Well pad grading fugitive dust emissions are calculated in this model. The amount of acres to be graded is 3 acres. These 3 acres will require up to 4 passes, which makes the 'total acres disturbed' 12 acres. Also, a maximum of 400 cubic yards of soil will be imported to the well pads per day (the 50 haul truck trips are associated with soil importation). Site Prep PM emissions are calculated in a separate CalEEMod Model.
- **Architectural Coating** - No coating is required for the well pads. Default coating VOC g/l has been zeroed out.

Operational Tabs

- **Vehicle Trips** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Road Dust** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Woodstoves** - Operations – Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Consumer Products** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Area Coatin**g - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Landscape Equipment** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Energy Use** - Operations – Energy Use emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Water And Wastewater** - Operations - Water and Wastewater emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Solid Waste** - Operations - Solid Waste emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)

Vegetation Tabs

- **Land Use Change –**
- **Sequestration –**

Mitigation Tabs

- **Construction Off-road Equipment Mitigation** - On-site watering will occur 3 times a day; Off-site unpaved road watering will occur 3 times a day (soil stabilizer 61% reduction=watering 3 times daily); All equipment is Tier 2
- **Mobile Land Use Mitigation** –

- **Mobile Commute Mitigation –**
- **Area Mitigation –**
- **Energy Mitigation –**
- **Water Mitigation –**
- **Waste Mitigation -**

ATTACHMENT K-2

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - SUMMER
MODEL “CalEEMod East Brawley – Well Pad Grading V03.xls”

East Brawley - Well Pad Grading/Construction

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	3	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition -

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	3.88	30.90	16.77	0.04	120.50	1.52	122.02	11.72	1.52	13.23	0.00	3,962.36	0.00	0.33	0.00	3,969.21
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	11.41	28.79	20.73	0.04	47.77	1.23	49.00	4.59	1.23	5.82	0.00	3,962.36	0.00	0.33	0.00	3,969.21
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.13	0.00	2.13	0.00	0.00	0.00						0.00
Off-Road	3.29	25.81	13.01	0.03		1.34	1.34		1.34	1.34		3,132.24		0.29		3,138.42
Total	**3.29**	**25.81**	**13.01**	**0.03**	**2.13**	**1.34**	**3.47**	**0.00**	**1.34**	**1.34**		**3,132.24**		**0.29**		**3,138.42**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.39	4.89	1.82	0.01	92.37	0.17	92.54	9.13	0.17	9.30		706.09		0.02		706.47
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.20	0.20	1.94	0.00	26.00	0.00	26.01	2.59	0.00	2.59		124.03		0.01		124.32
Total	**0.59**	**5.09**	**3.76**	**0.01**	**118.37**	**0.17**	**118.55**	**11.72**	**0.17**	**11.89**		**830.12**		**0.03**		**830.79**

3.7 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.83	0.00	0.83	0.00	0.00	0.00						0.00
Off-Road	10.83	23.70	16.97	0.03		1.05	1.05		1.05	1.05	0.00	3,132.24		0.29		3,138.42
Total	**10.83**	**23.70**	**16.97**	**0.03**	**0.83**	**1.05**	**1.88**	**0.00**	**1.05**	**1.05**	**0.00**	**3,132.24**		**0.29**		**3,138.42**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.39	4.89	1.82	0.01	36.70	0.17	36.87	3.57	0.17	3.74		706.09		0.02		706.47
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.20	0.20	1.94	0.00	10.23	0.00	10.24	1.01	0.00	1.02		124.03		0.01		124.32
Total	**0.59**	**5.09**	**3.76**	**0.01**	**46.93**	**0.17**	**47.11**	**4.58**	**0.17**	**4.76**		**830.12**		**0.03**		**830.79**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT K-3

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - WINTER
MODEL “CalEEMod East Brawley – Well Pad Grading V03.xls”

East Brawley - Well Pad Grading/Construction

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	3	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition -

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	3.85	30.97	16.61	0.04	120.50	1.52	122.02	11.72	1.52	13.24	0.00	3,950.98	0.00	0.33	0.00	3,957.82
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	11.39	28.87	20.57	0.04	47.77	1.23	49.00	4.59	1.23	5.82	0.00	3,950.98	0.00	0.33	0.00	3,957.82
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

3.2 Demolition - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2011

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.13	0.00	2.13	0.00	0.00	0.00						0.00
Off-Road	3.29	25.81	13.01	0.03		1.34	1.34		1.34	1.34		3,132.24		0.29		3,138.42
Total	**3.29**	**25.81**	**13.01**	**0.03**	**2.13**	**1.34**	**3.47**	**0.00**	**1.34**	**1.34**		**3,132.24**		**0.29**		**3,138.42**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.40	4.97	1.98	0.01	92.37	0.17	92.54	9.13	0.17	9.30		701.32		0.02		701.71
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.17	0.19	1.62	0.00	26.00	0.00	26.01	2.59	0.00	2.59		117.42		0.01		117.69
Total	**0.57**	**5.16**	**3.60**	**0.01**	**118.37**	**0.17**	**118.55**	**11.72**	**0.17**	**11.89**		**818.74**		**0.03**		**819.40**

3.7 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.83	0.00	0.83	0.00	0.00	0.00						0.00
Off-Road	10.83	23.70	16.97	0.03		1.05	1.05		1.05	1.05	0.00	3,132.24		0.29		3,138.42
Total	**10.83**	**23.70**	**16.97**	**0.03**	**0.83**	**1.05**	**1.88**	**0.00**	**1.05**	**1.05**	**0.00**	**3,132.24**		**0.29**		**3,138.42**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.40	4.97	1.98	0.01	36.70	0.17	36.88	3.57	0.17	3.75		701.32		0.02		701.71
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.17	0.19	1.62	0.00	10.23	0.00	10.24	1.01	0.00	1.02		117.42		0.01		117.69
Total	**0.57**	**5.16**	**3.60**	**0.01**	**46.93**	**0.17**	**47.12**	**4.58**	**0.17**	**4.77**		**818.74**		**0.03**		**819.40**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT L

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “CalEEMod East Brawley – Drill Rig Assembly, Well Drilling & Testing V03.xls”

ATTACHMENT L-1

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL "REMARKS"
MODEL "CalEEMod East Brawley – Drill Rig Assembly, Well Drilling & Testing V03.xls"

"Remarks" for East Brawley Geothermal CalEEMod Models

"Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this document replaces the "remarks" section of the referenced CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When defaults were retained and no further explanation was necessary, no "remarks" are recorded below.

Model Title: East Brawley – Drill Rig Assembly, Well Drilling & Testing
CalEEMod East Brawley – Drill Rig Assembly, Well Drilling & Testing V03.xls

Project Characteristics Tab

- **Project Characteristics** –Imperial County; Rural; Operational Year 2012; Utility Company IID

Land Use Tab

- **Land Use** - This model calculates the emissions from equipment and traffic associated with drill rig assembly and well drilling and testing. The 'User Defined Industrial' land use subtype represents the East Brawley Geothermal Project. For this model in particular the 'User Defined Industrial' 'Lot Acreage' is the acreage of one well pad. 'Lot Acreage' totals to 3 acres.

Construction Tabs

- **Construction Phase** - This model calculates the emissions from the drill rig assembly and well drilling and testing equipment, and the worker, vendor and haul traffic associated with drill rig assembly and well drilling and testing. All other phases except building construction are zeroed out by placing a 1 in 'total days' column. Building Construction - 1/13/2012 – 1/31/2012
    - Demolition- 1/6/2012 – 1/6/2012 (1 day)
    - Site Preparation - 1/7/2012 – 1/9/2012 (1 day)
    - Grading - 1/10/2012 – 1/10/2012 (1 day)
    - Paving- 1/11/2012 – 1/11/2012 (1 day)
    - Architectural Coating- 1/12/2012 – 1/12/2012 (1 day)
- **Off-road Equipment (Coating)** – No coating is required for the well pads. Default coating equipment has been zeroed out.
- **Off-road Equipment (Building)** - Building Construction (drill rig assembly and well drilling and testing) emissions are calculated in this model. Default building construction equipment is altered to reflect the equipment below.

Equipment Type	Amount	Daily Usage (Hours)
Crane	1	6
Forklift	1	6

- **Off-road Equipment (Demolition)** - No Demolition is required for this project. Default demolition equipment has been zeroed out.
- **Off-road Equipment (Grading)** – Grading emissions are calculated in a separate CalEEMod Model. Default grading equipment has been zeroed out.
- **Off-road Equipment (Paving)** – No paving is required for the well pads. Default paving equipment has been zeroed out.
- **Off-road Equipment (Site Preparation)** – Site preparation emissions are calculated in a separate CalEEMod Model. Default site preparation equipment is has been zeroed out.
- **Trips and VMT** – Only drill rig assembly and well drilling and testing trips and VMT emissions are calculated in this model. Drill rig assembly and well drilling and testing require 32 worker and 6 vendor trips/day.

- **On-road Fugitive Dust** – Only on-road off-site fugitive dust emissions associated with drill rig assembly and well drilling and testing are calculated in this model. Traffic is expected to access the well pads via approximately 1.25 miles of unpaved roads.
    - CalEEMod default worker trip length= 10.2 miles
        - % Paved Worker = 1-(1.25 miles unpaved roads to Project / 10.2 miles)=87.7% paved
    - CalEEMod default vendor trip length= 11.9 miles
        - % Paved Vendor= 1-(1.25 miles unpaved roads to Project / 11.9 miles)=89.5% paved
    - CalEEMod default haul trip length= 20 miles
        - % Paved Haul= 1-(1.25 miles unpaved roads to Project / 20 miles)=93.8% paved
- **Demolition** - No Demolition for this project.
- **Dust from Material Movement** – Site preparation PM emissions are calculated in a separate CalEEMod Model. Grading PM emissions are calculated in a separate CalEEMod Model.
- **Architectural Coating** - No coating is required for the well pads. Default coating VOC g/l has been zeroed out.

Operational Tabs

- **Vehicle Trips** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Road Dust** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Woodstoves** - Operations – Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Consumer Products** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Area Coating** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Landscape Equipment** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Energy Use** - Operations – Energy Use emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Water And Wastewater** - Operations - Water and Wastewater emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Solid Waste** - Operations - Solid Waste emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)

Vegetation Tabs

- **Land Use Change –**
- **Sequestration –**

Mitigation Tabs

- **Construction Off-road Equipment Mitigation** - Off-site unpaved road watering will occur 3 times a day (soil stabilizer 61% reduction=watering 3 times daily); All equipment is Tier 2
- **Mobile Land Use Mitigation** –
- **Mobile Commute Mitigation** –
- **Area Mitigation** –
- **Energy Mitigation** –
- **Water Mitigation** –
- **Waste Mitigation** -

ATTACHMENT L-2

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - SUMMER
MODEL “CalEEMod East Brawley – Drill Rig Assembly, Well Drilling & Testing V03.xls”

East Brawley - Well Pad Drill Assembly, Drilling, & Testing

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	3	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	1.67	11.28	9.22	0.02	70.55	0.46	71.01	7.02	0.46	7.48	0.00	1,554.06	0.00	0.13	0.00	1,556.80
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	4.07	9.71	10.65	0.02	27.78	0.37	28.15	2.75	0.37	3.12	0.00	1,554.06	0.00	0.13	0.00	1,556.80
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.03	9.19	3.83	0.01		0.40	0.40		0.40	0.40		1,007.45		0.09		1,009.38
Total	**1.03**	**9.19**	**3.83**	**0.01**		**0.40**	**0.40**		**0.40**	**0.40**		**1,007.45**		**0.09**		**1,009.38**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.18	1.64	0.95	0.00	11.12	0.05	11.17	1.11	0.05	1.16		263.11		0.01		263.25
Worker	0.46	0.45	4.44	0.00	59.44	0.01	59.45	5.91	0.01	5.92		283.51		0.03		284.16
Total	**0.64**	**2.09**	**5.39**	**0.00**	**70.56**	**0.06**	**70.62**	**7.02**	**0.06**	**7.08**		**546.62**		**0.04**		**547.41**

3.7 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.43	7.62	5.26	0.01		0.31	0.31		0.31	0.31	0.00	1,007.45		0.09		1,009.38
Total	**3.43**	**7.62**	**5.26**	**0.01**		**0.31**	**0.31**		**0.31**	**0.31**	**0.00**	**1,007.45**		**0.09**		**1,009.38**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.18	1.64	0.95	0.00	4.38	0.05	4.44	0.44	0.05	0.49		263.11		0.01		263.25
Worker	0.46	0.45	4.44	0.00	23.39	0.01	23.40	2.31	0.01	2.33		283.51		0.03		284.16
Total	**0.64**	**2.09**	**5.39**	**0.00**	**27.77**	**0.06**	**27.84**	**2.75**	**0.06**	**2.82**		**546.62**		**0.04**		**547.41**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT L-3

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - WINTER
MODEL “CalEEMod East Brawley – Drill Rig Assembly, Well Drilling & Testing V03.xls”

East Brawley - Well Pad Drill Assembly, Drilling, & Testing

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	3	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	1.60	11.29	8.52	0.02	70.55	0.46	71.01	7.02	0.46	7.48	0.00	1,537.23	0.00	0.13	0.00	1,539.92
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	4.00	9.73	9.95	0.02	27.78	0.37	28.15	2.75	0.37	3.12	0.00	1,537.23	0.00	0.13	0.00	1,539.92
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.03	9.19	3.83	0.01		0.40	0.40		0.40	0.40		1,007.45		0.09		1,009.38
Total	**1.03**	**9.19**	**3.83**	**0.01**		**0.40**	**0.40**		**0.40**	**0.40**		**1,007.45**		**0.09**		**1,009.38**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.19	1.67	0.98	0.00	11.12	0.05	11.17	1.11	0.05	1.16		261.39		0.01		261.54
Worker	0.38	0.44	3.71	0.00	59.44	0.01	59.45	5.91	0.01	5.92		268.40		0.03		269.00
Total	**0.57**	**2.11**	**4.69**	**0.00**	**70.56**	**0.06**	**70.62**	**7.02**	**0.06**	**7.08**		**529.79**		**0.04**		**530.54**

3.7 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.43	7.62	5.26	0.01		0.31	0.31		0.31	0.31	0.00	1,007.45		0.09		1,009.38
Total	**3.43**	**7.62**	**5.26**	**0.01**		**0.31**	**0.31**		**0.31**	**0.31**	**0.00**	**1,007.45**		**0.09**		**1,009.38**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.19	1.67	0.98	0.00	4.38	0.05	4.44	0.44	0.05	0.49		261.39		0.01		261.54
Worker	0.38	0.44	3.71	0.00	23.39	0.01	23.40	2.31	0.01	2.33		268.40		0.03		269.00
Total	**0.57**	**2.11**	**4.69**	**0.00**	**27.77**	**0.06**	**27.84**	**2.75**	**0.06**	**2.82**		**529.79**		**0.04**		**530.54**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT M

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “CalEEMod East Brawley Well Field Construction V07.xls”

ATTACHMENT M-1

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL "REMARKS"
MODEL "CalEEMod East Brawley Well Field Construction V07.xls"

"Remarks" for East Brawley Geothermal CalEEMod Models

"Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this document replaces the "remarks" section of the referenced CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When defaults were retained and no further explanation was necessary, no "remarks" are recorded below.

Model Title: East Brawley – Well Field Construction
CalEEMod East Brawley – Well Field Construction V07.xls

Project Characteristics Tab

- **Project Characteristics** –Imperial County; Rural; Operational Year 2012; Utility Company IID

Land Use Tab

- **Land Use** - This model calculates the emissions from equipment and traffic associated with well field construction. The 'User Defined Industrial' land use subtype represents the East Brawley Geothermal Project. For this model in particular the 'User Defined Industrial' 'Lot Acreage' is the acreage of one well pad. 'Lot Acreage' totals to 3 acres.

Construction Tabs

- **Construction Phase** - This model calculates the emissions from well field construction equipment, and the worker, vendor and haul traffic associated with the well field construction. All other phases except building construction are zeroed out by placing a 1 in 'total days' column.
  Building Construction - 6/9/2012 – 3/31/2013
  - Demolition- 6/4/2012 – 6/4/2012 (1 day)
  - Site Preparation - 6/5/2012 – 6/5/2012 (1 day)
  - Grading - 6/6/2012 – 6/6/2012 (1 day)
  - Paving- 6/7/2012 – 6/7/2012 (1 day)
  - Architectural Coating- 6/8/2012 – 6/8/2012 (1 day)
- **Off-road Equipment (Coating)** – Coating emissions are calculated in a separate CalEEMod Model. Default coating equipment has been zeroed out.
- **Off-road Equipment (Building)** - Building Construction (well field construction) emissions are calculated in this model. Default building construction equipment is altered to reflect the equipment below.

Equipment Type	Amount	Daily Usage (Hours)
Welder	35	8

- **Off-road Equipment (Demolition)** - No Demolition is required for this project. Default demolition equipment has been zeroed out.
- **Off-road Equipment (Grading)** – Grading emissions are calculated in a separate CalEEMod Model. Default grading equipment has been zeroed out.
- **Off-road Equipment (Paving)** – Paving emissions are calculated in a separate CalEEMod Model. Default paving equipment has been zeroed out.
- **Off-road Equipment (Site Preparation)** – Site preparation emissions are calculated in a separate CalEEMod Model. Default site preparation equipment is has been zeroed out.
- **Trips and VMT** – The power plant mechanical construction model accounts for any trips and VMT emissions associated with well field construction (included in the 132 worker and 80 vendor trips/day).
- **On-road Fugitive Dust** – The power plant mechanical construction model accounts for any on-road off-site fugitive dust emissions associated with well field construction. Traffic is expected to access the project area via State Highway 111 to Shank Road, and then to Best Road (all paved roads).
  - CalEEMod default worker trip length= 10.2 miles

        - % Paved Worker = 1-(0 miles unpaved roads to Project / 10.2 miles)=100% paved
    - CalEEMod default vendor trip length= 11.9 miles
        - % Paved Vendor= 1-(0 miles unpaved roads to Project / 11.9 miles)=100% paved
    - CalEEMod default haul trip length= 20 miles
        - % Paved Haul= 1-(0 miles unpaved roads to Project / 20 miles)=100% paved
- **Demolition** - No Demolition for this project.
- **Dust from Material Movement** – Site preparation PM emissions are calculated in a separate CalEEMod Model. Grading PM emissions are calculated in a separate CalEEMod Model.
- **Architectural Coating** - Coating emissions are calculated in a separate CalEEMod Model. Default coating VOC g/l has been zeroed out.

Operational Tabs

- **Vehicle Trips** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Vehicle Emission Factors** – Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Road Dust** - Operations - Mobile emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Woodstoves** - Operations – Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Consumer Products** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Area Coating** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Landscape Equipment** - Operations - Area emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Energy Use** - Operations – Energy Use emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Water And Wastewater** - Operations - Water and Wastewater emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)
- **Solid Waste** - Operations - Solid Waste emissions are calculated in a separate CalEEMod Model (Thus, ignore operations emissions in this CalEEMod model.)

Vegetation Tabs

- **Land Use Change –**
- **Sequestration –**

Mitigation Tabs

- **Construction Off-road Equipment Mitigation** - All equipment is Tier 2
- **Mobile Land Use Mitigation** –
- **Mobile Commute Mitigation** –
- **Area Mitigation** –
- **Energy Mitigation** –
- **Water Mitigation** –
- **Waste Mitigation** -

ATTACHMENT M-2

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - SUMMER
MODEL “CalEEMod East Brawley Well Field Construction V07.xls”

East Brawley - Well Field Construction

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	3	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Trips and VMT - See "Remarks" Summary

On-road Fugitive Dust - See "Remarks" Summary

Demolition - See "Remarks" Summary

Grading - See "Remarks" Summary

Architectural Coating - See "Remarks" Summary

Vehicle Trips - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Road Dust - See "Remarks" Summary

Woodstoves - See "Remarks" Summary

Consumer Products - See "Remarks" Summary

Area Coating - See "Remarks" Summary

Landscape Equipment - See "Remarks" Summary

Energy Use - See "Remarks" Summary

Water And Wastewater - See "Remarks" Summary

Solid Waste - See "Remarks" Summary

Land Use Change - See "Remarks" Summary

Sequestration - See "Remarks" Summary

Construction Off-road Equipment Mitigation - See "Remarks" Summary

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	29.35	73.39	78.96	0.09	0.00	7.15	7.15	0.00	7.15	7.15	0.00	7,255.06	0.00	2.64	0.00	7,310.55
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	19.15	62.55	52.34	0.09	0.00	5.74	5.74	0.00	5.74	5.74	0.00	7,255.06	0.00	2.64	0.00	7,310.55
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	29.35	73.39	78.96	0.09		7.15	7.15		7.15	7.15		7,255.06		2.64		7,310.55
Total	**29.35**	**73.39**	**78.96**	**0.09**		**7.15**	**7.15**		**7.15**	**7.15**		**7,255.06**		**2.64**		**7,310.55**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	19.15	62.55	52.34	0.09		5.74	5.74		5.74	5.74	0.00	7,255.06		2.64		7,310.55
Total	**19.15**	**62.55**	**52.34**	**0.09**		**5.74**	**5.74**		**5.74**	**5.74**	**0.00**	**7,255.06**		**2.64**		**7,310.55**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT M-3

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - WINTER
MODEL “CalEEMod East Brawley Well Field Construction V07.xls”

East Brawley - Well Field Construction

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Industrial	3	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Off-road Equipment - See "Remarks" Summary

Trips and VMT - See "Remarks" Summary

On-road Fugitive Dust - See "Remarks" Summary

Demolition - See "Remarks" Summary

Grading - See "Remarks" Summary

Architectural Coating - See "Remarks" Summary

Vehicle Trips - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Vechicle Emission Factors - See "Remarks" Summary

Road Dust - See "Remarks" Summary

Woodstoves - See "Remarks" Summary

Consumer Products - See "Remarks" Summary

Area Coating - See "Remarks" Summary

Landscape Equipment - See "Remarks" Summary

Energy Use - See "Remarks" Summary

Water And Wastewater - See "Remarks" Summary

Solid Waste - See "Remarks" Summary

Land Use Change - See "Remarks" Summary

Sequestration - See "Remarks" Summary

Construction Off-road Equipment Mitigation - See "Remarks" Summary

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	29.35	73.39	78.96	0.09	0.00	7.15	7.15	0.00	7.15	7.15	0.00	7,255.06	0.00	2.64	0.00	7,310.55
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	19.15	62.55	52.34	0.09	0.00	5.74	5.74	0.00	5.74	5.74	0.00	7,255.06	0.00	2.64	0.00	7,310.55
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Paving - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Architectural Coating - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	29.35	73.39	78.96	0.09		7.15	7.15		7.15	7.15		7,255.06		2.64		7,310.55
Total	**29.35**	**73.39**	**78.96**	**0.09**		**7.15**	**7.15**		**7.15**	**7.15**		**7,255.06**		**2.64**		**7,310.55**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	19.15	62.55	52.34	0.09		5.74	5.74		5.74	5.74	0.00	7,255.06		2.64		7,310.55
Total	**19.15**	**62.55**	**52.34**	**0.09**		**5.74**	**5.74**		**5.74**	**5.74**	**0.00**	**7,255.06**		**2.64**		**7,310.55**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Industrial	16.40	9.50	11.90	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Industrial	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	3.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.33					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.80					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**3.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT N

TABLES SUMMARIZING DAILY AIR POLLUTANT EMISSIONS CALCULATED BY CALEEMOD AND DRILL RIG REFERENCES FOR EACH PROJECT ACTIVITY

East Brawley - Winter PP Site Preparation and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation	10.45	85.16	45.93	0.08	21.39	10.78
Site Preparation Traffic	0.10	0.11	0.93	0.00	0.10	0.01
Total	**10.55**	**85.27**	**46.86**	**0.08**	**21.49**	**10.79**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation	31.40	66.02	45.45	0.08	9.49	5.35
Site Preparation Traffic	0.10	0.11	0.93	0.00	0.10	0.01
Total	**31.50**	**66.13**	**46.38**	**0.08**	**9.59**	**5.36**
East Brawley - Summer PP Site Preparation and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation	10.45	85.16	45.93	0.08	21.39	10.78
Site Preparation Traffic	0.12	0.11	1.11	0.00	0.10	0.01
Total	**10.57**	**85.27**	**47.04**	**0.08**	**21.49**	**10.79**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation	31.40	66.02	45.45	0.08	9.49	5.35
Site Preparation Traffic	0.12	0.11	1.11	0.00	0.10	0.01
Total	**31.52**	**66.13**	**46.56**	**0.08**	**9.59**	**5.36**

PP Grading

East Brawley - Winter PP Grading and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	18.08	145.76	77.62	0.15	15.82	10.77
Grading Traffic	0.48	1.52	4.13	0.00	0.48	0.06
Total	**18.56**	**147.28**	**81.75**	**0.15**	**16.30**	**10.83**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	53.77	117.50	83.51	0.15	8.40	6.43
Grading Traffic	0.48	1.52	4.13	0.00	0.48	0.06
Total	**54.25**	**119.02**	**87.64**	**0.15**	**8.88**	**6.49**
East Brawley - Summer PP Grading and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	18.08	145.76	77.62	0.15	15.82	10.77
Grading Traffic	0.55	1.51	4.79	0.00	0.48	0.06
Total	**18.63**	**147.27**	**82.41**	**0.15**	**16.30**	**10.83**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	53.77	117.50	83.51	0.15	8.40	6.43
Grading Traffic	0.55	1.51	4.79	0.00	0.48	0.06
Total	**54.32**	**119.01**	**88.30**	**0.15**	**8.88**	**6.49**

PP Construction A

East Brawley - Winter PP Construction A - Foundation Work and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction A	8.05	56.37	35.77	0.06	3.95	3.95
Construction A Traffic	4.08	24.02	28.37	0.04	3.59	0.92
Total	**12.13**	**80.39**	**64.14**	**0.10**	**7.54**	**4.87**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction A	18.87	44.13	35.77	0.06	2.47	2.47
Construction A Traffic	4.08	24.02	28.37	0.04	3.59	0.92
Total	**22.95**	**68.15**	**64.14**	**0.10**	**6.06**	**3.39**
East Brawley - Summer PP Construction A - Foundation Work and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction A	8.05	56.37	35.77	0.06	3.95	3.95
Construction A Traffic	4.34	23.69	31.00	0.04	3.57	0.91
Total	**12.39**	**80.06**	**66.77**	**0.10**	**7.52**	**4.86**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction A	18.87	44.13	35.77	0.06	2.47	2.47
Construction A Traffic	4.34	23.69	31.00	0.04	3.57	0.91
Total	**23.21**	**67.82**	**66.77**	**0.10**	**6.04**	**3.38**

East Brawley - Winter PP Construction B - Mechanical Work and Associated Traffic						
Winter Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Construction B	27.07	141.89	92.37	0.16	9.74	9.74
Construction B Traffic	4.08	24.02	28.37	0.04	3.59	0.92
Total	**31.15**	**165.91**	**120.74**	**0.20**	**13.33**	**10.66**
Winter Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Construction B	50.06	117.00	89.82	0.16	6.95	6.95
Construction B Traffic	4.08	24.02	28.37	0.04	3.59	0.92
Total	**54.14**	**141.02**	**118.19**	**0.20**	**10.54**	**7.87**
East Brawley - Summer PP Construction B - Mechanical Work and Associated Traffic						
Summer Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Construction B	27.07	141.89	92.37	0.16	9.74	9.74
Construction B Traffic	4.34	23.69	31.00	0.04	3.57	0.91
Total	**31.41**	**165.58**	**123.37**	**0.20**	**13.31**	**10.65**
Summer Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Construction B	50.06	117.00	89.82	0.16	6.95	6.95
Construction B Traffic	4.34	23.69	31.00	0.04	3.57	0.91
Total	**54.40**	**140.69**	**120.82**	**0.20**	**10.52**	**7.86**

PP Coating

East Brawley - Winter Coating and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Coating	2.40	3.16	1.96	0.00	0.29	0.29
Coating Traffic	0.08	0.34	0.62	0.00	0.08	0.01
Total	**2.48**	**3.50**	**2.58**	**0.00**	**0.37**	**0.30**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Coating	2.40	3.16	1.96	0.00	0.29	0.29
Coating Traffic	0.08	0.34	0.62	0.00	0.08	0.01
Total	**2.48**	**3.50**	**2.58**	**0.00**	**0.37**	**0.30**
East Brawley - Summer Coating and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Coating	2.40	3.16	1.96	0.00	0.29	0.29
Coating Traffic	0.09	0.33	0.71	0.00	0.08	0.01
Total	**2.49**	**3.49**	**2.67**	**0.00**	**0.37**	**0.30**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Coating	2.40	3.16	1.96	0.00	0.29	0.29
Coating Traffic	0.09	0.33	0.71	0.00	0.08	0.01
Total	**2.49**	**3.49**	**2.67**	**0.00**	**0.37**	**0.30**

PP Paving

East Brawley - Winter Paving and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Paving	3.31	17.59	10.62	0.02	1.54	1.54
Paving Traffic	0.14	0.63	1.14	0.00	0.59	0.03
Total	**3.45**	**18.22**	**11.76**	**0.02**	**2.13**	**1.57**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Paving	8.09	12.89	9.73	0.02	0.79	0.79
Paving Traffic	0.14	0.63	1.14	0.00	0.59	0.03
Total	**8.23**	**13.52**	**10.87**	**0.02**	**1.38**	**0.82**
East Brawley - Summer Paving and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Paving	3.31	17.59	10.62	0.02	1.54	1.54
Paving Traffic	0.16	0.62	1.30	0.00	0.59	0.03
Total	**3.47**	**18.21**	**11.92**	**0.02**	**2.13**	**1.57**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Paving	8.09	12.89	9.73	0.02	0.79	0.79
Paving Traffic	0.16	0.62	1.30	0.00	0.59	0.03
Total	**8.25**	**13.51**	**11.03**	**0.02**	**1.38**	**0.82**

Well Pad Site Prep

East Brawley - Winter Well Pad Site Preparation and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation	3.05	25.07	11.19	0.03	5.35	1.11
Site Preparation Traffic	0.07	0.08	0.70	0.00	11.15	1.11
Total	**3.12**	**25.15**	**11.89**	**0.03**	**16.50**	**2.22**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation	10.51	23.56	16.39	0.03	2.61	0.96
Site Preparation Traffic	0.07	0.08	0.70	0.00	4.39	0.44
Total	**10.58**	**23.64**	**17.09**	**0.03**	**7.00**	**1.40**
East Brawley - Summer Well Pad Site Preparation and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation	3.05	25.07	11.19	0.03	5.35	1.11
Site Preparation Traffic	0.09	0.08	0.83	0.00	11.15	1.11
Total	**3.14**	**25.15**	**12.02**	**0.03**	**16.50**	**2.22**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation	10.51	23.56	16.39	0.03	2.61	0.96
Site Preparation Traffic	0.09	0.08	0.83	0.00	4.39	0.44
Total	**10.60**	**23.64**	**17.22**	**0.03**	**7.00**	**1.40**

East Brawley - Winter Well Pad Grading and Associated Traffic						
Winter Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Grading	3.29	25.81	13.01	0.03	2.96	1.34
Grading Traffic	0.57	5.16	3.60	0.01	118.55	11.89
Total	**3.86**	**30.97**	**16.61**	**0.04**	**121.51**	**13.23**
Winter Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Grading	10.83	23.70	16.97	0.03	1.68	1.05
Grading Traffic	0.57	5.16	3.60	0.01	47.12	4.77
Total	**11.40**	**28.86**	**20.57**	**0.04**	**48.80**	**5.82**
East Brawley - Summer Well Pad Grading and Associated Traffic						
Summer Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Grading	3.29	25.81	13.01	0.03	2.96	1.34
Grading Traffic	0.59	5.09	3.76	0.01	118.55	11.89
Total	**3.88**	**30.90**	**16.77**	**0.04**	**121.51**	**13.23**
Summer Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Grading	10.83	23.70	16.97	0.03	1.68	1.05
Grading Traffic	0.59	5.09	3.76	0.01	47.11	4.76
Total	**11.42**	**28.79**	**20.73**	**0.04**	**48.79**	**5.81**

Rig Assembly_Well Drill & Test

East Brawley - Winter Drill Rig Assembly, Well Drilling & Testing and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	1.03	9.19	3.83	0.01	0.40	0.40
Grading Traffic	0.57	2.11	4.69	0.00	70.62	7.08
Total	**1.60**	**11.30**	**8.52**	**0.01**	**71.02**	**7.48**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	3.43	7.62	5.26	0.01	0.31	0.31
Grading Traffic	0.57	2.11	4.69	0.00	27.84	2.82
Total	**4.00**	**9.73**	**9.95**	**0.01**	**28.15**	**3.13**
East Brawley - Summer Drill Rig Assembly, Well Drilling & Testing and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	1.03	9.19	3.83	0.01	0.40	0.40
Grading Traffic	0.64	2.09	5.39	0.00	70.62	7.08
Total	**1.67**	**11.28**	**9.22**	**0.01**	**71.02**	**7.48**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	3.43	7.62	5.26	0.01	0.31	0.31
Grading Traffic	0.64	2.09	5.39	0.00	27.84	2.82
Total	**4.07**	**9.71**	**10.65**	**0.01**	**28.15**	**3.13**

Well Field Construction

East Brawley - Winter Well Field Construction and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction B	29.35	73.39	78.96	0.09	7.15	7.15
Construction B Traffic	0.00	0.00	0.00	0.00	0.00	0.00
Total	**29.35**	**73.39**	**78.96**	**0.09**	**7.15**	**7.15**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction B	19.15	62.55	52.34	0.09	5.74	5.74
Construction B Traffic	0.00	0.00	0.00	0.00	0.00	0.00
Total	**19.15**	**62.55**	**52.34**	**0.09**	**5.74**	**5.74**
East Brawley - Summer Well Field Construction and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction B	29.35	73.39	78.96	0.09	7.15	7.15
Construction B Traffic	0.00	0.00	0.00	0.00	0.00	0.00
Total	**29.35**	**73.39**	**78.96**	**0.09**	**7.15**	**7.15**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction B	19.15	62.55	52.34	0.09	5.74	5.74
Construction B Traffic	0.00	0.00	0.00	0.00	0.00	0.00
Total	**19.15**	**62.55**	**52.34**	**0.09**	**5.74**	**5.74**

Drill Rig Summary

Gallons of Fuel Used (per day)		Emission Factors (lb/gal)							Average Emissions (lbs/day)						
		ROC	NOx	CO	SO2	PM10	PM2.5	CO2	ROC	NOx	CO	SO2	PM10	PM2.5	CO2
Avg Well:	931	0.027048	0.191414	0.119471	0.000213	0.006827	0.006281	24.09	25.19	178.25	111.26	0.20	6.36	5.85	22,430

East Brawley - Winter WWTF Site Preparation and Associated Traffic						
Winter Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Site Preparation	5.85	49.28	22.93	0.05	8.60	2.24
Site Preparation Traffic	0.07	0.08	0.70	0.00	0.08	0.00
Total	**5.92**	**49.36**	**23.63**	**0.05**	**8.68**	**2.24**
Winter Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Site Preparation	20.50	42.23	28.37	0.05	4.18	1.70
Site Preparation Traffic	0.07	0.08	0.70	0.00	0.08	0.00
Total	**20.57**	**42.31**	**29.07**	**0.05**	**4.26**	**1.70**
East Brawley - Summer WWTF Site Preparation and Associated Traffic						
Summer Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Site Preparation	5.85	49.28	22.93	0.05	8.60	2.24
Site Preparation Traffic	0.09	0.08	0.83	0.00	0.08	0.00
Total	**5.94**	**49.36**	**23.76**	**0.05**	**8.68**	**2.24**
Summer Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Site Preparation	20.50	42.23	28.37	0.05	4.18	1.70
Site Preparation Traffic	0.09	0.08	0.83	0.00	0.08	0.00
Total	**20.59**	**42.31**	**29.20**	**0.05**	**4.26**	**1.70**

WWTF Grading

East Brawley - Winter WWTF Grading and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	6.39	51.64	27.19	0.05	11.13	5.87
Grading Traffic	0.07	0.08	0.70	0.00	0.08	0.00
Total	**6.46**	**51.72**	**27.89**	**0.05**	**11.21**	**5.87**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	20.60	42.01	28.66	0.05	5.11	3.06
Grading Traffic	0.07	0.08	0.70	0.00	0.08	0.00
Total	**20.67**	**42.09**	**29.36**	**0.05**	**5.19**	**3.06**
East Brawley - Summer WWTF Grading and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	6.39	51.64	27.19	0.05	11.13	5.87
Grading Traffic	0.09	0.08	0.83	0.00	0.08	0.00
Total	**6.48**	**51.72**	**28.02**	**0.05**	**11.21**	**5.87**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	20.60	42.01	28.66	0.05	5.11	3.06
Grading Traffic	0.09	0.08	0.83	0.00	0.08	0.00
Total	**20.69**	**42.09**	**29.49**	**0.05**	**5.19**	**3.06**

East Brawley - Winter WWTF Construction and Associated Traffic						
Winter Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Construction	3.58	23.11	13.49	0.03	1.50	1.50
Construction Traffic	0.14	0.17	1.39	0.00	0.15	0.01
Total	**3.72**	**23.28**	**14.88**	**0.03**	**1.65**	**1.51**
Winter Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Construction	9.68	19.59	14.40	0.03	1.06	1.06
Construction Traffic	0.14	0.17	1.39	0.00	0.15	0.01
Total	**9.82**	**19.76**	**15.79**	**0.03**	**1.21**	**1.07**
East Brawley - Summer WWTF Construction and Associated Traffic						
Summer Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Construction	3.58	23.11	13.49	0.03	1.50	1.50
Construction Traffic	0.17	0.17	1.66	0.00	0.15	0.01
Total	**3.75**	**23.28**	**15.15**	**0.03**	**1.65**	**1.51**
Summer Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Construction	9.68	19.59	14.40	0.03	1.06	1.06
Construction Traffic	0.17	0.17	1.66	0.00	0.15	0.01
Total	**9.85**	**19.76**	**16.06**	**0.03**	**1.21**	**1.07**

ATTACHMENT O

TABLES PROVIDING UNMITIGATED AND MITIGATED DAILY AIR POLLUTION EMISSIONS SUMMED BY TIME PERIOD COMPARED TO APPLICABLE SIGNIFICANCE THRESHOLDS

Early-Mid January 2012

PP Site Preparation & All Well Pad Activities						
Early through Mid January 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**44.32**	**330.94**	**195.14**	**0.36**	**236.88**	**39.57**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**
Early through Mid January 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**44.45**	**330.85**	**196.31**	**0.36**	**236.88**	**39.57**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**
Early through Mid January 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**82.67**	**306.61**	**205.25**	**0.36**	**99.90**	**21.56**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**
Early through Mid January 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**82.80**	**306.52**	**206.42**	**0.36**	**99.89**	**21.55**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

PP Grading & All Well Pad Activities						
Late January through March 2012 - Unmitigated Winter						
Winter Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	52.33	392.95	230.03	0.43	231.69	39.61
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	No	Yes	No	No	Yes	No
Late January through March 2012 - Unmitigated Summer						
Summer Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	52.51	392.85	231.68	0.43	231.69	39.61
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	No	Yes	No	No	Yes	No
Late January through March 2012 - Mitigated Winter						
Winter Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	105.42	359.50	246.51	0.43	99.19	22.69
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	Yes	Yes	No	No	No	No
Late January through March 2012 - Mitigated Summer						
Summer Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	105.60	359.40	248.16	0.43	99.18	22.68
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	Yes	Yes	No	No	No	No

PP Construction A - Foundation Work & All Well Pad Activities						
April thorugh Mid June 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**45.90**	**326.06**	**212.42**	**0.38**	**222.93**	**33.65**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**
April thorugh Mid June 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**46.27**	**325.64**	**216.04**	**0.38**	**222.91**	**33.64**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**
April thorugh Mid June 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**74.12**	**308.63**	**223.01**	**0.38**	**96.37**	**19.59**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
April thorugh Mid June 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**74.49**	**308.21**	**226.63**	**0.38**	**96.34**	**19.57**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

PP Construction B - Mechanical Work, Well Field Construction & All Well Pad Activities						
Mid June through Late June 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**94.27**	**484.97**	**347.98**	**0.57**	**235.87**	**46.59**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Mid June through Late June 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**94.64**	**484.55**	**351.60**	**0.57**	**235.85**	**46.58**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Mid June through Late June 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**124.46**	**444.05**	**329.40**	**0.57**	**106.59**	**29.81**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**
Mid June through Late June 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**124.83**	**443.63**	**333.02**	**0.57**	**106.56**	**29.79**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

PP Construction B - Mechanical Work, Well Field Construction, WWTF Site Prep, & All Well Pad Activities						
Early July 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**100.19**	**534.33**	**371.61**	**0.62**	**244.55**	**48.83**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Early July 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**100.58**	**533.91**	**375.36**	**0.62**	**244.53**	**48.82**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Early July 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**145.03**	**486.36**	**358.47**	**0.62**	**110.85**	**31.51**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**
Early July 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**145.42**	**485.94**	**362.22**	**0.62**	**110.82**	**31.49**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

PP Construction B - Mechanical Work, Well Field Construction, WWTF Grading, & All Well Pad Activities						
Mid July 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**100.73**	**536.69**	**375.87**	**0.62**	**247.08**	**52.46**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Mid July 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**101.12**	**536.27**	**379.62**	**0.62**	**247.06**	**52.45**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Mid July 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**145.13**	**486.14**	**358.76**	**0.62**	**111.78**	**32.87**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**
Mid July 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**145.52**	**485.72**	**362.51**	**0.62**	**111.75**	**32.85**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

PP Construction B - Mechanical Work, Well Field Construction, WWTF Construction, & All Well Pad Activities						
Late July 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**97.99**	**508.25**	**362.86**	**0.60**	**237.52**	**48.10**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Late July 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**98.39**	**507.83**	**366.75**	**0.60**	**237.50**	**48.09**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Late July 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**134.28**	**463.81**	**345.19**	**0.60**	**107.80**	**30.88**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**
Late July 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**134.68**	**463.39**	**349.08**	**0.60**	**107.77**	**30.86**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

PP Construction B - Mechanical Work, Well Field Construction & All Well Pad Activities						
August 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**94.27**	**484.97**	**347.98**	**0.57**	**235.87**	**46.59**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
August 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**94.64**	**484.55**	**351.60**	**0.57**	**235.85**	**46.58**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
August 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**124.46**	**444.05**	**329.40**	**0.57**	**106.59**	**29.81**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**
August 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**124.83**	**443.63**	**333.02**	**0.57**	**106.56**	**29.79**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

PP Construction B - Mechanical Work, Well Field Construction, Coating, & All Well Pad Activities						
September 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**96.75**	**488.47**	**350.56**	**0.57**	**236.24**	**46.89**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
September 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**97.13**	**488.04**	**354.27**	**0.57**	**236.22**	**46.88**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
September 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**126.94**	**447.55**	**331.98**	**0.57**	**106.96**	**30.11**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**
September 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**127.32**	**447.12**	**335.69**	**0.57**	**106.93**	**30.09**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

PP Construction B - Mechanical Work, Well Field Construction, Paving, & All Well Pad Activities						
October 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**97.72**	**503.19**	**359.74**	**0.59**	**238.00**	**48.16**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
October 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**98.11**	**502.76**	**363.52**	**0.59**	**237.98**	**48.15**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
October 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**132.69**	**457.57**	**340.27**	**0.59**	**107.97**	**30.63**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**
October 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**133.08**	**457.14**	**344.05**	**0.59**	**107.94**	**30.61**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

PP Construction B - Mechanical Work, Well Field Construction & All Well Pad Activities						
November 2012 through March 2013 - Unmitigated Winter						
Winter Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	94.27	484.97	347.98	0.57	235.87	46.59
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	Yes	Yes	No	No	Yes	No
November 2012 through March 2013 - Unmitigated Summer						
Summer Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	94.64	484.55	351.60	0.57	235.85	46.58
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	Yes	Yes	No	No	Yes	No
November 2012 through March 2013 - Mitigated Winter						
Winter Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	124.46	444.05	329.40	0.57	106.59	29.81
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	Yes	Yes	No	No	No	No
November 2012 through March 2013 - Mitigated Summer						
Summer Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	124.83	443.63	333.02	0.57	106.56	29.79
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	Yes	Yes	No	No	No	No

PP Construction B - Mechanical Work, Well Field Construction & All Well Pad Activities						
April through May 2013 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**94.27**	**484.97**	**347.98**	**0.57**	**235.87**	**46.59**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
April through May 2013 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**94.64**	**484.55**	**351.60**	**0.57**	**235.85**	**46.58**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
April through May 2013 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**124.46**	**444.05**	**329.40**	**0.57**	**106.59**	**29.81**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**
April through May 2013 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**124.83**	**443.63**	**333.02**	**0.57**	**106.56**	**29.79**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

ENVIRONMENTAL MANAGEMENT ASSOCIATES

MEMORANDUM

TO: East Brawley Project File

FROM: Dwight L. Carey

SUBJECT: Recalculation of the Tier 2 NO_x and ROG Air Pollutant Emissions Incorrectly Calculated by CalEEMod for the East Brawley Project Construction Activities

DATE: May 4, 2012

As stated in the January 29, 2012 East Brawley Construction Updated Air Pollutant Assessment, all construction activity CalEEMod models calculated mitigated emissions from the diesel powered construction equipment assuming that these engines would have certified NO_X emissions rated as Tier 2 or better to reduce NO_X emissions. Unfortunately, CalEEMod staff has subsequently confirmed that the air pollutant emission factors used by CalEEMod for Tier 2 and Tier 3 engines are incorrect for NO_X, ROG and TOG emissions. To correctly calculate the air pollutant emissions from construction equipment mitigated through the use of either Tier 2 or Tier 3 engines, CalEEMod staff recommends completing these calculations in a spreadsheet using the correct emission factors (as contained in a spreadsheet provided by CalEEMod staff).

Attachments A through M, included as part of the January 29, 2012 Updated Air Pollutant Assessment, contained the CalEEMod-generated reports of the model outputs for each activity – one each for the summer months (Attachments A-2 through M-2 of the January 29, 2012 assessment), and one each for the winter months (Attachments A-3 through M-3 of the January 29, 2012 assessment). All of the output reports contain calculated daily air pollution emissions for both "unmitigated" and "mitigated" activities, for which the "unmitigated" emissions are correct and the "mitigated" emissions are incorrect. ATTACHMENT A to this memorandum contains the calculation of the corrected Tier 2 mitigated CalEEMod construction equipment air pollutant emissions.

Attachment N, included as part of the January 29, 2012 Updated Air Pollutant Assessment, contained tables summarizing the specific daily air pollutant emissions for both "unmitigated" and "mitigated" activities, for which the "unmitigated" emissions are correct and the "mitigated" emissions are incorrect, for each of the following Project activities: power plant activities (power plant site preparation; power plant grading; power plant foundation construction, power plant mechanical construction, coating, and paving), WWTF activities (WWTF site preparation; WWTF grading; and WWTF construction) and well pad activities (well pad site preparation; well pad grading; well field construction; and well pad construction (drill rig assembly, well drilling and testing)). Attachment N of the January 29, 2012 assessment also included the calculations for the drill rig engine emissions. ATTACHMENT B to this memorandum contains these same tables summarizing the specific daily air pollutant emissions calculated by CalEEMod as contained in Attachment N of the January 29, 2012 Assessment, except the

"mitigated" emissions presented are those corrected through the calculations in ATTACHMENT A for each of the Project activities.

The daily air pollutant emissions presented in Attachment N of the January 29, 2012 Assessment were summed across each activity which would be occurring at the same time, in order to determine the daily Project-wide construction air pollutant emissions. Attachment O, included as part of the January 29, 2012 Assessment, presented tables providing the winter and summer unmitigated and mitigated daily air pollution emissions, for which the "unmitigated" emissions are correct and the "mitigated" emissions are incorrect, summed by applicable activities across the twelve time periods outlined in Table 8 of the January 29, 2012 assessment. ATTACHMENT C to this memorandum contains the same tables presented in Attachment O of the January 29, 2012 Assessment, as corrected through the calculations in ATTACHMENT A, for each of the twelve time periods. ATTACHMENT C to this memorandum shows that the recalculated ROG emissions (both winter and summer) are now below the applicable ICAPCD construction emission thresholds, while the recalculated "mitigated" daily NO_X emissions (both winter and summer) during all construction activities are still above the applicable ICAPCD thresholds.

ATTACHMENT A

RECALCULATED TIER 2 MITIGATED NO_X AND ROG EMISSIONS INCORRECTLY CALCULATED BY CALEEMOD FOR THE OFF-ROAD EQUIPMENT

PP Site Prep OffRdEqp 2012

Phase Name	Off-Road Equipment Type	Unit Amount	Usage Hours	Horse Power	Load Factor	OFFROAD2007 Emission Factor		Tier 2 Emission Factor		Unmitigated Emissions		Tier 2 Mitigated Emissions	
						NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG
			hrs/day			(lb/bhp-hr)		(lb/bhp-hr)		(lbs/day)		(lbs/day)	
Site Preparation	Graders	2	8	162	0.61	1.21E-02	1.57E-03	1.03E-02	5.40E-04	19.071	2.482	16.226	0.854
Site Preparation	Off-Highway Trucks	1	8	300	0.57	8.95E-03	1.04E-03	1.01E-02	5.29E-04	12.248	1.424	13.753	0.724
Site Preparation	Rubber Tired Dozer	2	8	358	0.59	1.36E-02	1.58E-03	1.01E-02	5.29E-04	46.067	5.342	33.975	1.788
Site Preparation	Tractors/Loaders/Backhoes	2	8	75	0.55	1.19E-02	1.84E-03	1.17E-02	6.17E-04	7.849	1.215	7.741	0.407
									Totals:	**85.234**	**10.462**	**71.694**	**3.773**

PP Grading OffRdEqp 2012

Phase Name	Off-Road Equipment Type	Unit Amount	Usage Hours	Horse Power	Load Factor	OFFROAD2007 Emission Factor		Tier 2 Emission Factor		Unmitigated Emissions		Tier 2 Mitigated Emissions	
						NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG
			hrs/day			(lb/bhp-hr)		(lb/bhp-hr)		(lbs/day)		(lbs/day)	
Grading	Excavators	2	8	157	0.57	1.07E-02	1.44E-03	1.03E-02	5.40E-04	15.367	2.058	14.694	0.773
Grading	Graders	3	8	162	0.61	1.21E-02	1.57E-03	1.03E-02	5.40E-04	28.606	3.723	24.339	1.281
Grading	Off-Highway Trucks	1	8	300	0.57	8.95E-03	1.04E-03	1.01E-02	5.29E-04	12.248	1.424	13.753	0.724
Grading	Rollers	2	8	84	0.56	1.41E-02	2.24E-03	1.17E-02	6.17E-04	10.581	1.684	8.827	0.465
Grading	Rubber Tired Dozer	1	8	358	0.59	1.36E-02	1.58E-03	1.01E-02	5.29E-04	23.033	2.671	16.987	0.894
Grading	Scrapers	2	8	356	0.72	1.18E-02	1.30E-03	1.01E-02	5.29E-04	48.209	5.325	41.229	2.170
Grading	Tractors/Loaders/Backhoes	2	8	75	0.55	1.19E-02	1.84E-03	1.17E-02	6.17E-04	7.849	1.215	7.741	0.407
									Totals:	**145.892**	**18.100**	**127.571**	**6.714**

PP Construc A OffRdEqp 2012

Phase Name	Off-Road Equipment Type	Unit Amount	Usage Hours	Horse Power	Load Factor	OFFROAD2007 Emission Factor		Tier 2 Emission Factor		Unmitigated Emissions		Tier 2 Mitigated Emissions	
						NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG
			hrs/day			(lb/bhp-hr)		(lb/bhp-hr)		(lbs/day)		(lbs/day)	
Building Constr.	Generator Sets	1	8	84	0.74	1.29E-02	1.91E-03	1.17E-02	6.17E-04	6.411	0.948	5.832	0.307
Building Constr.	Other General Industrial Equip	4	8	150	0.51	1.29E-02	1.74E-03	1.03E-02	5.40E-04	31.583	4.247	25.123	1.322
Building Constr.	Plate Compactors	5	8	8	0.43	9.13E-03	1.46E-03	9.13E-03	1.46E-03	1.257	0.201	1.257	0.201
Building Constr.	Tractors/Loaders/Backhoes	5	7	75	0.55	1.19E-02	1.84E-03	1.17E-02	6.17E-04	17.169	2.658	16.933	0.891
									Totals:	**56.419**	**8.054**	**49.145**	**2.721**

PP Construc B OffRdEqp 2012

Phase Name	Off-Road Equipment Type	Unit Amount	Usage Hours	Horse Power	Load Factor	OFFROAD2007 Emission Factor		Tier 2 Emission Factor		Unmitigated Emissions		Tier 2 Mitigated Emissions	
						NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG
			hrs/day			(lb/bhp-hr)		(lb/bhp-hr)		(lbs/day)		(lbs/day)	
Building Constr.	Air Compressors	4	6	78	0.48	1.41E-02	2.34E-03	1.17E-02	6.17E-04	12.658	2.102	10.539	0.555
Building Constr.	Cranes	4	8	208	0.43	1.20E-02	1.23E-03	1.03E-02	5.40E-04	34.250	3.521	29.372	1.546
Building Constr.	Forklifts	6	8	149	0.3	1.03E-02	1.38E-03	1.03E-02	5.40E-04	22.194	2.961	22.019	1.159
Building Constr.	Generator Sets	4	8	84	0.74	1.29E-02	1.91E-03	1.17E-02	6.17E-04	25.645	3.793	23.330	1.228
Building Constr.	Other General Industrial Equip	4	4	150	0.51	1.29E-02	1.74E-03	1.03E-02	5.40E-04	15.791	2.124	12.561	0.661
Building Constr.	Welders	15	8	46	0.45	1.27E-02	5.07E-03	1.17E-02	6.17E-04	31.483	12.590	29.134	1.533
									Totals:	**142.022**	**27.091**	**126.955**	**6.682**

PP Paving OffRdEqp 2012

Phase Name	Off-Road Equipment Type	Unit Amount	Usage Hours	Horse Power	Load Factor	OFFROAD2007 Emission Factor		Tier 2 Emission Factor		Unmitigated Emissions		Tier 2 Mitigated Emissions	
						NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG
			hrs/day			(lb/bhp-hr)		(lb/bhp-hr)		(lbs/day)		(lbs/day)	
Paving	Pavers	1	8	89	0.62	1.59E-02	2.66E-03	1.17E-02	6.17E-04	7.024	1.173	5.177	0.272
Paving	Rollers	2	8	84	0.56	1.41E-02	2.24E-03	1.17E-02	6.17E-04	10.581	1.684	8.827	0.465
									Totals:	**17.605**	**2.857**	**14.005**	**0.737**

Well Pd Site Prep OffRdEqp 2012

Phase Name	Off-Road Equipment Type	Unit Amount	Usage Hours	Horse Power	Load Factor	OFFROAD2007 Emission Factor		Tier 2 Emission Factor		Unmitigated Emissions		Tier 2 Mitigated Emissions	
						NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG
			hrs/day			(lb/bhp-hr)		(lb/bhp-hr)		(lbs/day)		(lbs/day)	
Site Preparation	Graders	1	8	162	0.61	1.21E-02	1.57E-03	1.03E-02	5.40E-04	9.535	1.241	8.113	0.427
Site Preparation	Off-Highway Trucks	1	8	381	0.57	8.95E-03	1.04E-03	1.01E-02	5.29E-04	15.555	1.808	17.466	0.919
									Totals:	**25.090**	**3.049**	**25.579**	**1.346**

Well Pad Grading OffRdEqp 2012

Phase Name	Off-Road Equipment Type	Unit Amount	Usage Hours	Horse Power	Load Factor	OFFROAD2007 Emission Factor		Tier 2 Emission Factor		Unmitigated Emissions		Tier 2 Mitigated Emissions	
						NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG
			hrs/day			(lb/bhp-hr)		(lb/bhp-hr)		(lbs/day)		(lbs/day)	
Grading	Plate Compactors	1	4	8	0.43	9.13E-03	1.46E-03	9.13E-03	1.46E-03	0.126	0.020	0.126	0.020
Grading	Graders	1	8	162	0.61	1.21E-02	1.57E-03	1.03E-02	5.40E-04	9.535	1.241	8.113	0.427
Grading	Off-Highway Trucks	1	8	300	0.57	8.95E-03	1.04E-03	1.01E-02	5.29E-04	12.248	1.424	13.753	0.724
Grading	Tractors/Loaders/Backhoes	1	8	75	0.55	1.19E-02	1.84E-03	1.17E-02	6.17E-04	3.924	0.607	3.870	0.204
									Totals:	**25.833**	**3.292**	**25.862**	**1.375**

DrillRig Assm etc OffRdEqp 2012

Phase Name	Off-Road Equipment Type	Unit Amount	Usage Hours	Horse Power	Load Factor	OFFROAD2007 Emission Factor		Tier 2 Emission Factor		Unmitigated Emissions		Tier 2 Mitigated Emissions	
						NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG
			hrs/day			(lb/bhp-hr)		(lb/bhp-hr)		(lbs/day)		(lbs/day)	
Building Constr.	Cranes	1	6	208	0.43	1.20E-02	1.23E-03	1.03E-02	5.40E-04	6.422	0.660	5.507	0.290
Building Constr.	Forklifts	1	6	149	0.3	1.03E-02	1.38E-03	1.03E-02	5.40E-04	2.774	0.370	2.752	0.145
									Totals:	**9.196**	**1.030**	**8.260**	**0.435**

Well Construc OffRdEqp 2012

Phase Name	Off-Road Equipment Type	Unit Amount	Usage Hours	Horse Power	Load Factor	OFFROAD2007 Emission Factor		Tier 2 Emission Factor		Unmitigated Emissions		Tier 2 Mitigated Emissions	
						NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG
			hrs/day			(lb/bhp-hr)		(lb/bhp-hr)		(lbs/day)		(lbs/day)	
Building Constr.	Welders	35	8	46	0.45	1.27E-02	5.07E-03	1.17E-02	6.17E-04	73.461	29.377	67.979	3.578
									Totals:	**73.461**	**29.377**	**67.979**	**3.578**

WWTF Site Prep OffRdEqp 2012

Phase Name	Off-Road Equipment Type	Unit Amount	Usage Hours	Horse Power	Load Factor	OFFROAD2007 Emission Factor		Tier 2 Emission Factor		Unmitigated Emissions		Tier 2 Mitigated Emissions	
						NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG
			hrs/day			(lb/bhp-hr)		(lb/bhp-hr)		(lbs/day)		(lbs/day)	
Site Preparation	Graders	1	8	162	0.61	1.21E-02	1.57E-03	1.03E-02	5.40E-04	9.535	1.241	8.113	0.427
Site Preparation	Off-Highway Trucks	1	8	300	0.57	8.95E-03	1.04E-03	1.01E-02	5.29E-04	12.248	1.424	13.753	0.724
Site Preparation	Scrapers	1	8	356	0.72	1.18E-02	1.30E-03	1.01E-02	5.29E-04	24.104	2.663	20.614	1.085
Site Preparation	Tractors/Loaders/Backhoes	1	7	75	0.55	1.19E-02	1.84E-03	1.17E-02	6.17E-04	3.434	0.532	3.387	0.178
									Totals:	**49.321**	**5.859**	**45.867**	**2.414**

WWTF Grading OffRdEqp 2012

Phase Name	Off-Road Equipment Type	Unit Amount	Usage Hours	Horse Power	Load Factor	OFFROAD2007 Emission Factor		Tier 2 Emission Factor		Unmitigated Emissions		Tier 2 Mitigated Emissions	
						NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG
			hrs/day			(lb/bhp-hr)		(lb/bhp-hr)		(lbs/day)		(lbs/day)	
Grading	Graders	1	8	162	0.61	1.21E-02	1.57E-03	1.03E-02	5.40E-04	9.535	1.241	8.113	0.427
Grading	Off-Highway Trucks	1	8	300	0.57	8.95E-03	1.04E-03	1.01E-02	5.29E-04	12.248	1.424	13.753	0.724
Grading	Rubber Tired Dozer	1	8	358	0.59	1.36E-02	1.58E-03	1.01E-02	5.29E-04	23.033	2.671	16.987	0.894
Grading	Tractors/Loaders/Backhoes	2	7	75	0.55	1.19E-02	1.84E-03	1.17E-02	6.17E-04	6.867	1.063	6.773	0.356
									Totals:	**51.684**	**6.399**	**45.626**	**2.401**

WWTF Construction OffRdEqp 2012

Phase Name	Off-Road Equipment Type	Unit Amount	Usage Hours	Horse Power	Load Factor	OFFROAD2007 Emission Factor		Tier 2 Emission Factor		Unmitigated Emissions		Tier 2 Mitigated Emissions	
						NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG
			hrs/day			(lb/bhp-hr)		(lb/bhp-hr)		(lbs/day)		(lbs/day)	
Building Constr.	Cranes	1	7	208	0.43	1.20E-02	1.23E-03	1.03E-02	5.40E-04	7.492	0.770	6.425	0.338
Building Constr.	Forklifts	1	8	149	0.3	1.03E-02	1.38E-03	1.03E-02	5.40E-04	3.699	0.494	3.670	0.193
Building Constr.	Generator Sets	1	8	84	0.74	1.29E-02	1.91E-03	1.17E-02	6.17E-04	6.411	0.948	5.832	0.307
Building Constr.	Tractors/Loaders/Backhoes	1	7	75	0.55	1.19E-02	1.84E-03	1.17E-02	6.17E-04	3.434	0.532	3.387	0.178
Building Constr.	Welders	1	8	46	0.45	1.27E-02	5.07E-03	1.17E-02	6.17E-04	2.099	0.839	1.942	0.102
									Totals:	**23.135**	**3.583**	**21.256**	**1.119**

Tier EF Tier 2

Table 3.5 with corrections in yellow (g/bhp-hr)								
Tier	**LowHP**	**HighHP**	**CO**	**NOX**	**PM10**	**PM25**	**ROG**	**TOG**
Tier 2	25	49	4.1	5.32	0.45	0.45	0.28	0.28
Tier 2	50	74	3.7	5.32	0.3	0.3	0.28	0.28
Tier 2	75	99	3.7	5.32	0.3	0.3	0.28	0.28
Tier 2	100	174	3.7	4.655	0.22	0.22	0.245	0.245
Tier 2	175	299	2.6	4.655	0.15	0.15	0.245	0.245
Tier 2	300	599	2.6	4.56	0.15	0.15	0.24	0.24
Tier 2	600	750	2.6	4.56	0.15	0.15	0.24	0.24
Tier 2	750	2000	2.6	4.56	0.15	0.15	0.24	0.24

Table 3.5 with corrections in yellow (lb/bhp-hr)								
Tier	**LowHP**	**HighHP**	**CO**	**NOX**	**PM10**	**PM25**	**ROG**	**TOG**
Tier 2	25	49	0.009039	0.0117286	0.0009921	0.00099208	0.000617294	0.000617294
Tier 2	50	74	0.0081571	0.0117286	0.0006614	0.000661387	0.000617294	0.000617294
Tier 2	75	99	0.0081571	0.0117286	0.0006614	0.000661387	0.000617294	0.000617294
Tier 2	100	174	0.0081571	0.0102625	0.000485	0.000485017	0.000540133	0.000540133
Tier 2	175	299	0.005732	0.0102625	0.0003307	0.000330693	0.000540133	0.000540133
Tier 2	300	599	0.005732	0.0100531	0.0003307	0.000330693	0.000529109	0.000529109
Tier 2	600	750	0.005732	0.0100531	0.0003307	0.000330693	0.000529109	0.000529109
Tier 2	750	2000	0.005732	0.0100531	0.0003307	0.000330693	0.000529109	0.000529109

Tier EF Tier 3

Table 3.5 with corrections in yellow (g/bhp-hr)								
Tier	**LowHP**	**HighHP**	**CO**	**NOX**	**PM10**	**PM25**	**ROG**	**TOG**
Tier 3	25	49	4.1	5.32	0.45	0.45	0.28	0.28
Tier 3	50	74	3.7	5.32	0.3	0.3	0.28	0.28
Tier 3	75	99	3.7	3.325	0.3	0.3	0.175	0.175
Tier 3	100	174	3.7	2.85	0.22	0.22	0.15	0.15
Tier 3	175	299	2.6	2.85	0.15	0.15	0.15	0.15
Tier 3	300	599	2.6	2.85	0.15	0.15	0.15	0.15
Tier 3	600	750	2.6	2.85	0.15	0.15	0.15	0.15
Tier 3	750	2000	2.6	4.56	0.15	0.15	0.24	0.24

Table 3.5 with corrections in yellow (lb/bhp-hr)								
Tier	**LowHP**	**HighHP**	**CO**	**NOX**	**PM10**	**PM25**	**ROG**	**TOG**
Tier 3	25	49	0.009039	0.0117286	0.0009921	0.00099208	0.000617294	0.000617294
Tier 3	50	74	0.0081571	0.0117286	0.0006614	0.000661387	0.000617294	0.000617294
Tier 3	75	99	0.0081571	0.0073304	0.0006614	0.000661387	0.000385809	0.000385809
Tier 3	100	174	0.0081571	0.0062832	0.000485	0.000485017	0.000330693	0.000330693
Tier 3	175	299	0.005732	0.0062832	0.0003307	0.000330693	0.000330693	0.000330693
Tier 3	300	599	0.005732	0.0062832	0.0003307	0.000330693	0.000330693	0.000330693
Tier 3	600	750	0.005732	0.0062832	0.0003307	0.000330693	0.000330693	0.000330693
Tier 3	750	2000	0.005732	0.0100531	0.0003307	0.000330693	0.000529109	0.000529109

ATTACHMENT B

TABLES SUMMARIZING DAILY AIR POLLUTANT EMISSIONS CALCULATED FOR EACH PROJECT ACTIVITY

UNMITIGATED AND TIER 2 MITIGATED (RECALCULATED)

East Brawley - Winter PP Site Preparation and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation	10.45	85.16	45.93	0.08	21.39	10.78
Site Preparation Traffic	0.10	0.11	0.93	0.00	0.10	0.01
Total	**10.55**	**85.27**	**46.86**	**0.08**	**21.49**	**10.79**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation			45.45	0.08	9.49	5.35
Site Preparation Recalc	3.77	71.69				
Site Preparation Traffic	0.10	0.11	0.93	0.00	0.10	0.01
Total	**3.87**	**71.80**	**46.38**	**0.08**	**9.59**	**5.36**
East Brawley - Summer PP Site Preparation and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation	10.45	85.16	45.93	0.08	21.39	10.78
Site Preparation Traffic	0.12	0.11	1.11	0.00	0.10	0.01
Total	**10.57**	**85.27**	**47.04**	**0.08**	**21.49**	**10.79**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation			45.45	0.08	9.49	5.35
Site Preparation Recalc	3.77	71.69				
Site Preparation Traffic	0.12	0.11	1.11	0.00	0.10	0.01
Total	**3.89**	**71.80**	**46.56**	**0.08**	**9.59**	**5.36**

East Brawley - Winter PP Grading and Associated Traffic						
Winter Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Grading	18.08	145.76	77.62	0.15	15.82	10.77
Grading Traffic	0.48	1.52	4.13	0.00	0.48	0.06
Total	**18.56**	**147.28**	**81.75**	**0.15**	**16.30**	**10.83**
Winter Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Grading			83.51	0.15	8.40	6.43
Grading Recalc	6.71	127.57				
Grading Traffic	0.48	1.52	4.13	0.00	0.48	0.06
Total	**7.19**	**129.09**	**87.64**	**0.15**	**8.88**	**6.49**
East Brawley - Summer PP Grading and Associated Traffic						
Summer Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Grading	18.08	145.76	77.62	0.15	15.82	10.77
Grading Traffic	0.55	1.51	4.79	0.00	0.48	0.06
Total	**18.63**	**147.27**	**82.41**	**0.15**	**16.30**	**10.83**
Summer Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Grading			83.51	0.15	8.40	6.43
Grading Recalc	6.71	127.57				
Grading Traffic	0.55	1.51	4.79	0.00	0.48	0.06
Total	**7.26**	**129.08**	**88.30**	**0.15**	**8.88**	**6.49**

PP Construction A

East Brawley - Winter PP Construction A - Foundation Work and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction A	8.05	56.37	35.77	0.06	3.95	3.95
Construction A Traffic	4.08	24.02	28.37	0.04	3.59	0.92
Total	**12.13**	**80.39**	**64.14**	**0.10**	**7.54**	**4.87**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction A			35.77	0.06	2.47	2.47
Construction A Recalc	2.72	49.14				
Construction A Traffic	4.08	24.02	28.37	0.04	3.59	0.92
Total	**6.80**	**73.16**	**64.14**	**0.10**	**6.06**	**3.39**
East Brawley - Summer PP Construction A - Foundation Work and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction A	8.05	56.37	35.77	0.06	3.95	3.95
Construction A Traffic	4.34	23.69	31.00	0.04	3.57	0.91
Total	**12.39**	**80.06**	**66.77**	**0.10**	**7.52**	**4.86**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction A			35.77	0.06	2.47	2.47
Construction A Recalc	2.72	49.14				
Construction A Traffic	4.34	23.69	31.00	0.04	3.57	0.91
Total	**7.06**	**72.83**	**66.77**	**0.10**	**6.04**	**3.38**

East Brawley - Winter PP Construction B - Mechanical Work and Associated Traffic						
Winter Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Construction B	27.07	141.89	92.37	0.16	9.74	9.74
Construction B Traffic	4.08	24.02	28.37	0.04	3.59	0.92
Total	**31.15**	**165.91**	**120.74**	**0.20**	**13.33**	**10.66**
Winter Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Construction B			89.82	0.16	6.95	6.95
Construction B Recalc	6.68	126.95				
Construction B Traffic	4.08	24.02	28.37	0.04	3.59	0.92
Total	**10.76**	**150.97**	**118.19**	**0.20**	**10.54**	**7.87**
East Brawley - Summer PP Construction B - Mechanical Work and Associated Traffic						
Summer Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Construction B	27.07	141.89	92.37	0.16	9.74	9.74
Construction B Traffic	4.34	23.69	31.00	0.04	3.57	0.91
Total	**31.41**	**165.58**	**123.37**	**0.20**	**13.31**	**10.65**
Summer Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Construction B			89.82	0.16	6.95	6.95
Construction B Recalc	6.68	126.95				
Construction B Traffic	4.34	23.69	31.00	0.04	3.57	0.91
Total	**11.02**	**150.64**	**120.82**	**0.20**	**10.52**	**7.86**

PP Coating

East Brawley - Winter Coating and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Coating	2.40	3.16	1.96	0.00	0.29	0.29
Coating Traffic	0.08	0.34	0.62	0.00	0.08	0.01
Total	**2.48**	**3.50**	**2.58**	**0.00**	**0.37**	**0.30**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Coating	2.40	3.16	1.96	0.00	0.29	0.29
Coating Traffic	0.08	0.34	0.62	0.00	0.08	0.01
Total	**2.48**	**3.50**	**2.58**	**0.00**	**0.37**	**0.30**
East Brawley - Summer Coating and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Coating	2.40	3.16	1.96	0.00	0.29	0.29
Coating Traffic	0.09	0.33	0.71	0.00	0.08	0.01
Total	**2.49**	**3.49**	**2.67**	**0.00**	**0.37**	**0.30**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Coating	2.40	3.16	1.96	0.00	0.29	0.29
Coating Traffic	0.09	0.33	0.71	0.00	0.08	0.01
Total	**2.49**	**3.49**	**2.67**	**0.00**	**0.37**	**0.30**

PP Paving

East Brawley - Winter Paving and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Paving	3.31	17.59	10.62	0.02	1.54	1.54
Paving Traffic	0.14	0.63	1.14	0.00	0.59	0.03
Total	**3.45**	**18.22**	**11.76**	**0.02**	**2.13**	**1.57**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Paving			9.73	0.02	0.79	0.79
Paving Recalc	0.74	14.00				
Paving Traffic	0.14	0.63	1.14	0.00	0.59	0.03
Total	**0.88**	**14.63**	**10.87**	**0.02**	**1.38**	**0.82**
East Brawley - Summer Paving and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Paving	3.31	17.59	10.62	0.02	1.54	1.54
Paving Traffic	0.16	0.62	1.30	0.00	0.59	0.03
Total	**3.47**	**18.21**	**11.92**	**0.02**	**2.13**	**1.57**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Paving			9.73	0.02	0.79	0.79
Paving Recalc	0.74	14.00				
Paving Traffic	0.16	0.62	1.30	0.00	0.59	0.03
Total	**0.90**	**14.62**	**11.03**	**0.02**	**1.38**	**0.82**

Well Pad Site Prep

East Brawley - Winter Well Pad Site Preparation and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation	3.05	25.07	11.19	0.03	5.35	1.11
Site Preparation Traffic	0.07	0.08	0.70	0.00	11.15	1.11
Total	**3.12**	**25.15**	**11.89**	**0.03**	**16.50**	**2.22**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation			16.39	0.03	2.61	0.96
Site Preparation Recalc	1.35	25.58				
Site Preparation Traffic	0.07	0.08	0.70	0.00	4.39	0.44
Total	**1.42**	**25.66**	**17.09**	**0.03**	**7.00**	**1.40**
East Brawley - Summer Well Pad Site Preparation and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation	3.05	25.07	11.19	0.03	5.35	1.11
Site Preparation Traffic	0.09	0.08	0.83	0.00	11.15	1.11
Total	**3.14**	**25.15**	**12.02**	**0.03**	**16.50**	**2.22**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Site Preparation			16.39	0.03	2.61	0.96
Site Preparation Recalc	1.35	25.58				
Site Preparation Traffic	0.09	0.08	0.83	0.00	4.39	0.44
Total	**1.44**	**25.66**	**17.22**	**0.03**	**7.00**	**1.40**

East Brawley - Winter Well Pad Grading and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	3.29	25.81	13.01	0.03	2.96	1.34
Grading Traffic	0.57	5.16	3.60	0.01	118.55	11.89
Total	**3.86**	**30.97**	**16.61**	**0.04**	**121.51**	**13.23**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading			16.97	0.03	1.68	1.05
Grading Recalc	1.37	25.86				
Grading Traffic	0.57	5.16	3.60	0.01	47.12	4.77
Total	**1.94**	**31.02**	**20.57**	**0.04**	**48.80**	**5.82**
East Brawley - Summer Well Pad Grading and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	3.29	25.81	13.01	0.03	2.96	1.34
Grading Traffic	0.59	5.09	3.76	0.01	118.55	11.89
Total	**3.88**	**30.90**	**16.77**	**0.04**	**121.51**	**13.23**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading			16.97	0.03	1.68	1.05
Grading Recalc	1.37	25.86				
Grading Traffic	0.59	5.09	3.76	0.01	47.11	4.76
Total	**1.96**	**30.95**	**20.73**	**0.04**	**48.79**	**5.81**

East Brawley - Winter Drill Rig Assembly, Well Drilling & Testing and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	1.03	9.19	3.83	0.01	0.40	0.40
Grading Traffic	0.57	2.11	4.69	0.00	70.62	7.08
Total	**1.60**	**11.30**	**8.52**	**0.01**	**71.02**	**7.48**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading			5.26	0.01	0.31	0.31
Grading Recalc	0.43	8.26				
Grading Traffic	0.57	2.11	4.69	0.00	27.84	2.82
Total	**1.00**	**10.37**	**9.95**	**0.01**	**28.15**	**3.13**
East Brawley - Summer Drill Rig Assembly, Well Drilling & Testing and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	1.03	9.19	3.83	0.01	0.40	0.40
Grading Traffic	0.64	2.09	5.39	0.00	70.62	7.08
Total	**1.67**	**11.28**	**9.22**	**0.01**	**71.02**	**7.48**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading			5.26	0.01	0.31	0.31
Grading Recalc	0.43	8.26				
Grading Traffic	0.64	2.09	5.39	0.00	27.84	2.82
Total	**1.07**	**10.35**	**10.65**	**0.01**	**28.15**	**3.13**

Well Field Construction

East Brawley - Winter Well Field Construction and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction B	29.35	73.39	78.96	0.09	7.15	7.15
Construction B Traffic	0.00	0.00	0.00	0.00	0.00	0.00
Total	**29.35**	**73.39**	**78.96**	**0.09**	**7.15**	**7.15**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction B			52.34	0.09	5.74	5.74
Construction B Recalc	3.58	67.98				
Construction B Traffic	0.00	0.00	0.00	0.00	0.00	0.00
Total	**3.58**	**67.98**	**52.34**	**0.09**	**5.74**	**5.74**
East Brawley - Summer Well Field Construction and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction B	29.35	73.39	78.96	0.09	7.15	7.15
Construction B Traffic	0.00	0.00	0.00	0.00	0.00	0.00
Total	**29.35**	**73.39**	**78.96**	**0.09**	**7.15**	**7.15**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction B			52.34	0.09	5.74	5.74
Construction B Recalc	3.58	67.98				
Construction B Traffic	0.00	0.00	0.00	0.00	0.00	0.00
Total	**3.58**	**67.98**	**52.34**	**0.09**	**5.74**	**5.74**

Drill Rig Summary

Gallons of Fuel Used (per day)		Emission Factors (lb/gal)							Average Emissions (lbs/day)						
		ROC	NOx	CO	SO2	PM10	PM2.5	CO2	ROC	NOx	CO	SO2	PM10	PM2.5	CO2
Avg Well:	931	0.027048	0.191414	0.119471	0.000213	0.006827	0.006281	24.09	25.19	178.25	111.26	0.20	6.36	5.85	22,430

East Brawley - Winter WWTF Site Preparation and Associated Traffic						
Winter Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Site Preparation	5.85	49.28	22.93	0.05	8.60	2.24
Site Preparation Traffic	0.07	0.08	0.70	0.00	0.08	0.00
Total	**5.92**	**49.36**	**23.63**	**0.05**	**8.68**	**2.24**
Winter Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Site Preparation			28.37	0.05	4.18	1.70
Site Preparation Recalc	2.41	45.87				
Site Preparation Traffic	0.07	0.08	0.70	0.00	0.08	0.00
Total	**2.48**	**45.95**	**29.07**	**0.05**	**4.26**	**1.70**
East Brawley - Summer WWTF Site Preparation and Associated Traffic						
Summer Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Site Preparation	5.85	49.28	22.93	0.05	8.60	2.24
Site Preparation Traffic	0.09	0.08	0.83	0.00	0.08	0.00
Total	**5.94**	**49.36**	**23.76**	**0.05**	**8.68**	**2.24**
Summer Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Site Preparation			28.37	0.05	4.18	1.70
Site Preparation Recalc	2.41	45.87				
Site Preparation Traffic	0.09	0.08	0.83	0.00	0.08	0.00
Total	**2.50**	**45.95**	**29.20**	**0.05**	**4.26**	**1.70**

WWTF Grading

East Brawley - Winter WWTF Grading and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	6.39	51.64	27.19	0.05	11.13	5.87
Grading Traffic	0.07	0.08	0.70	0.00	0.08	0.00
Total	**6.46**	**51.72**	**27.89**	**0.05**	**11.21**	**5.87**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading			28.66	0.05	5.11	3.06
Grading Recalc	2.40	45.63				
Grading Traffic	0.07	0.08	0.70	0.00	0.08	0.00
Total	**2.47**	**45.71**	**29.36**	**0.05**	**5.19**	**3.06**
East Brawley - Summer WWTF Grading and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading	6.39	51.64	27.19	0.05	11.13	5.87
Grading Traffic	0.09	0.08	0.83	0.00	0.08	0.00
Total	**6.48**	**51.72**	**28.02**	**0.05**	**11.21**	**5.87**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Grading			28.66	0.05	5.11	3.06
Grading Recalc	2.40	45.63				
Grading Traffic	0.09	0.08	0.83	0.00	0.08	0.00
Total	**2.49**	**45.71**	**29.49**	**0.05**	**5.19**	**3.06**

WWTF Construction

East Brawley - Winter WWTF Construction and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction	3.58	23.11	13.49	0.03	1.50	1.50
Construction Traffic	0.14	0.17	1.39	0.00	0.15	0.01
Total	**3.72**	**23.28**	**14.88**	**0.03**	**1.65**	**1.51**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction			14.40	0.03	1.06	1.06
Construction Recalc	1.12	21.26				
Construction Traffic	0.14	0.17	1.39	0.00	0.15	0.01
Total	**1.26**	**21.43**	**15.79**	**0.03**	**1.21**	**1.07**
East Brawley - Summer WWTF Construction and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction	3.58	23.11	13.49	0.03	1.50	1.50
Construction Traffic	0.17	0.17	1.66	0.00	0.15	0.01
Total	**3.75**	**23.28**	**15.15**	**0.03**	**1.65**	**1.51**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Construction			14.40	0.03	1.06	1.06
Construction Recalc	1.12	21.26				
Construction Traffic	0.17	0.17	1.66	0.00	0.15	0.01
Total	**1.29**	**21.43**	**16.06**	**0.03**	**1.21**	**1.07**

ATTACHMENT C

TABLES PROVIDING DAILY AIR POLLUTION EMISSIONS SUMMED BY TIME PERIOD

UNMITIGATED AND TIER 2 MITIGATED (RECALCULATED)

Early-Mid January 2012

PP Site Preparation & All Well Pad Activities						
Early through Mid January 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**44.32**	**330.94**	**195.14**	**0.36**	**236.88**	**39.57**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**
Early through Mid January 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**44.45**	**330.85**	**196.31**	**0.36**	**236.88**	**39.57**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**
Early through Mid January 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**33.43**	**317.11**	**205.25**	**0.36**	**99.90**	**21.56**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Early through Mid January 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**33.56**	**317.02**	**206.42**	**0.36**	**99.89**	**21.55**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

PP Grading & All Well Pad Activities						
Late January through March 2012 - Unmitigated Winter						
Winter Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	52.33	392.95	230.03	0.43	231.69	39.61
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	No	Yes	No	No	Yes	No
Late January through March 2012 - Unmitigated Summer						
Summer Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	52.51	392.85	231.68	0.43	231.69	39.61
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	No	Yes	No	No	Yes	No
Late January through March 2012 - Mitigated Winter						
Winter Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	36.75	374.40	246.51	0.43	99.19	22.69
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	No	Yes	No	No	No	No
Late January through March 2012 - Mitigated Summer						
Summer Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	36.93	374.30	248.16	0.43	99.18	22.68
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	No	Yes	No	No	No	No

April through Mid June 2012

PP Construction A - Foundation Work & All Well Pad Activities						
April thorugh Mid June 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**45.90**	**326.06**	**212.42**	**0.38**	**222.93**	**33.65**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**
April thorugh Mid June 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**46.27**	**325.64**	**216.04**	**0.38**	**222.91**	**33.64**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**Yes**	**No**
April thorugh Mid June 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**36.35**	**318.47**	**223.01**	**0.38**	**96.37**	**19.59**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
April thorugh Mid June 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**36.72**	**318.05**	**226.63**	**0.38**	**96.34**	**19.57**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

PP Construction B - Mechanical Work, Well Field Construction & All Well Pad Activities						
Mid June through Late June 2012 - Unmitigated Winter						
Winter Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	94.27	484.97	347.98	0.57	235.87	46.59
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	Yes	Yes	No	No	Yes	No
Mid June through Late June 2012 - Unmitigated Summer						
Summer Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	94.64	484.55	351.60	0.57	235.85	46.58
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	Yes	Yes	No	No	Yes	No
Mid June through Late June 2012 - Mitigated Winter						
Winter Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	43.89	464.26	329.40	0.57	106.59	29.81
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	No	Yes	No	No	No	No
Mid June through Late June 2012 - Mitigated Summer						
Summer Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	44.26	463.84	333.02	0.57	106.56	29.79
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	No	Yes	No	No	No	No

PP Construction B - Mechanical Work, Well Field Construction, WWTF Site Prep, & All Well Pad Activities						
Early July 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**100.19**	**534.33**	**371.61**	**0.62**	**244.55**	**48.83**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Early July 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**100.58**	**533.91**	**375.36**	**0.62**	**244.53**	**48.82**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Early July 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**46.38**	**510.21**	**358.47**	**0.62**	**110.85**	**31.51**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Early July 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**46.77**	**509.79**	**362.22**	**0.62**	**110.82**	**31.49**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

PP Construction B - Mechanical Work, Well Field Construction, WWTF Grading, & All Well Pad Activities						
Mid July 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**100.73**	**536.69**	**375.87**	**0.62**	**247.08**	**52.46**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Mid July 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**101.12**	**536.27**	**379.62**	**0.62**	**247.06**	**52.45**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Mid July 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**46.36**	**509.96**	**358.76**	**0.62**	**111.78**	**32.87**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Mid July 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**46.75**	**509.54**	**362.51**	**0.62**	**111.75**	**32.85**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

PP Construction B - Mechanical Work, Well Field Construction, WWTF Construction, & All Well Pad Activities						
Late July 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**97.99**	**508.25**	**362.86**	**0.60**	**237.52**	**48.10**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Late July 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**98.39**	**507.83**	**366.75**	**0.60**	**237.50**	**48.09**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
Late July 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**45.15**	**485.68**	**345.19**	**0.60**	**107.80**	**30.88**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
Late July 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**45.55**	**485.26**	**349.08**	**0.60**	**107.77**	**30.86**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

PP Construction B - Mechanical Work, Well Field Construction & All Well Pad Activities						
August 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**94.27**	**484.97**	**347.98**	**0.57**	**235.87**	**46.59**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
August 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**94.64**	**484.55**	**351.60**	**0.57**	**235.85**	**46.58**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
August 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**43.89**	**464.26**	**329.40**	**0.57**	**106.59**	**29.81**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
August 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**44.26**	**463.84**	**333.02**	**0.57**	**106.56**	**29.79**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

PP Construction B - Mechanical Work, Well Field Construction, Coating, & All Well Pad Activities						
September 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**96.75**	**488.47**	**350.56**	**0.57**	**236.24**	**46.89**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
September 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**97.13**	**488.04**	**354.27**	**0.57**	**236.22**	**46.88**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
September 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**46.37**	**467.76**	**331.98**	**0.57**	**106.96**	**30.11**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
September 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**46.75**	**467.33**	**335.69**	**0.57**	**106.93**	**30.09**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

PP Construction B - Mechanical Work, Well Field Construction, Paving, & All Well Pad Activities						
October 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**97.72**	**503.19**	**359.74**	**0.59**	**238.00**	**48.16**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
October 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**98.11**	**502.76**	**363.52**	**0.59**	**237.98**	**48.15**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
October 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**44.77**	**478.89**	**340.27**	**0.59**	**107.97**	**30.63**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
October 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**45.16**	**478.46**	**344.05**	**0.59**	**107.94**	**30.61**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

PP Construction B - Mechanical Work, Well Field Construction & All Well Pad Activities						
November 2012 through March 2013 - Unmitigated Winter						
Winter Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	94.27	484.97	347.98	0.57	235.87	46.59
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	Yes	Yes	No	No	Yes	No
November 2012 through March 2013 - Unmitigated Summer						
Summer Unmitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	94.64	484.55	351.60	0.57	235.85	46.58
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	Yes	Yes	No	No	Yes	No
November 2012 through March 2013 - Mitigated Winter						
Winter Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	43.89	464.26	329.40	0.57	106.59	29.81
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	No	Yes	No	No	No	No
November 2012 through March 2013 - Mitigated Summer						
Summer Mitigated	Emission Rate (lbs/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Total	44.26	463.84	333.02	0.57	106.56	29.79
ICAPCD Significance	75.00	100.00	550.00	150.00	150.00	55.00
CEQA Significant?	No	Yes	No	No	No	No

PP Construction B - Mechanical Work, Well Field Construction & All Well Pad Activities						
April through May 2013 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**94.27**	**484.97**	**347.98**	**0.57**	**235.87**	**46.59**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
April through May 2013 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**94.64**	**484.55**	**351.60**	**0.57**	**235.85**	**46.58**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**Yes**	**No**	**No**	**Yes**	**No**
April through May 2013 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**43.89**	**464.26**	**329.40**	**0.57**	**106.59**	**29.81**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**
April through May 2013 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**44.26**	**463.84**	**333.02**	**0.57**	**106.56**	**29.79**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**Yes**	**No**	**No**	**No**	**No**

ENVIRONMENTAL MANAGEMENT ASSOCIATES

November 28, 2011

Mr. Ron Leiken
Environmental/Regulatory Affairs Administrator
Ormat Nevada, Inc.
6225 Neil Road
Reno, Nevada 89511

Re: Air Quality Impact Analysis of NO_X Emissions from Well Pad and Power Plant Construction, East Brawley Geothermal Project, Imperial County, California

Dear Mr. Leiken:

In our letter report of November 28, 2011 entitled "Updated Construction Air Pollutant Emission Assessment, East Brawley Geothermal Project, Imperial County, California" (EMA 2011a), Environmental Management Associates, Inc. (EMA) concluded that the mitigated daily NO_X emissions from construction activities associated with the East Brawley power plant and the drilling of geothermal wells would exceed the daily NO_X "threshold of significance for construction activities" in Table 4 of the Imperial County Air Pollution Control District "CEQA Air Quality Handbook" (November 2007), which "is intended to serve as a guide for project developers and interested parties in determining the recommended type of mitigation measures." To determine if these East Brawley Project daily construction NO_X emissions had the potential to create an exceedence of any applicable 1-hour or annual NO_2 air quality standard, EMA conducted the NO_2 ambient air quality impact analysis described below.

Since Ormat has limited drilling to only one well at a time, modeling need not be undertaken to evaluate the short-term (1-hour) ambient air concentration from the drilling of more than one well at a time. However, power plant construction could overlap the drilling of any of the wells not yet drilled. Thus, to evaluate the potential short-term and long-term ambient air concentrations from contemporaneous construction of the power and the drilling of any one well, EMA modeled the NO_X construction emissions from the East Brawley Geothermal Project power plant site and the four geothermal well sites not yet drilled located closest to the power plant site. These five modeled sources, and their model IDs, are listed below:

- WELL4222 – Drill Rig at East Brawley Well Site 42-22;
- WELL6122 – Drill Rig at East Brawley Well Site 61-22;
- WELL4515 – Drill Rig at East Brawley Well Site 45-15;
- WELL3715 – Drill Rig at East Brawley Well Site 37-15; and
- PPCNSTRC – East Brawley Power Plant Construction B – Mechanical Construction

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The Project drill rig NO_X emissions were calculated using the drill rig engine NO_X emission information contained in filings with the California Air Resources Board (CARB) for the Portable Equipment Registration Program (PERP) and historic diesel fuel use for the East Brawley Geothermal Project wells drilled to date (EMA 2011a). The Project power plant construction NO_X emissions were estimated using the California Emission Estimator Model (CalEEMod) (version 2011.1) (EMA 2011a - Construction B – Mechanical Construction).

EMA used the Trinity Consultants *BREEZE AERMOD GIS Pro v7.3* modeling manager, and the current USEPA-approved AMS/EPA Regulatory Model (AERMOD) (Version 11103), with elevated terrain and USEPA regulatory defaults, to conduct the air quality analysis.

The NO_X emissions from the four drill rig sources (WELL4222, WELL6122, WELL4515, and WELL3715) were each modeled from a single stack source on each well pad using typical diesel engine stack parameters (see Attachment A). The well pad dimensions and orientation for each of the four well sites were determined from Project well field layouts provided by Ormat using Google Earth. Figure 1 (in Attachment B) shows on Google Earth the location of these four Project well sites in relation to the power plant. Figure 2 (in Attachment B) shows the modeled locations of these four Project well site sources in relation to the power plant source and the adjacent boundary receptors.

Since Ormat has limited drilling to only one well at a time, for analysis of the 1-hour ambient concentrations each drill rig NO_X emission source was modeled separately from the other well site sources (as well as with the power plant emission source). The calculated daily NO_X emissions from the drilling of a well were distributed over a 24-hour period to obtain an hourly emission rate. For analysis of the annual ambient concentrations the four drill rig sources were modeled together (with the power plant source). For the annual model each well was modeled as operating 8,760 hours per year, but at a NO_X emission rate of $1/12^{th}$ of the emission rate modeled for the 1-hour ambient concentration, as each well is expected to take only one month ($1/12^{th}$ of a year) to drill. Attachment A provides the modeling emission parameters for each of the modeled wells.

The power plant source (PPCNSTRC) was modeled as an area source, with lengths of the "X" and "Y" sides and the orientation angle determined from Project site layouts provided by Ormat using Google Earth. Figure 1 (in Attachment B) shows the location of the power plant in relation to the four Project well sites, while Figure 2 shows all of the modeled sources and the adjacent boundary receptors. The initial vertical dimension and release height used were typical for construction project emissions (see Attachment A).

Because power plant construction activities would be scheduled during a specific time period (typically 7:00 am to 3:00 pm) each day, the calculated daily NO_X emissions from power plant construction were distributed over this eight-hour period to obtain an hourly emission rate for the power plant construction. Using the AERMOD model's variable emission rate function, the power plant source (PPCNSTRC) was modeled as operating only during this time of day (0700 -

1400 hours). Attachment A provides the modeling emission parameters for the East Brawley power plant source used in this analysis.

The following classes of receptors were used for the modeling (see Figure 3 (in Attachment B)):

- Discrete receptor placed at the locations of four nearby residences.
- "Boundary" receptors spaced at approximately 10-meter intervals along the boundary of each well pad and the power plant site; and
- Cartesian grid receptors, spaced at 25-meter intervals, out to a distance of approximately 300 meters from the boundary of all project sources (well pad or power plant).

Elevations for all of the NO_X emission sources and modeled receptors were electronically generated through the *BREEZE AERMOD GIS Pro v7.3* modeling manager using AERMAP (Version 11103) and the following U.S. Geological Survey (USGS) 30-Meter Digital Elevation Model (DEM) files: Wiest (33115A4), Westmoreland East (33115A5), Alamorio (32115H4), and Brawley (32115H5). The DEM domain (for calculating hill height scale factors) was set to "automatic," which uses the entirety of the DEM file data. AERMAP (Version 11103) determines the elevation of each of the receptors by a distance-weighted two-dimensional interpolation of the elevation values at the four nearest DEM nodes surrounding the receptor location.

The modeling used the 1999 surface meteorological data from the National Weather Service Imperial Airport meteorological station, processed using AERMET (Version 06341) with corresponding upper air meteorological data from the National Weather Service Tucson (23160) meteorological station, as provided by the Imperial County Air Pollution Control District (ICAPCD). A windrose plot of the meteorological data set is provided as Figure 4 in Attachment B.

No background sources were included in the modeling, although monitored background NO_2 concentrations were determined to be added to the applicable modeled concentrations. The ICAPCD currently operates three NO_2 ambient air quality monitoring stations within Imperial County. All are located more than 15 miles from the Project area, and are located in urban areas (El Centro and Calexico) where relatively high ambient NO_2 concentrations would be expected. The El Centro-Ninth Street monitoring station, which is located closest to the Project, was chosen to conservatively represent the background concentrations at the Project site. The El Centro monitored ambient air quality data for the most recent year available (2008) was retrieved from the EPA Air Data website (http://www.epa.gov/air/data/index.html). The maximum 1-hour maximum NO_2 concentration measured for 2008 at El Centro, 90.6 $\mu g/m^3$, was selected as the background 1-hour NO_2 concentration. The mean annual NO_2 concentration for 2008, 15.1 $\mu g/m^3$, was selected as the background annual NO_2 concentration.

A total of nine source groups were created and modeled to evaluate the 1-hour NO_X concentrations – four for the drilling at each of four well sites, one for the power plant

construction activities; and four for the simultaneous drilling at each of four well sites with the construction activities at the power plant site:

- WELL4222 – Drill Rig at East Brawley Well 42-22;
- WELL6122 – Drill Rig at East Brawley Well 61-22;
- WELL4515 – Drill Rig at East Brawley Well 45-15;
- WELL3715 – Drill Rig at East Brawley Well 37-15;
- PPCNSTRC – East Brawley Power Plant Construction B – Mechanical Construction;
- W4222&PP - Drill Rig at East Brawley Well 42-22 and East Brawley Power Plant Construction B – Mechanical Construction;
- W6122&PP - Drill Rig at East Brawley Well 61-22 and East Brawley Power Plant Construction B – Mechanical Construction;
- W4515&PP - Drill Rig at East Brawley Well 45-15 and East Brawley Power Plant Construction B – Mechanical Construction; and
- W3715&PP - Drill Rig at East Brawley Well 37-15 and East Brawley Power Plant Construction B – Mechanical Construction.

A total of one source group was created and modeled to evaluate the annual NO_X concentrations:

- ALL – Drill Rigs at East Brawley Well 42-22, Well 61-22, Well 45-15, Well 37-15 (annualized emissions) and East Brawley Power Plant Construction B – Mechanical Construction.

One model run was conducted to evaluate the ambient concentrations of NO_X for the modeled year (1999) for each of the two applicable averaging time periods (1-hour and annual), for a total of two model runs (2040NO24 and 2040NO25, respectively). Electronic copies of the input and output files for these model runs are enclosed on the compact disk provided in Attachment C.

The high first-high maximum modeled annual NO_x concentration of 20.74 $\mu g/m^3$ is below the California NO_2 AAQS (57 $\mu g/m^3$) and the National AAQS (100 $\mu g/m^3$), even with the addition of the assumed annual background NO_2 concentration of 15.1 $\mu g/m^3$ (see Attachment D). The highest modeled high first-high 1-hour NO_X concentration of 153.64 $\mu g/m^3$ is also below the 1-hour NO_2 California AAQS of 339 $\mu g/m^3$, also even with the addition of the assumed 1-hour background concentration of 90.6 $\mu g/m^3$.

Recent EPA guidance directs that the modeled 1-hour NO_X (NO_2) concentrations should follow the form of the standard based on the 98th percentile of the annual distribution of daily maximum 1-hour NO_2 concentrations averaged across the number of years modeled. Thus, the modeled high first-high NO_X concentrations calculated by AERMOD must be processed to produce the 8th high NO_X daily maximum 1-hour concentrations. The Trinity Consultants *BREEZE AERMOD GIS Pro v7.3* modeling manager produces a file which can be extracted and post-processed by the Trinity Consultants *BREEZE 3D Analyst v2* software. Trinity Consultants *BREEZE 3D Analyst v2* software extracts the hourly NO_X concentrations, calculates the daily maximum

for each day for each receptor, then identifies the 8th highest (98th percentile) NO_X daily maximum for each receptor.

In general, the majority of the nitrogen oxides (NO_X) emitted from stationary and mobile sources are in the form of nitric oxide (NO), rather than in the form of NO_2. Because NO_X emissions are substantially easier and more accurate to estimate, the Tier 1 approach recommended in Section 6.2.3 (Models for Nitrogen Dioxide [Annual Average]) of Title 40, Code of Federal Regulations (CFR), Appendix W to Part 51 - Guideline on Air Quality Models ("Appendix W") is to model NO_X instead of NO_2, recognizing that this results in a conservative assessment which over-predicts the anticipated ambient concentrations of NO_2 resulting from the facility NO_X emissions. The Tier 2 step recommended by Appendix W is to multiply the Tier 1 result by an empirically-derived NO_2/NO_X ratio, with 0.75 as the conservative annual national default ratio.

The modeled 8th high annual daily maximum 1-hour NO_X concentration of 120.35 µg/m^3, when added to the assumed 1-hour background NO_2 concentration of 90.6 µg/m^3, exceeds the 1-hour NO_2 National AAQS of 188 µg/m^3 (see Attachment D). Therefore, the Tier 2 step recommended by Appendix W was applied (multiplying the Tier 1 result by an empirically-derived NO_2/NO_X ratio, with 0.75 as the conservative annual national default ratio). The "Tier 2" 8th high annual daily maximum modeled 1-hour NO_2 concentration of 90.26 µg/m^3, when added to the assumed 1-hour background NO_2 concentration of 90.6 µg/m^3, does not exceed the National AAQS of 188 µg/m^3.

Tables summarizing the modeled NO_X concentrations for each of the ten source groups for both the 1-hour and annual averaging periods are presented in Attachment D. Tables summarizing the 8th highest (98th percentile) NO_X daily maximum results for the 1-hour averaging period are also presented in Attachment D. Because the modeled 1-hour and annual concentrations were below the applicable California Ambient Air Quality Standards and National Ambient Air Quality Standards, no additional modeling of the Project was undertaken.

Please do not hesitate to contact us if you have any questions or require any additional information. EMA appreciates this opportunity to be of service to Ormat Nevada, Inc.

Sincerely:

ENVIRONMENTAL MANAGEMENT ASSOCIATES, INC.

Dwight L. Carey, D.Env.
Principal
Attachments:

ATTACHMENT A

MODEL EMISSION PARAMETERS FOR ALL EAST BRAWLEY GEOTHERMAL PROJECT CONSTRUCTION SOURCES

East Brawley Model Parameters
Modeled Residences

Model ID	Description	Easting	Northing	Elevation	Hill Height Scale
		NAD 83 (meters)		feet	feet
R3	Residence R-3	639110.80	3653627.00	-140.0	-140.0
R4	Residence R-4	639287.41	3654827.85	-146.0	-146.0
R5	Residence R-5	639297.73	3655638.51	-150.0	-150.0
R6	Residence R-6	637505.03	3655618.33	-151.4	-151.4

East Brawley Model Parameters
1 hr NOx Point Sources

Model ID	Description	Easting	Northing	Elevation	Emission Rate	Stack Height	Temp	Stack Velocity	Stack Diameter	ACFM
		NAD 83 (meters)		feet	lbs/hr	feet	F	feet/sec	feet	
W4222_DR	East Brawley Well 42-22	638783.80	3653525.70	-138.0	7.43	14.0	735.8	187.3	1.44	18381.3
W6122_DR	East Brawley Well 61-22	639326.20	3653650.30	-139.9	7.43	14.0	735.8	187.3	1.44	18381.3
W4515_DR	East Brawley Well 45-15	638794.70	3654344.51	-148.9	7.43	14.0	735.8	187.3	1.44	18381.3
W3715_DR	East Brawley Well 37-15	638678.00	3654062.00	-149.6	7.43	14.0	735.8	187.3	1.44	18381.3

East Brawley Model Parameters
1 hr NOx Area Sources

Model ID	Description	Easting	Northing	Elevation	NOx	Release Height	Initial Vertical	Area
		meters (NAD83)		feet	lbs/(hr-ft**2)	feet	feet	(ft**2)
PPCNSTRC	Power Plant Construction B - Mechanical Work	638969.60	3654256.80	-145.0	2.33E-05	4.0	8.0	628717.32

East Brawley Model Parameters
Annual NOx Point Sources

Model ID	Description	Easting	Northing	Elevation	Emission Rate	Stack Height	Temp	Stack Velocity	Stack Diameter	ACFM
		NAD 83 (meters)		feet	lbs/hr	feet	F	feet/sec	feet	
W4222_DR	East Brawley Well 42-22	638783.80	3653525.70	-138.0	0.6189	14.0	735.8	187.3	1.44	18381.3
W6122_DR	East Brawley Well 61-22	639326.20	3653650.30	-139.9	0.6189	14.0	735.8	187.3	1.44	18381.3
W4515_DR	East Brawley Well 45-15	638794.70	3654344.51	-148.9	0.6189	14.0	735.8	187.3	1.44	18381.3
W3715_DR	East Brawley Well 37-15	638678.00	3654062.00	-149.6	0.6189	14.0	735.8	187.3	1.44	18381.3

East Brawley Model Parameters
Annual NOx Area Sources

Model ID	Description	Easting	Northing	Elevation	NOx	Release Height	Initial Vertical	Area
		meters (NAD83)		feet	lbs/(hr-ft**2)	feet	feet	(ft**2)
PPCNSTRC	Power Plant Construction B - Mechanical Work	638969.60	3654256.80	-145.0	2.33E-05	4.0	8.0	628717.32

ATTACHMENT B

FIGURES

Figure 1: Google Earth Locations of the Four Well Sites and Power Plant Area

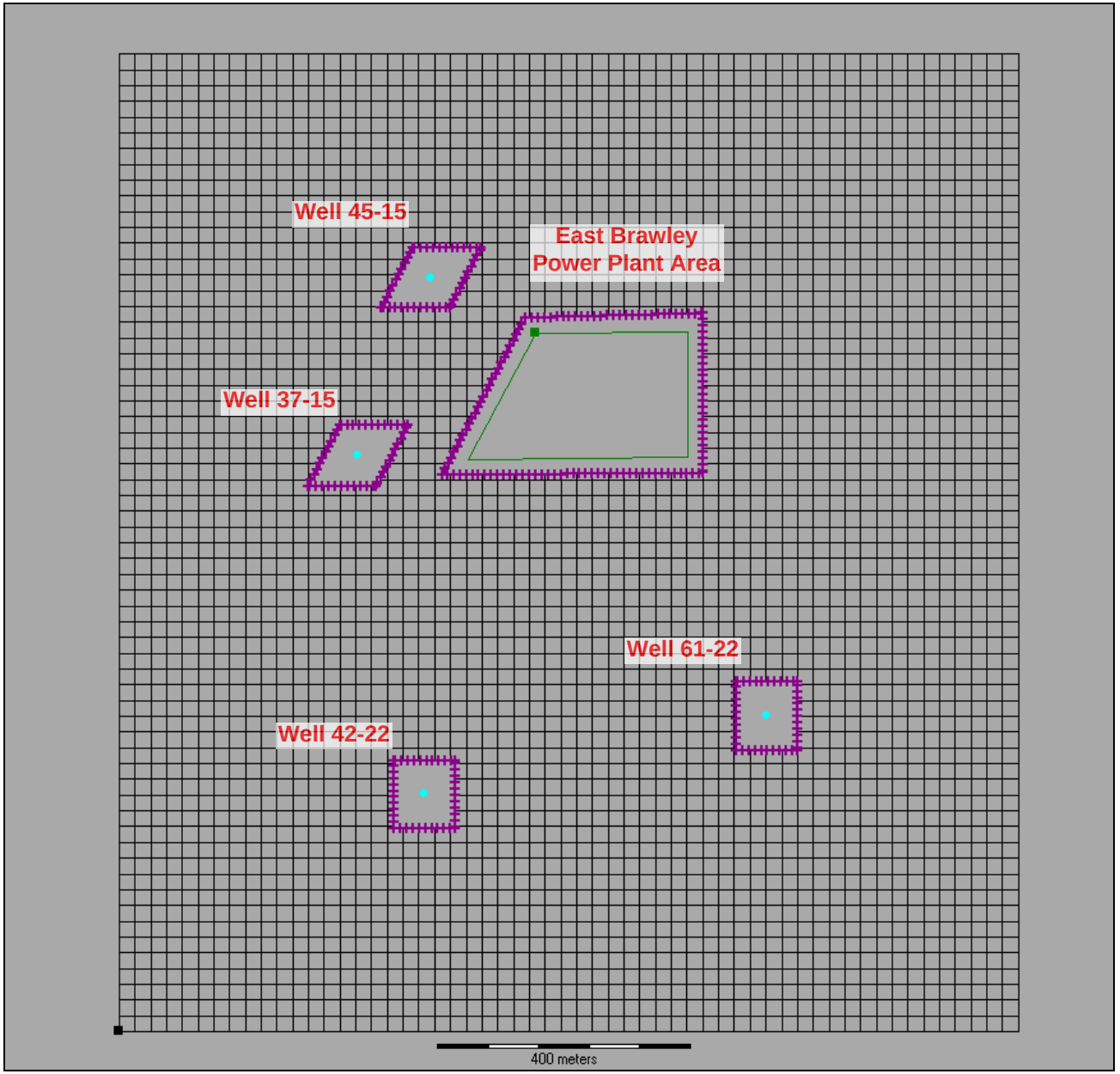


Figure 2: Modeled Locations of the Four Well Sites and Power Plant Area

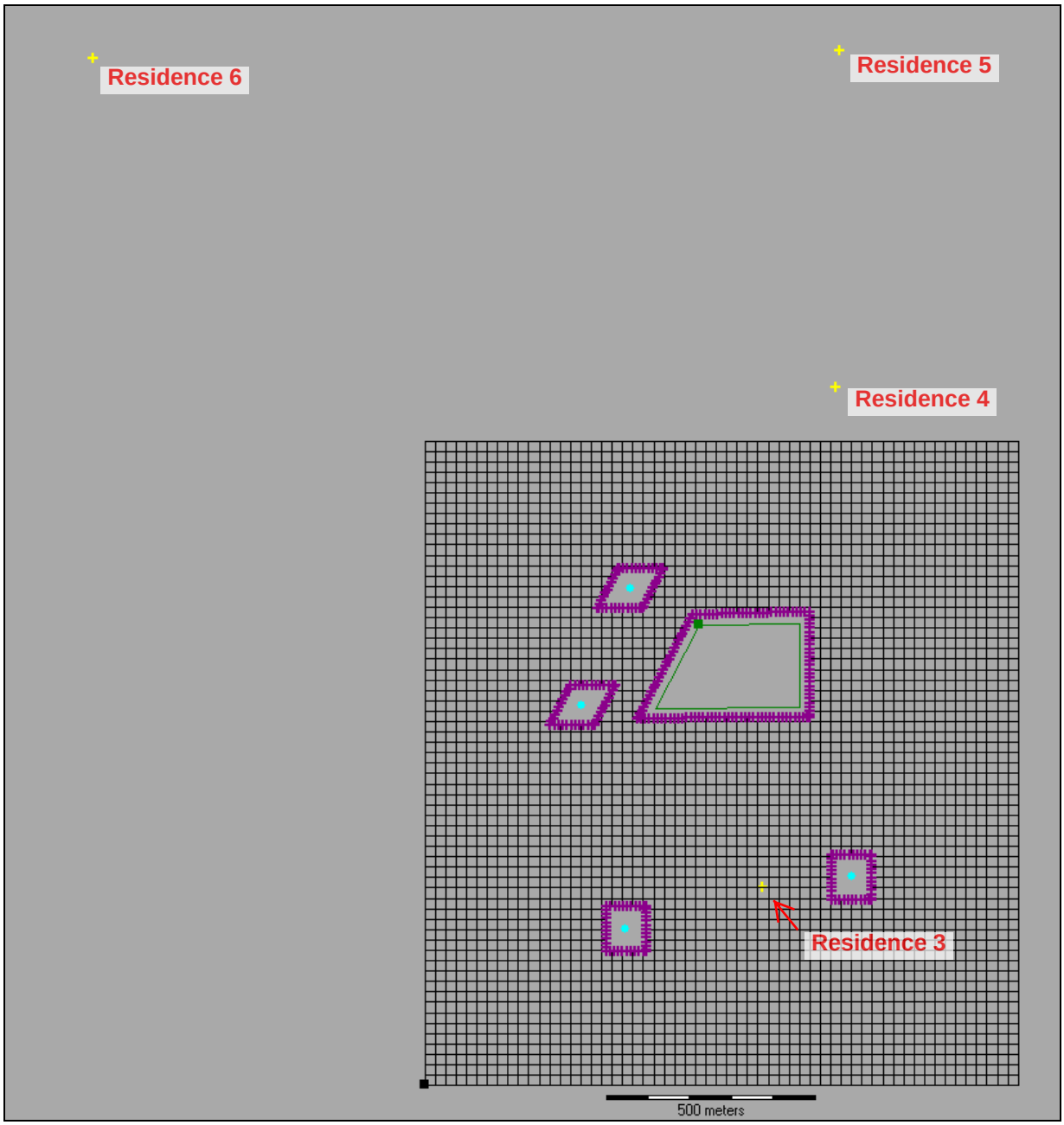
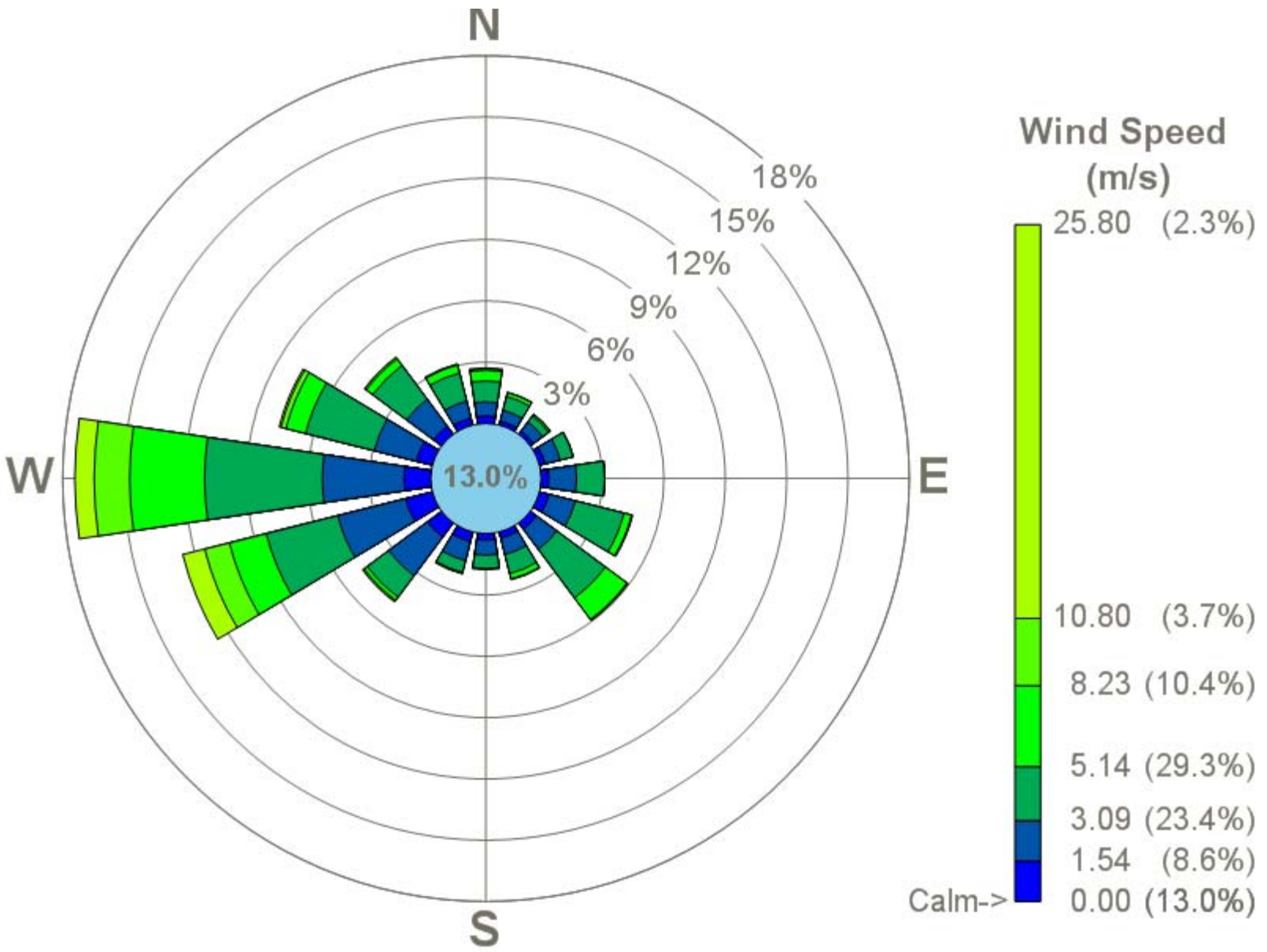


Figure 3: Modeled Locations of Four Nearby Residences in Relation to the Four Project Well Sites and Power Plant

FIGURE 4: IMPERIAL AIRPORT, CALIFORNIA WINDROSE - 1999



ATTACHMENT C

COMPACT DISK CONTAINING ALL MODEL INPUT AND OUTPUT FILES

ATTACHMENT D

TABLES SUMMARIZING RESULTS OF THE MODEL RUN FOR NO_X FOR THE 1-HOUR AND ANNUAL AVERAGING PERIODS

Results 1st High NAAQS

EAST BRAWLEY GEOTHERMAL -MAXIMUM - IMPERIAL 1999 AERMET DATA - 1st High - NAAQS									
Criteria Pollutant	Averaging Period	Concentration (μg/m^3)				Total % of NAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		NAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	188	153.64	90.566	244.21	129.90%	639,225	3,654,180	-44.20
	Annual	100	5.65	15.094	20.74	20.74%	639,226	3,654,160	-44.20

EAST BRAWLEY GEOTHERMAL -PPCNSTRC SOURCE GROUP - IMPERIAL 1999 AERMET DATA - 1st High - NAAQS									
Criteria Pollutant	Averaging Period	Concentration (μg/m^3)				Total % of NAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		NAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	188	147.72	90.566	238.29	126.75%	639,225	3,654,180	-44.20
	Annual	100	5.51	15.094	20.61	20.61%	639,226	3,654,160	-44.20

EAST BRAWLEY GEOTHERMAL -WELL3715 SOURCE GROUP - IMPERIAL 1999 AERMET DATA - 1st High - NAAQS									
Criteria Pollutant	Averaging Period	Concentration (μg/m^3)				Total % of NAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		NAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	188	70.00	90.566	160.57	85.41%	638,719	3,654,037	-44.87
	Annual	100	2.00	15.094	17.10	17.10%	638,724	3,654,046	-44.84

EAST BRAWLEY GEOTHERMAL -WELL4515 SOURCE GROUP - IMPERIAL 1999 AERMET DATA - 1st High - NAAQS									
Criteria Pollutant	Averaging Period	Concentration (μg/m^3)				Total % of NAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		NAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	188	70.17	90.566	160.74	85.50%	638,835	3,654,319	-44.75
	Annual	100	2.02	15.094	17.11	17.11%	638,840	3,654,328	-44.71

Results 1st High NAAQS

EAST BRAWLEY GEOTHERMAL -WELL6122 SOURCE GROUP - IMPERIAL 1999 AERMET DATA - 1st High - NAAQS									
Criteria Pollutant	Averaging Period	Concentration (μg/m^3)				Total % of NAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		NAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	188	70.05	90.566	160.62	85.44%	639,374	3,653,649	-42.62
	Annual	100	2.11	15.094	17.21	17.21%	639,374	3,653,649	-42.62

EAST BRAWLEY GEOTHERMAL -WELL4222 SOURCE GROUP - IMPERIAL 1999 AERMET DATA - 1st High - NAAQS									
Criteria Pollutant	Averaging Period	Concentration (μg/m^3)				Total % of NAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		NAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	188	69.97	90.566	160.53	85.39%	638,832	3,653,525	-42.06
	Annual	100	2.11	15.094	17.20	17.20%	638,832	3,653,525	-42.06

EAST BRAWLEY GEOTHERMAL -WELL3715&PP SOURCE GROUP -IMPERIAL 1999 AERMET DATA - 1st High - NAAQS									
Criteria Pollutant	Averaging Period	Concentration (μg/m^3)				Total % of NAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		NAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	188	153.64	90.566	244.21	129.90%	639,225	3,654,180	-44.20
	Annual	100	5.56	15.094	20.65	20.65%	639,226	3,654,160	-44.20

EAST BRAWLEY GEOTHERMAL -WELL4515&PP SOURCE GROUP -IMPERIAL 1999 AERMET DATA - 1st High - NAAQS									
Criteria Pollutant	Averaging Period	Concentration (μg/m^3)				Total % of NAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		NAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	188	150.60	90.566	241.16	128.28%	639,225	3,654,180	-44.20
	Annual	100	5.56	15.094	20.66	20.66%	639,226	3,654,160	-44.20

Results 1st High NAAQS

EAST BRAWLEY GEOTHERMAL -WELL6122&PP SOURCE GROUP -IMPERIAL 1999 AERMET DATA - 1st High - NAAQS									
Criteria Pollutant	Averaging Period	Concentration ($\mu g/m^3$)				Total % of NAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		NAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	188	147.92	90.566	238.49	126.86%	639,225	3,654,180	-44.20
	Annual	100	5.53	15.094	20.63	20.63%	639,226	3,654,160	-44.20

EAST BRAWLEY GEOTHERMAL -WELL4222&PP SOURCE GROUP -IMPERIAL 1999 AERMET DATA - 1st High - NAAQS									
Criteria Pollutant	Averaging Period	Concentration ($\mu g/m^3$)				Total % of NAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		NAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	188	148.02	90.566	238.59	126.91%	639,225	3,654,180	-44.20
	Annual	100	5.54	15.094	20.64	20.64%	639,226	3,654,160	-44.20

EAST BRAWLEY GEOTHERMAL -ALL SOURCE GROUP -IMPERIAL 1999 AERMET DATA - 1st High - NAAQS									
Criteria Pollutant	Averaging Period	Concentration ($\mu g/m^3$)				Total % of NAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		NAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	Annual	100	5.65	15.094	20.74	20.74%	639,226	3,654,160	-44.20

Results 1st High CAAQS

EAST BRAWLEY GEOTHERMAL - MAXIMUM - IMPERIAL 1999 AERMET DATA - 1st High - CAAQS									
Criteria Pollutant	Averaging Period	Concentration (µg/m^3)				Total % of CAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		CAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	339	153.64	90.566	244.21	72.04%	639,225	3,654,180	-44.20
	Annual	57	5.65	15.094	20.74	36.39%	639,226	3,654,160	-44.20

EAST BRAWLEY GEOTHERMAL - PPCNSTRC SOURCE GROUP - IMPERIAL 1999 AERMET DATA - 1st High - CAAQS									
Criteria Pollutant	Averaging Period	Concentration (µg/m^3)				Total % of CAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		CAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	339	147.72	90.566	238.29	70.29%	639,225	3,654,180	-44.20
	Annual	57	5.51	15.094	20.61	36.16%	639,226	3,654,160	-44.20

EAST BRAWLEY GEOTHERMAL - WELL3715 SOURCE GROUP - IMPERIAL 1999 AERMET DATA - 1st High - CAAQS									
Criteria Pollutant	Averaging Period	Concentration (µg/m^3)				Total % of CAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		CAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	339	70.00	90.566	160.57	47.36%	638,719	3,654,037	-44.87
	Annual	57	2.00	15.094	17.10	29.99%	638,724	3,654,046	-44.84

EAST BRAWLEY GEOTHERMAL - WELL4515 SOURCE GROUP - IMPERIAL 1999 AERMET DATA - 1st High - CAAQS									
Criteria Pollutant	Averaging Period	Concentration (µg/m^3)				Total % of CAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		CAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	339	70.17	90.566	160.74	47.42%	638,835	3,654,319	-44.75
	Annual	57	2.02	15.094	17.11	30.03%	638,840	3,654,328	-44.71

Results 1st High CAAQS

EAST BRAWLEY GEOTHERMAL - WELL6122 SOURCE GROUP - IMPERIAL 1999 AERMET DATA - 1st High - CAAQS									
Criteria Pollutant	Averaging Period	Concentration (µg/m^3)				Total % of CAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		CAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	339	70.05	90.566	160.62	47.38%	639,374	3,653,649	-42.62
	Annual	57	2.11	15.094	17.21	30.19%	639,374	3,653,649	-42.62

EAST BRAWLEY GEOTHERMAL - WELL4222 SOURCE GROUP - IMPERIAL 1999 AERMET DATA - 1st High - CAAQS									
Criteria Pollutant	Averaging Period	Concentration (µg/m^3)				Total % of CAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		CAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	339	69.97	90.566	160.53	47.36%	638,832	3,653,525	-42.06
	Annual	57	2.11	15.094	17.20	30.18%	638,832	3,653,525	-42.06

EAST BRAWLEY GEOTHERMAL - WELL3715&PP SOURCE GROUP - IMPERIAL 1999 AERMET DATA - 1st High - CaAAQS									
Criteria Pollutant	Averaging Period	Concentration (µg/m^3)				Total % of CAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		CAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	339	153.64	90.566	244.21	72.04%	639,225	3,654,180	-44.20
	Annual	57	5.56	15.094	20.65	36.23%	639,226	3,654,160	-44.20

EAST BRAWLEY GEOTHERMAL - WELL4515&PP SOURCE GROUP - IMPERIAL 1999 AERMET DATA - 1st High - CAAQS									
Criteria Pollutant	Averaging Period	Concentration (µg/m^3)				Total % of CAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		CAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	339	150.60	90.566	241.16	71.14%	639,225	3,654,180	-44.20
	Annual	57	5.56	15.094	20.66	36.24%	639,226	3,654,160	-44.20

Results 1st High CAAQS

EAST BRAWLEY GEOTHERMAL - WELL6122&PP SOURCE GROUP - IMPERIAL 1999 AERMET DATA - 1st High - CAAQS									
Criteria Pollutant	Averaging Period	Concentration (µg/m^3)				Total % of CAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		CAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	339	147.92	90.566	238.49	70.35%	639,225	3,654,180	-44.20
	Annual	57	5.53	15.094	20.63	36.19%	639,226	3,654,160	-44.20

EAST BRAWLEY GEOTHERMAL - WELL4222&PP SOURCE GROUP - IMPERIAL 1999 AERMET DATA - 1st High - CAAQS									
Criteria Pollutant	Averaging Period	Concentration (µg/m^3)				Total % of CAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		CAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	1-Hour	339	148.02	90.566	238.59	70.38%	639,225	3,654,180	-44.20
	Annual	57	5.54	15.094	20.64	36.20%	639,226	3,654,160	-44.20

EAST BRAWLEY GEOTHERMAL - ALL SOURCE GROUP - IMPERIAL 1999 AERMET DATA - 1st High - CAAQS									
Criteria Pollutant	Averaging Period	Concentration (µg/m^3)				Total % of CAAQS	Location (NAD83 UTM meters)		Elevation (meters)
		CAAQS	Modeled High	Background	Total		Easting	Northing	
Nitrogen Oxides (NOx)	Annual	57	5.65	15.094	20.74	36.39%	639,226	3,654,160	-44.20

Extracted NOx NAAQS-1999

EAST BRAWLEY GEOTHERMAL - MAXIMUM -IMPERIAL 1999 AERMET DATA - NAAQS									
Criteria Pollutant	**Averaging Period**	**Concentration ($\mu g/m^3$)**				**Total % of NAAQS**	**Location (NAD83 UTM meters)**		**Elevation (meters)**
		NAAQS	**Maximum NO_2 High**	**Background**	**Total**		**Easting**	**Northing**	
Nitrogen Oxides (NOx)	1-Hour	188	90.26	90.566	180.83	96.19%	639,225	3,654,230	-44.20

EAST BRAWLEY GEOTHERMAL - WELL3715&PP SOURCE GROUP -IMPERIAL 1999 AERMET DATA - NAAQS										
Criteria Pollutant	**Averaging Period**	**Concentration ($\mu g/m^3$)**						**Total % of NAAQS**	**Location (NAD83 UTM meters)**		**Elevation (meters)**
		NAAQS	**Modeled Extracted High**	**NO_x/NO_2 Ratio**	**NO_2 High**	**Background**	**Total**		**Easting**	**Northing**	
Nitrogen Oxides (NOx)	1-Hour	188	120.35	0.75	90.26	90.566	180.83	96.19%	639,225	3,654,230	-44.20

EAST BRAWLEY GEOTHERMAL - WELL4515&PP SOURCE GROUP -IMPERIAL 1999 AERMET DATA - NAAQS										
Criteria Pollutant	**Averaging Period**	**Concentration ($\mu g/m^3$)**						**Total % of NAAQS**	**Location (NAD83 UTM meters)**		**Elevation (meters)**
		NAAQS	**Modeled Extracted High**	**NO_x/NO_2 Ratio**	**NO_2 High**	**Background**	**Total**		**Easting**	**Northing**	
Nitrogen Oxides (NOx)	1-Hour	188	118.04	0.75	88.53	90.566	179.10	95.26%	639,225	3,654,230	-44.20

Extracted NOx NAAQS-1999

EAST BRAWLEY GEOTHERMAL - WELL6122&PP SOURCE GROUP -IMPERIAL 1999 AERMET DATA - NAAQS											
Criteria Pollutant	**Averaging Period**	**Concentration ($\mu g/m^3$)**						**Total % of NAAQS**	**Location (NAD83 UTM meters)**		**Elevation (meters)**
		NAAQS	**Modeled Extracted High**	**NO_x/NO_2 Ratio**	**NO_2 High**	**Background**	**Total**		**Easting**	**Northing**	
Nitrogen Oxides (NOx)	1-Hour	188	117.12	0.75	87.84	90.566	178.41	94.90%	639,225	3,654,230	-44.20

EAST BRAWLEY GEOTHERMAL - WELL4222&PP SOURCE GROUP -IMPERIAL 1999 AERMET DATA - NAAQS											
Criteria Pollutant	**Averaging Period**	**Concentration ($\mu g/m^3$)**						**Total % of NAAQS**	**Location (NAD83 UTM meters)**		**Elevation (meters)**
		NAAQS	**Modeled Extracted High**	**NO_x/NO_2 Ratio**	**NO_2 High**	**Background**	**Total**		**Easting**	**Northing**	
Nitrogen Oxides (NOx)	1-Hour	188	117.8	0.75	88.35	90.566	178.92	95.17%	639,225	3,654,240	-44.20

ENVIRONMENTAL MANAGEMENT ASSOCIATES

January 29, 2012

via Email and Mail

Mr. Ron Leiken
Environmental/Regulatory Affairs Administrator
Ormat Nevada, Inc.
6225 Neil Road
Reno, Nevada 89511

Re: Supplemental Air Pollutant Emission Assessment, East Brawley Project Operations, Imperial County, California

Dear Mr. Leiken:

Environmental Management Associates, Inc. (EMA) has prepared the following supplemental air quality analysis for the operations of the East Brawley Geothermal Project, Imperial County, California (Project) which are not subject to a permit from the Imperial County Air Pollution Control District (ICAPCD).

The Imperial County Air Pollution Control District "CEQA Air Quality Handbook" (November 2007) provides guidance to assist CEQA Lead Agencies in making a determination on the type of environmental document to prepare. The Handbook (page 8) states that "Table 1 (of the Handbook) provides general guidelines for determining the significance of impacts and the recommended type of environmental analysis required based on the total emissions that are expected from the operations phase of a project.[1]" Table 1 presents these "Thresholds of Significance for Project Operations" from Table 1 of the ICAPCD CEQA Handbook.

Table 1: ICAPCD "Thresholds of Significance for Project Operations"

Air Pollutant	ROG	NO_X	CO	SO_2	PM_{10}
Threshold (<lbs/day)	55.00	55.00	550.00	150.00	150.00

[1] Note that the ICAPCD CEQA Handbook also states that "For industrial development projects, the thresholds in Table 1 should be used only to determine significance of the impact from mobile source emissions attracted to the stationary source. Therefore, Table 1 would not be used to determine significance for the air emissions associated with the stationary source, including off-road mobile emissions produced within the stationary source. Those stationary source emissions are already subject to mitigation according to Rule 207, New and Modified Stationary Source Review and Rule 201 and must therefore be excluded." (ICAPCD CEQA Handbook, p. 8)

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As the ICAPCD operations table does not present "significance thresholds" for $PM_{2.5}$, a threshold adopted or proposed by other agencies will be used in this analysis as thresholds for a determination of CEQA significance. Table 2 presents the $PM_{2.5}$ CEQA significance threshold proposed by the South Coast Air Quality Management District (SCAQMD) [October 2006]. This will be applied to the $PM_{2.5}$ emissions from Project operations.

Table 2: Supplemental Thresholds of Significance – $PM_{2.5}$

Air Pollutant	$PM_{2.5}$
Threshold (<lbs/day)	55.00

Air pollutant emissions for most of those Project operations which are not subject to a permit from the ICAPCD were estimated using the California Emission Estimator Model (CalEEMod) (version 2011.1). CalEEMod is a computer program developed by ENVIRON International Corporation in collaboration with the South Coast Air Quality Management District (SCAQMD) that can be used to estimate air pollution emissions for various land uses, area sources, construction projects, and project operations. The program also produces estimates of air pollution emissions from vehicle travel. Mitigation measures can also be specified and their emission reductions calculated.

The other Project operations air pollutant emissions were calculated using the U.S. Environmental Protection Agency's (USEPA's) "AP-42, Compilation of Air Pollutant Emission Factors." AP-42 has been published since 1972 as the primary compilation of EPA's air pollutant emission factor information. It contains emission factors and process information for more than 200 air pollution source categories. The emission factors have been developed and compiled from source test data, material balance studies, and engineering estimates. The latest emissions factors are available from the USEPA's website.

Project operations would consist of activities conducted by both the geothermal power plant and the waste water treatment facility (WTTF). In order to best utilize the capabilities of the CalEEMod model (and AP-42) for the Project, EMA has calculated the air pollutant emissions from the Project operations in two separate CalEEMod models (power plant operations and WWTF operations) and one calculation using AP-42 (off-site well field monitoring traffic).

Table 3 provides an outline of the two CalEEMod models and one AP-42 calculations used to calculate the air pollutant emissions from Project operations. Table 3 identifies the Project activities, air pollutant sources, air pollutant emissions, type of model used, the name of the model run specific to each activity and the Attachment to this letter report in which the input and output files for each specific model are located.

Table 3: CalEEMod and AP 42 Air Pollutant Emissions Calculation Models – Project Operations

Project Phase(s)	Power Plant Operations				WWTF Operations		
Air Pollutant Source	On-Site Equipment	Off-Site Traffic		Off-Site Well Field Monitoring Traffic	On-Site Equipment	Off-Site Traffic	
Air Pollutant Emissions	Combustion Emissions	Fugitive Dust	Combustion Emissions	Fugitive Dust	Combustion Emissions	Fugitive Dust	Combustion Emissions
Model Using	CalEEMod			AP-42	CalEEMod		
Model Name	CalEEMod East Brawley – PP Operations V04.xls			N/A	CalEEMod East Brawley – WWTF Operations V02.xls		
Attachment	Attachment A			Attachment C	Attachment B		

Each of the two attachments to this letter report describing the CalEEMod models (Attachments A and B) contain a "Remarks" summary (see Attachments A-1 and B-1). "Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this "remarks" summary replaces the "remarks" sections of each CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When CalEEMod model defaults were retained and no further explanation was necessary, no "remarks" were recorded.

As CalEEMod does not have a land use category for a geothermal power plant project, the "general heavy industry" land use category was selected as a surrogate. Where applicable, CalEEMod defaults were retained as the model inputs. However, CalEEMod defaults were replaced with specific Project information where available (such as the number of worker-commute and truck traffic, and the percentage of off-site roads to be traveled by off-site traffic which were paved and unpaved). Defaults were also replaced if applicable Project information was available through consultation with the Applicant.

In each of the two CalEEMod operations models, the construction portion of the model was "zeroed" out, such that only operational emissions were being calculated. That is, the "demolition," "site preparation," "grading," "building construction," "architectural coating," and "paving" construction phases were eliminated by specifying a one-day phase length (as specifying a "zero" day phase produces model error messages) in the construction activity tab and changing the quantity of each off-road equipment type associated with these two specific activities to zero.

Attachments A and B also contain the CalEEMod-generated reports of the model outputs for the operations models – one each for the summer months (Attachments A-2 and B-2) and for the winter months (Attachments A-3 and B-3). All of the output reports contain calculated air pollution emissions for both "unmitigated" and "mitigated" activities. "Unmitigated" emissions are those calculated by CalEEMod when none of the air pollutant mitigation measures contained within the CalEEMod program are selected. "Mitigated" emissions are those calculated by

CalEEMod after the application of the air pollutant mitigation measures described above which are contained within, and can be calculated by, CalEEMod. The operations CalEEMod model assumed the implementation of no additional mitigation measures (to reduce air pollutant emissions).

Attachment C contains tables summarizing the specific daily air pollutant emissions calculated by CalEEMod for each of the Project operations: power plant operations and WWTF operations. Also included in Attachment C are the calculations of fugitive dust generated off-site daily from the well pad maintenance traffic, as calculated using the unpaved roads emissions factors in AP-42 (using the silt and moisture defaults from CalEEMod). The operations AP-42 model (off-site maintenance traffic on unpaved roads) assumed that approximately 46.8 miles of unpaved roads are traveled each day during operations.

In order to determine the daily Project-wide air pollutant emissions from operations which are not subject to a permit from the ICAPCD, the daily air pollutant emissions presented in Attachment C must be summed across each activity which would be occurring at the same time. Power plant operations and WWTF operations will both commence in 2013, therefore, their emissions must be summed. Attachment D presents tables providing the winter and summer unmitigated and mitigated daily power plant operations and WWTF operations air pollution emissions (from Attachment C) summed.

Attachment D also compares the summed daily operations air pollution emissions against the daily operations emission thresholds listed in Table 1 and Table 2. The unmitigated daily operations air pollution emissions are all below the “thresholds of significance” listed in Table 1 and Table 2.

Please do not hesitate to contact us if you have any questions or require any additional information. EMA appreciates this opportunity to be of service to Ormat Nevada, Inc.

Sincerely:

ENVIRONMENTAL MANAGEMENT ASSOCIATES, INC.

Dwight L. Carey, D.Env.
Principal

Attachments:

ATTACHMENT A

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “CALEEMOD EAST BRAWLEY - PP OPERATIONS V05.xls”

ATTACHMENT A-1

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL "REMARKS"
MODEL "CALEEMOD EAST BRAWLEY – PP OPERATIONS V05.xls"

"Remarks" for East Brawley Geothermal CalEEMod Models

"Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this document replaces the "remarks" section of the referenced CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When defaults were retained and no further explanation was necessary, no "remarks" are recorded below.

Model Title: East Brawley – PP Operations
CalEEMod East Brawley – PP Operations V05.xls

Project Characteristics Tab

- **Project Characteristics** –

Land Use Tab

- **Land Use** - This model calculates the emissions from the traffic associated with the power plant (PP) operations at the East Brawley Geothermal Project. The 'General Heavy Industry' land use subtype represents the East Brawley Geothermal Project. For this model in particular the 'General Heavy Industry' 'Lot Acreage' is the area of PP operations/maintenance building (110 feet x 50 feet). 'Lot Acreage' totals to 0.13 acres (5,500 square feet).

Construction Tabs

- **Construction Phase** –All of the phase's default 'total days' columns have been changed to one day because only PP operations are calculated in this model.
    - Demolition- 5/1/2012 – 5/1/2012 (1 day)
    - Site Preparation- 5/2/2012 – 5/2/2012 (1 day)
    - Grading- 5/3/2012 – 5/3/2012 (1 day)
    - Building Construction - 5/4/2012 – 5/6/2012 (1 day)
    - Paving - 5/7/2012 – 5/7/2012 (1 day)
    - Architectural Coating - 5/8/2012 – 5/8/2012 (1 day)
- **Off-road Equipment (Coating)** – PP Operations model only. Coating is calculated in a separate CAlEEMod model. Default coating equipment has been zeroed out.
- **Off-road Equipment (Building)** – PP Operations model only. Building Construction emissions are calculated in a separate CalEEMod model. Default construction equipment has been zeroed out.
- **Off-road Equipment (Demolition)** – PP Operations model only. No Demolition is required for this project. Default demolition equipment has been zeroed out.
- **Off-road Equipment (Grading)** – PP Operations model only. Grading emissions are calculated in a separate CalEEMod Model. Default grading equipment has been zeroed out.
- **Off-road Equipment (Paving)** – PP Operations model only. Paving is calculated in a separate CalEEMod model. Default paving equipment has been zeroed out.
- **Off-road Equipment (Site Preparation)** – PP Operations model only. Site preparation is calculated in a separate CalEEMod model. Default site prep equipment has been zeroed out.
- **Trips and VMT** – PP Operations model only. Trips and VMT emissions from operations are calculated in 'Operational - Mobile" tab of this CalEEMod Model.
- **On-road Fugitive Dust** – PP Operations model only. On-road off-site fugitive dust emissions from operations are calculated in 'Operational - Mobile" tab of this CalEEMod Model.
- **Demolition** – WWTF Operations model only. No Demolition for this project.
- **Dust from Material Movement** – PP Operations model only. Grading fugitive dust emissions are calculated in a separate CalEEMod Model. Site Prep PM emissions are calculated in a separate CalEEMod Model.
- **Architectural Coating** – PP Operations model only. Coating is calculate in a separate CalEEMod model. Default coating VOC g/l has been zeroed out.

Operational Tabs

- **Vehicle Trips** – PP Operations will require 60 daily worker trips and 24 daily vendor truck trip. The model requires Trip rate/Size/day **(**Trip rate=84**;** Size=5,500 square feet). 84 trips/5,500 square feet/day=15.3 trips/1000 sq ft/day. All trips to the PP area will be either commercial-work or commercial-nonwork because there will be maintenance workers (commercial-work), water delivery trucks (commercial-nonwork) but no customers (commercial customer) visiting the site during operations. The vendor trip length was changed to match the higher, more conservative, trip length of 16.4 miles. Also, to be conservative, all trips will be primary not pass-by or diverted trips.
- **Vehicle Emission Factors Annual**– The 84 daily trips during PP Operations will be 60 worker trips and 24 vendor trips(No haul trips). CalEEMod defines the worker vehicle fleet as 50% Light Duty Auto (LDA), 25% Light Duty truck Type 1 (LDT1) and 25% Light Duty Truck Type 2 (LDT2). CalEEMod defines the vendor vehicle fleet as 50% heavy-heavy duty trucks (HHDT) and 50% medium-heavy duty trucks (MHDT). The water delivery truck (vendor) fleet for this model is conservatively 100% heavy-heavy duty trucks (HHDT). The vehicle fleet mix in this tab has been changed to reflect only the worker and vendor vehicles that will be driving to the site during PP Operations, using the CalEEMod worker vehicle fleet mix default and only the heavy-heavy duty trucks (HHDT) for the vendor trips.
    - Worker trip percentage= 1-(60 trips/84 total trips)= 71.4% of the total trips
        - 50% of the 92.3% are Light Duty Auto (LDA)= 35.8% of the total vehicle fleet are LDA
        - 25% of the 92.3% are Light Duty truck Type 1 (LDT1)= 17.8% of the total vehicle fleet are LDT1
        - 25% of the 92.3% are Light Duty truck Type 2 (LDT2)= 17.8% of the total vehicle fleet are LDT1
    - Vendor trip percentage= 1-(24 trips/84 total trips)= 28.6% of the total trips
        - 100% of the 28.6% are heavy-heavy duty trucks (HHDT)= 28.6% of the total vehicle fleet are HHDT
- **Vehicle Emission Factors Summer**– See "Vehicle Emission Factors Annual" above.
- **Vehicle Emission Factors Winter**– See "Vehicle Emission Factors Annual" above.
- **Road Dust** - Traffic is expected to access the PP Project area via State Highway 111 to Shank Road to Best Road (all paved roads). No unpaved roads would be traveled by traffic accessing the PP area.
    - CalEEMod default Non-Residential C-W trip length= 16.4 miles
        - Operations % Paved = 1-(0 miles unpaved roads to Project / 16.4 miles)=100% paved
- **Hearths – Woodstoves/Fireplaces –** The project PP operations will be controlled from a 5,500 square foot operations/maintenance building. As such, the 'Hearths' operational emissions that are associated with this operations/maintenance building are calculated in this model using CalEEMod defaults.
- **Consumer Products** – The project PP operations will be controlled from a 5,500 square foot operations/maintenance building. As such, the 'Consumer Products' operational emissions that are associated with this operations/maintenance building are calculated in this model using CalEEMod defaults.
- **Area Coatin**g – The project PP operations will be controlled from a 5,500 square foot operations/maintenance building. As such, the 'Area Coating' operational emissions that are associated with this operations/maintenance building are calculated in this model using CalEEMod defaults.
- **Landscape Equipment** – The project PP operations will be controlled from a 5,500 square foot operations/maintenance building. As such, the 'Landscape Equipment' operational emissions that are associated with this operations/maintenance building are calculated in this model using CalEEMod defaults.
- **Energy Use** – The project PP operations will be controlled from a 5,500 square foot operations/maintenance building. As such, the 'Energy Use' operational emissions that are associated with this operations/maintenance building are calculated in this model using CalEEMod defaults.
- **Water And Wastewater** – The project PP operations will be controlled from a 5,500 square foot operations/maintenance building. As such, the 'Water and Wastewater' (outdoor/indoor) operational emissions that are associated with this operations/maintenance building are calculated in this model using CalEEMod defaults.

- **Solid Waste** – The project PP operations will be controlled from a 5,500 square foot operations/maintenance building. As such, the 'Solid Waste' operational emissions that are associated with this operations/maintenance building are calculated in this model using CalEEMod defaults.

Vegetation Tabs

- **Land Use Change –**
- **Sequestration –**

Mitigation Tabs

- **Construction Off-road Equipment Mitigation** –
- **Mobile Land Use Mitigation** –
- **Mobile Commute Mitigation** –
- **Area Mitigation** –
- **Energy Mitigation** –
- **Water Mitigation** –
- **Waste Mitigation** -

ATTACHMENT A-2

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - SUMMER
MODEL “CALEEMOD EAST BRALWEY - PP OPERATIONS V05.xls”

East Brawley - PP Operations

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	5.5	1000sqft

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

Water Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Mobile	1.96	11.89	15.81	0.02	1.69	0.38	2.06	0.08	0.38	0.46		2,496.21		0.11		2,498.54
Total	**2.10**	**11.94**	**15.85**	**0.02**	**1.69**	**0.38**	**2.06**	**0.08**	**0.38**	**0.46**		**2,555.23**		**0.11**	**0.00**	**2,557.91**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Mobile	1.96	11.89	15.81	0.02	1.69	0.38	2.06	0.08	0.38	0.46		2,496.21		0.11		2,498.54
Total	**2.10**	**11.94**	**15.85**	**0.02**	**1.69**	**0.38**	**2.06**	**0.08**	**0.38**	**0.46**		**2,555.23**		**0.11**	**0.00**	**2,557.91**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Paving - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Paving - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Architectural Coating - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.96	11.89	15.81	0.02	1.69	0.38	2.06	0.08	0.38	0.46		2,496.21		0.11		2,498.54
Unmitigated	1.96	11.89	15.81	0.02	1.69	0.38	2.06	0.08	0.38	0.46		2,496.21		0.11		2,498.54
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	84.15	84.15	84.15	502,342	502,342
Total	84.15	84.15	84.15	502,342	502,342

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	16.40	9.50	16.40	71.40	0.00	28.60

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
NaturalGas Unmitigated	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	501.63	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Total		**0.01**	**0.05**	**0.04**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**59.02**		**0.00**	**0.00**	**59.37**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	0.50163	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Total		**0.01**	**0.05**	**0.04**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**59.02**		**0.00**	**0.00**	**59.37**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.01					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.12					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.01					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.12					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT A-3

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - WINTER
MODEL “CALEEMOD EAST BRAWLEY – PP OPERATIONS V05.xls”

East Brawley - PP Operations

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	5.5	1000sqft

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

Water Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Mobile	1.79	11.61	14.09	0.02	1.69	0.37	2.06	0.08	0.37	0.45		2,380.19		0.11		2,382.40
Total	**1.93**	**11.66**	**14.13**	**0.02**	**1.69**	**0.37**	**2.06**	**0.08**	**0.37**	**0.45**		**2,439.21**		**0.11**	**0.00**	**2,441.77**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Mobile	1.79	11.61	14.09	0.02	1.69	0.37	2.06	0.08	0.37	0.45		2,380.19		0.11		2,382.40
Total	**1.93**	**11.66**	**14.13**	**0.02**	**1.69**	**0.37**	**2.06**	**0.08**	**0.37**	**0.45**		**2,439.21**		**0.11**	**0.00**	**2,441.77**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Paving - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Paving - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Architectural Coating - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.79	11.61	14.09	0.02	1.69	0.37	2.06	0.08	0.37	0.45		2,380.19		0.11		2,382.40
Unmitigated	1.79	11.61	14.09	0.02	1.69	0.37	2.06	0.08	0.37	0.45		2,380.19		0.11		2,382.40
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	84.15	84.15	84.15	502,342	502,342
Total	84.15	84.15	84.15	502,342	502,342

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	16.40	9.50	16.40	71.40	0.00	28.60

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
NaturalGas Unmitigated	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	501.63	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Total		**0.01**	**0.05**	**0.04**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**59.02**		**0.00**	**0.00**	**59.37**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	0.50163	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Total		**0.01**	**0.05**	**0.04**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**59.02**		**0.00**	**0.00**	**59.37**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.01					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.12					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.01					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.12					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT B

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “CALEEMOD EAST BRAWLEY – WWTF OPERATIONS V02.xls”

ATTACHMENT B-1

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL “REMARKS”
CalEEMod MODEL “CALEEMOD EAST BRAWLEY – WWTF OPERATIONS V02.xls”

"Remarks" for East Brawley Geothermal CalEEMod Models

"Remarks" are typically used in CalEEMod to explain non-default inputs. For the current modeling this document replaces the "remarks" section of the referenced CalEEMod model to provide more space to both identify non-default inputs and to explain how CalEEMod is used to calculate emissions for the current project. When defaults were retained and no further explanation was necessary, no "remarks" are recorded below.

Model Title: East Brawley – WWTF Operations
CalEEMod East Brawley – WWTF Operations V02.xls

Project Characteristics Tab

- **Project Characteristics** –

Land Use Tab

- **Land Use** - This model calculates the emissions from the traffic associated with the Waste Water Treatment Facility (WWTF) operations at the East Brawley Geothermal Project. The 'General Heavy Industry' land use subtype represents the East Brawley Geothermal Project. For this model in particular the 'General Heavy Industry' 'Lot Acreage' is the area of WWTF operations/maintenance building (110 feet x 50 feet). 'Lot Acreage' totals to 0.13 acres (5,500 square feet).

Construction Tabs

- **Construction Phase** –All of the phase's default 'total days' columns have been changed to one day because only WWTF operations are calculated in this model.
    - Demolition- 5/1/2012 – 5/1/2012 (1 day)
    - Site Preparation- 5/2/2012 – 5/2/2012 (1 day)
    - Grading- 5/3/2012 – 5/3/2012 (1 day)
    - Building Construction - 5/4/2012 – 5/6/2012 (1 day)
    - Paving - 5/7/2012 – 5/7/2012 (1 day)
    - Architectural Coating - 5/8/2012 – 5/8/2012 (1 day)
- **Off-road Equipment (Coating)** – WWTF Operations model only. No Coating is required for the WWTF area. Default coating equipment has been zeroed out.
- **Off-road Equipment (Building)** – WWTF Operations model only. Building Construction are calculated in a separate CalEEMod model. Default construction equipment has been zeroed out.
- **Off-road Equipment (Demolition)** – WWTF Operations model only. No Demolition is required for this project. Default demolition equipment has been zeroed out.
- **Off-road Equipment (Grading)** – WWTF Operations model only. Grading emissions are calculated in a separate CalEEMod Model. Default grading equipment has been zeroed out.
- **Off-road Equipment (Paving)** – WWTF Operations model only. No Paving is required for the WWTF area. Default paving equipment has been zeroed out.
- **Off-road Equipment (Site Preparation)** – WWTF Operations model only. Site preparation is calculated in a separate CalEEMod model. Default site prep equipment has been zeroed out.
- **Trips and VMT** – WWTF Operations model only. Trips and VMT emissions from operations are calculated in 'Operational - Mobile" tab of this CalEEMod Model.
- **On-road Fugitive Dust** – WWTF Operations model only. On-road off-site fugitive dust emissions from operations are calculated in 'Operational - Mobile" tab of this CalEEMod Model.
- **Demolition** – WWTF Operations model only. No Demolition for this project.
- **Dust from Material Movement** – WWTF Operations model only. Grading fugitive dust emissions are calculated in a separate CalEEMod Model. Site Prep PM emissions are calculated in a separate CalEEMod Model.
- **Architectural Coating** – WWTF Operations model only. No Coating is required for the WWTF area. Default coating VOC g/l has been zeroed out.

Operational Tabs

- **Vehicle Trips** – WWTF Operations will require 12 daily worker trips and 1 daily vendor truck trip. The model requires Trip rate/Size/day **(**Trip rate=13**;** Size=5,500 square feet). 13 trips/5,500 square feet/day=2.37 trips/1000 sq ft/day. All trips to the WWTF area will be either commercial-work or commercial-nonwork because there will be maintenance workers (commercial-work), water delivery trucks (commercial-nonwork) but no customers (commercial customer) visiting the site during operations. The vendor trip length was changed to match the higher, more conservative, trip length of 16.4 miles. Also, to be conservative, all trips will be primary not pass-by or diverted trips.
- **Vehicle Emission Factors Annual**– The 13 daily trips during WWTF Operations will be 12 worker trips and 1 vendor trips(No haul trips). CalEEMod defines the worker vehicle fleet as 50% Light Duty Auto (LDA), 25% Light Duty truck Type 1 (LDT1) and 25% Light Duty Truck Type 2 (LDT2). CalEEMod defines the vendor vehicle fleet as 50% heavy-heavy duty trucks (HHDT) and 50% medium-heavy duty trucks (MHDT). The water delivery truck (vendor) fleet for this model is conservatively 100% heavy-heavy duty trucks (HHDT). The vehicle fleet mix in this tab has been changed to reflect only the worker and vendor vehicles that will be driving to the site during WWTF Operations, using the CalEEMod worker vehicle fleet mix default and only the heavy-heavy duty trucks (HHDT) for the vendor trips.
    - Worker trip percentage= 1-(12 trips/13 total trips)= 92.3% of the total trips
        - 50% of the 92.3% are Light Duty Auto (LDA)= 46.3% of the total vehicle fleet are LDA
        - 25% of the 92.3% are Light Duty truck Type 1 (LDT1)= 23% of the total vehicle fleet are LDT1
        - 25% of the 92.3% are Light Duty truck Type 2 (LDT2)= 23% of the total vehicle fleet are LDT1
    - Vendor trip percentage= 1-(1 trips/13 total trips)= 7.7% of the total trips
        - 100% of the 7.7% are heavy-heavy duty trucks (HHDT)= 7.7% of the total vehicle fleet are HHDT
- **Vehicle Emission Factors Summer**– See "Vehicle Emission Factors Annual" above.
- **Vehicle Emission Factors Winter**– See "Vehicle Emission Factors Annual" above.
- **Road Dust** - Traffic is expected to access the WWTF Project area via State Highway 111 to Shank Road to Best Road (all paved roads). No unpaved roads would be traveled by traffic accessing the WWTF area.
    - CalEEMod default Non-Residential C-W trip length= 16.4 miles
        - Operations % Paved = 1-(0 miles unpaved roads to Project / 16.4 miles)=100% paved
- **Hearths – Woodstoves/Fireplaces –** The project WWTF operations will be controlled from a 5,500 square foot operations/maintenance building. As such, the 'Hearths' operational emissions that are associated with this operations/maintenance building are calculated in this model using CalEEMod defaults.
- **Consumer Products** – The project WWTF operations will be controlled from a 5,500 square foot operations/maintenance building. As such, the 'Consumer Products' operational emissions that are associated with this operations/maintenance building are calculated in this model using CalEEMod defaults.
- **Area Coatin**g – The project WWTF operations will be controlled from a 5,500 square foot operations/maintenance building. As such, the 'Area Coating' operational emissions that are associated with this operations/maintenance building are calculated in this model using CalEEMod defaults.
- **Landscape Equipment** – The project WWTF operations will be controlled from a 5,500 square foot operations/maintenance building. As such, the 'Landscape Equipment' operational emissions that are associated with this operations/maintenance building are calculated in this model using CalEEMod defaults.
- **Energy Use** – The project WWTF operations will be controlled from a 5,500 square foot operations/maintenance building. As such, the 'Energy Use' operational emissions that are associated with this operations/maintenance building are calculated in this model using CalEEMod defaults.
- **Water And Wastewater** – The project WWTF operations will be controlled from a 5,500 square foot operations/maintenance building. As such, the 'Water and Wastewater' operational emissions that are associated with this operations/maintenance building are calculated in this model using CalEEMod defaults.

- **Solid Waste** – The project WWTF operations will be controlled from a 5,500 square foot operations/maintenance building. As such, the 'Solid Waste' operational emissions that are associated with this operations/maintenance building are calculated in this model using CalEEMod defaults.

Vegetation Tabs

- **Land Use Change –**
- **Sequestration –**

Mitigation Tabs

- **Construction Off-road Equipment Mitigation** –
- **Mobile Land Use Mitigation** –
- **Mobile Commute Mitigation** –
- **Area Mitigation** –
- **Energy Mitigation** –
- **Water Mitigation** –
- **Waste Mitigation** -

ATTACHMENT B-2

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - SUMMER
CalEEMod MODEL “CALEEMOD EAST BRAWLEY – WWTF OPERATIONS V02.xls”

East Brawley - WWTF Operations

Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	5.5	1000sqft

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Mobile	0.26	0.69	2.51	0.00	0.26	0.02	0.28	0.01	0.02	0.03		234.41		0.02		234.76
Total	**0.40**	**0.74**	**2.55**	**0.00**	**0.26**	**0.02**	**0.28**	**0.01**	**0.02**	**0.03**		**293.43**		**0.02**	**0.00**	**294.13**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Mobile	0.26	0.69	2.51	0.00	0.26	0.02	0.28	0.01	0.02	0.03		234.41		0.02		234.76
Total	**0.40**	**0.74**	**2.55**	**0.00**	**0.26**	**0.02**	**0.28**	**0.01**	**0.02**	**0.03**		**293.43**		**0.02**	**0.00**	**294.13**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Paving - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Paving - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Architectural Coating - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.26	0.69	2.51	0.00	0.26	0.02	0.28	0.01	0.02	0.03		234.41		0.02		234.76
Unmitigated	0.26	0.69	2.51	0.00	0.26	0.02	0.28	0.01	0.02	0.03		234.41		0.02		234.76
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	13.04	13.04	13.04	77,814	77,814
Total	13.04	13.04	13.04	77,814	77,814

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	16.40	9.50	16.40	92.30	0.00	7.70

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
NaturalGas Unmitigated	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	501.63	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Total		**0.01**	**0.05**	**0.04**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**59.02**		**0.00**	**0.00**	**59.37**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	0.50163	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Total		**0.01**	**0.05**	**0.04**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**59.02**		**0.00**	**0.00**	**59.37**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.01					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.12					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.01					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.12					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT B-3

EAST BRAWLEY GEOTHERMAL PROJECT
CalEEMod MODEL OUTPUTS - WINTER
CalEEMod MODEL “CALEEMOD EAST BRAWLEY – WWTF OPERATIONS V02.xls”

East Brawley - WWTF Operations

Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Heavy Industry	5.5	1000sqft

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.4	**Utility Company**	Imperial Irrigation District
Climate Zone	15	**Precipitation Freq (Days)**	12		

1.3 User Entered Comments

Project Characteristics -

Land Use - See "Remarks" Summary Attachment

Construction Phase - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Off-road Equipment - See "Remarks" Summary Attachment

Trips and VMT - See "Remarks" Summary Attachment

On-road Fugitive Dust - See "Remarks" Summary Attachment

Demolition - See "Remarks" Summary Attachment

Grading - See "Remarks" Summary Attachment

Architectural Coating - See "Remarks" Summary Attachment

Vehicle Trips - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Vechicle Emission Factors - See "Remarks" Summary Attachment

Road Dust - See "Remarks" Summary Attachment

Woodstoves - See "Remarks" Summary Attachment

Consumer Products - See "Remarks" Summary Attachment

Area Coating - See "Remarks" Summary Attachment

Landscape Equipment - See "Remarks" Summary Attachment

Energy Use - See "Remarks" Summary Attachment

Water And Wastewater - See "Remarks" Summary Attachment

Solid Waste - See "Remarks" Summary Attachment

Land Use Change - See "Remarks" Summary Attachment

Sequestration - See "Remarks" Summary Attachment

Construction Off-road Equipment Mitigation - See "Remarks" Summary Attachment

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Mobile	0.23	0.69	2.12	0.00	0.26	0.02	0.28	0.01	0.02	0.03		224.96		0.02		225.29
Total	**0.37**	**0.74**	**2.16**	**0.00**	**0.26**	**0.02**	**0.28**	**0.01**	**0.02**	**0.03**		**283.98**		**0.02**	**0.00**	**284.66**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Mobile	0.23	0.69	2.12	0.00	0.26	0.02	0.28	0.01	0.02	0.03		224.96		0.02		225.29
Total	**0.37**	**0.74**	**2.16**	**0.00**	**0.26**	**0.02**	**0.28**	**0.01**	**0.02**	**0.03**		**283.98**		**0.02**	**0.00**	**284.66**

3.0 Construction Detail

3.1 Mitigation Measures Construction

3.2 Demolition - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.2 Demolition - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.3 Site Preparation - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.4 Grading - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.5 Building Construction - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Paving - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.6 Paving - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

3.7 Architectural Coating - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.23	0.69	2.12	0.00	0.26	0.02	0.28	0.01	0.02	0.03		224.96		0.02		225.29
Unmitigated	0.23	0.69	2.12	0.00	0.26	0.02	0.28	0.01	0.02	0.03		224.96		0.02		225.29
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	13.04	13.04	13.04	77,814	77,814
Total	13.04	13.04	13.04	77,814	77,814

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
General Heavy Industry	16.40	9.50	16.40	92.30	0.00	7.70

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
NaturalGas Unmitigated	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	501.63	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Total		**0.01**	**0.05**	**0.04**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**59.02**		**0.00**	**0.00**	**59.37**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
General Heavy Industry	0.50163	0.01	0.05	0.04	0.00		0.00	0.00		0.00	0.00		59.02		0.00	0.00	59.37
Total		**0.01**	**0.05**	**0.04**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**59.02**		**0.00**	**0.00**	**59.37**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.13	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.01					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.12					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.01					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.12					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.13**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

ATTACHMENT C

TABLES SUMMARIZING DAILY AIR POLLUTANT EMISSIONS CALCULATED BY CALEEMOD AND AP-42 FOR PROJECT OPERATIONS

PP Operations

East Brawley - Winter PP Operations and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
PP Operations Area	0.13	0.00	0.00	0.00	0.00	0.00
PP Operations Energy	0.01	0.05	0.04	0.00	0.00	0.00
PP Operations Mobile	1.79	11.61	14.09	0.02	2.06	0.45
Total	**1.93**	**11.66**	**14.13**	**0.02**	**2.06**	**0.45**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
PP Operations Area	0.13	0.00	0.00	0.00	0.00	0.00
PP Operations Energy	0.01	0.05	0.04	0.00	0.00	0.00
PP Operations Mobile	1.79	11.61	14.09	0.02	2.06	0.45
Total	**1.93**	**11.66**	**14.13**	**0.02**	**2.06**	**0.45**
East Brawley - Summer PP Operations and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
PP Operations Area	0.13	0.00	0.00	0.00	0.00	0.00
PP Operations Energy	0.01	0.05	0.04	0.00	0.00	0.00
PP Operations Mobile	1.96	11.89	15.85	0.02	2.06	0.46
Total	**2.10**	**11.94**	**15.89**	**0.02**	**2.06**	**0.46**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
PP Operations Area	0.13	0.00	0.00	0.00	0.00	0.00
PP Operations Energy	0.01	0.05	0.04	0.00	0.00	0.00
PP Operations Mobile	1.96	11.89	15.85	0.02	2.06	0.46
Total	**2.10**	**11.94**	**15.89**	**0.02**	**2.06**	**0.46**

Fugitive Dust Emissions from Unpaved Roads

(Emission Factor Source: AP-42 (5th Ed. - 11/06) §13.2.2 - Unpaved Roads (Public))

EF_{PM} (lbs/VMT) = $((6.0)*((s/12)^{1})*((S/30)0.30)/((M/.50)^{0.30})-0.00047$

EF_{PM10} (lbs/VMT) = $((1.8)*((s/12)^{1})*((S/30)0.50)/((M/0.50)^{0.20})-0.00047$

$EF_{PM2.5}$ (lbs/VMT) = $((0.18)*((s/12)^{1})*((S/30)0.50)/((M/0.50)^{0.20})-0.00036$

Where:

s =Silt content of road surface material (%)

S =Mean Vehicle Speed (mph)

M = Surface material moisture content (%)

W = Mean Vehicle Weight (tons)

Road Segment	Silt Content	Vehicle Speed (mph)	Moisture Content	Vehicle Weight (tons)	PM Emission Factor (lb/VMT)	PM_{10} Emission Factor (lb/VMT)	$PM_{2.5}$ Emission Factor	VMT per day	Controlled Emissions (lbs/day)		
									PM	PM_{10}	$PM_{2.5}$
Unpaved Off-Site Well Pad Maintenance Traffic	8.5	25.0	0.5	2.40	4.0233	1.1634	0.1160	46.86	188.53	54.52	5.44

WWTF Operations

East Brawley - Winter WWTF Operations and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
WWTF Operations Area	0.13	0.00	0.00	0.00	0.00	0.00
WWTF Operations Energy	0.01	0.05	0.04	0.00	0.00	0.00
WWTF Operations Mobile	0.23	0.69	2.12	0.00	0.28	0.03
Total	**0.37**	**0.74**	**2.16**	**0.00**	**0.28**	**0.03**
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
WWTF Operations Area	0.13	0.00	0.00	0.00	0.00	0.00
WWTF Operations Energy	0.01	0.05	0.04	0.00	0.00	0.00
WWTF Operations Mobile	0.23	0.69	2.12	0.00	0.28	0.03
Total	**0.37**	**0.74**	**2.16**	**0.00**	**0.28**	**0.03**
East Brawley - Summer WWTF Operations and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
WWTF Operations Area	0.13	0.00	0.00	0.00	0.00	0.00
WWTF Operations Energy	0.01	0.05	0.04	0.00	0.00	0.00
WWTF Operations Mobile	0.26	0.69	2.51	0.00	0.28	0.03
Total	**0.40**	**0.74**	**2.55**	**0.00**	**0.28**	**0.03**
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
WWTF Operations Area	0.13	0.00	0.00	0.00	0.00	0.00
WWTF Operations Energy	0.01	0.05	0.04	0.00	0.00	0.00
WWTF Operations Mobile	0.26	0.69	2.51	0.00	0.28	0.03
Total	**0.40**	**0.74**	**2.55**	**0.00**	**0.28**	**0.03**

ATTACHMENT D

TABLES PROVIDING UNMITIGATED AND MITIGATED DAILY AIR POLLUTION EMISSIONS SUMMED AND COMPARED TO APPLICABLE SIGNIFICANCE THRESHOLDS

2013 PP & WWTF Operations

PP & WWTF Operations						
2013 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**2.30**	**12.40**	**16.29**	**0.02**	**56.86**	**5.92**
ICAPCD Significance	**55.00**	**55.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**No**	**No**	**No**	**No**	**No**
2013 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**2.50**	**12.68**	**18.44**	**0.02**	**56.86**	**5.93**
ICAPCD Significance	**55.00**	**55.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**No**	**No**	**No**	**No**	**No**
2013 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**2.30**	**12.40**	**16.29**	**0.02**	**56.86**	**5.92**
ICAPCD Significance	**55.00**	**55.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**No**	**No**	**No**	**No**	**No**
2013 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	ROG	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Total	**2.50**	**12.68**	**18.44**	**0.02**	**56.86**	**5.93**
ICAPCD Significance	**55.00**	**55.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**No**	**No**	**No**	**No**	**No**	**No**

ENVIRONMENTAL MANAGEMENT ASSOCIATES

MEMORANDUM

TO: East Brawley Project File

FROM: Dwight L. Carey

SUBJECT: PM_{10} and $PM_{2.5}$ Emissions from East Brawley Project Cooling Towers

DATE: January 29, 2012

Emissions of particulate matter less than 10 micrometers in diameter (PM_{10}) from wet cooling towers are commonly calculated using the methodology presented in the EPA's AP-42. This methodology is admittedly identified as very conservative, in that it assumes that all total dissolved solids (TDS) emitted in "drift" particles (liquid water entrained in the air stream and carried out of the tower through the induced draft fan stack) would form PM_{10}.

For wet cooling towers with medium to high TDS levels this method is overly conservative and predicts significantly higher PM_{10} emissions than would actually occur (Reisman and Frisbie). An alternate method for computing realistic PM_{10} emissions from wet cooling towers with medium to high TDS has been developed which uses a representative drift droplet size distribution and the TDS in the water to calculate the percentage of drift mass containing particles small enough to produce PM_{10} (Reisman and Frisbie; see attached abstract "Calculating Realistic PM_{10} Emissions from Cooling Towers").

The Reisman and Frisbie methodology was used to conservatively calculate realistic PM_{10} and $PM_{2.5}$ emissions from the East Brawley Project cooling towers. Using the particle size distribution test data and formulas provided in Reisman and Frisbie, the attached table (equivalent to Table 1 from the abstract) was created for the proposed TDS of the circulating cooling water of the East Brawley Project cooling towers (9,400 ppmw). Using a straight-line interpolation for solid particles of 10 µm and 2.5 µm diameter, the percent of the total mass emissions of particulate matter that would be equal to or smaller than PM_{10} (8.25 percent) and $PM_{2.5}$ (0.11 percent), respectively, were calculated. From these percentages the ratio of $PM_{2.5}$ to PM_{10} was calculated as 0.0129 (1.29 percent).

The East Brawley PM_{10} cooling tower emissions stated in the Draft EIR (24.76 tons/year) were conservatively calculated using the AP-42 methodology by assuming that all particulate emissions would be PM_{10}. Using the $PM_{2.5}$ to PM_{10} ratio of 0.0129 (1.29 percent) calculated above, a very conservative $PM_{2.5}$ emission rate of 0.32 tons per year is calculated from the Draft PM_{10} EIR emission rate. Assuming instead that the 24.76 tons per year represent total particulate matter emissions, the more realistic PM_{10} and $PM_{2.5}$ emission rates from the East Brawley Project cooling towers would be 2.04 tons per year and 0.03 tons per year, respectively.

Calculating Realistic PM_{10} Emissions from Cooling Towers

Abstract No. 216 Session No. AM-1b

Joel Reisman and Gordon Frisbie
Greystone Environmental Consultants, Inc., 650 University Avenue, Suite 100, Sacramento, California 95825

ABSTRACT

Particulate matter less than 10 micrometers in diameter (PM_{10}) emissions from wet cooling towers may be calculated using the methodology presented in EPA's AP-42[1] , which assumes that all total dissolved solids (TDS) emitted in "drift" particles (liquid water entrained in the air stream and carried out of the tower through the induced draft fan stack.) are PM_{10}. However, for wet cooling towers with medium to high TDS levels, this method is overly conservative, and predicts significantly higher PM_{10} emissions than would actually occur, even for towers equipped with very high efficiency drift eliminators (e.g., 0.0006% drift rate). Such over-prediction may result in unrealistically high PM_{10} modeled concentrations and/or the need to purchase expensive Emission Reduction Credits (ERCs) in PM_{10} non-attainment areas. Since these towers have fairly low emission points (10 to 15 m above ground), over-predicting PM_{10} emission rates can easily result in exceeding federal Prevention of Significant Deterioration (PSD) significance levels at a project's fenceline. This paper presents a method for computing realistic PM_{10} emissions from cooling towers with medium to high TDS levels.

INTRODUCTION

Cooling towers are heat exchangers that are used to dissipate large heat loads to the atmosphere. Wet, or evaporative, cooling towers rely on the latent heat of water evaporation to exchange heat between the process and the air passing through the cooling tower. The cooling water may be an integral part of the process or may provide cooling via heat exchangers, for example, steam condensers. Wet cooling towers provide direct contact between the cooling water and air passing through the tower, and as part of normal operation, a very small amount of the circulating water may be entrained in the air stream and be carried out of the tower as "drift" droplets. Because the drift droplets contain the same chemical impurities as the water circulating through the tower, the particulate matter constituent of the drift droplets may be classified as an emission. The magnitude of the drift loss is influenced by the number and size of droplets produced within the tower, which are determined by the tower fill design, tower design, the air and water patterns, and design of the drift eliminators.

AP-42 METHOD OF CALCULATING DRIFT PARTICULATE

EPA's AP-42[1] provides available particulate emission factors for wet cooling towers, however, these values only have an emission factor rating of "E" (the lowest level of confidence acceptable). They are also rather high, compared to typical present-day manufacturers' guaranteed drift rates, which are on the order of 0.0006%. (Drift emissions are typically

expressed as a percentage of the cooling tower water circulation rate). AP-42 states that "a *conservatively high* PM_{10} emission factor can be obtained by (a) multiplying the total liquid drift factor by the TDS fraction in the circulating water, and (b) assuming that once the water evaporates, all remaining solid particles are within the PM_{10} range." (Italics per EPA).

If TDS data for the cooling tower are not available, a source-specific TDS content can be estimated by obtaining the TDS for the make-up water and multiplying it by the cooling tower cycles of concentration. [The cycles of concentration is the ratio of a measured parameter for the cooling tower water (such as conductivity, calcium, chlorides, or phosphate) to that parameter for the make-up water.]

Using AP-42 guidance, the total particulate emissions (PM) (after the pure water has evaporated) can be expressed as:

$$PM = \text{Water Circulation Rate} \times \text{Drift Rate} \times TDS \qquad [1]$$

For example, for a typical power plant wet cooling tower with a water circulation rate of 146,000 gallons per minute (gpm), drift rate of 0.0006%, and TDS of 7,700 parts per million by weight (ppmw):

$$PM = 146{,}000 \text{ gpm} \times 8.34 \text{ lb water/gal} \times 0.0006/100 \times 7{,}700 \text{ lb solids}/10^6 \text{ lb water} \times 60 \text{ min/hr} = \underline{3.38 \text{ lb/hr}}$$

On an annual basis, this is equivalent to almost 15 tons per year (tpy). Even for a state-of-the-art drift eliminator system, this is not a small number, especially if assumed to all be equal to PM_{10}, a regulated criteria pollutant. However, as the following analysis demonstrates, only a very small fraction is actually PM_{10}.

COMPUTING THE PM_{10} FRACTION

Based on a representative drift droplet size distribution and TDS in the water, the amount of solid mass in each drop size can be calculated. That is, for a given initial droplet size, assuming that the mass of dissolved solids condenses to a spherical particle after all the water evaporates, and assuming the density of the TDS is equivalent to a representative salt (e.g., sodium chloride), the diameter of the final solid particle can be calculated. Thus, using the drift droplet size distribution, the percentage of drift mass containing particles small enough to produce PM_{10} can be calculated. This method is conservative as the final particle is assumed to be perfectly spherical; hence as small a particle as can exist.

The droplet size distribution of the drift emitted from the tower is critical to performing the analysis. Brentwood Industries, a drift eliminator manufacturer, was contacted and agreed to provide drift eliminator test data from a test conducted by Environmental Systems Corporation (ESC) at the Electric Power Research Institute (EPRI) test facility in Houston, Texas in 1988 (Aull[2], 1999). The data consist of water droplet size distributions for a drift eliminator that achieved a tested drift rate of 0.0003 percent. As we are using a 0.0006 percent drift rate, it is reasonable to expect that the 0.0003 percent drift rate would produce smaller droplets, therefore,

this size distribution data can be assumed to be conservative for predicting the fraction of PM_{10} in the total cooling tower PM emissions.

In calculating PM_{10} emissions the following assumptions were made:

- Each water droplet was assumed to evaporate shortly after being emitted into ambient air, into a single, solid, spherical particle.
- Drift water droplets have a density (ρ_w) of water; $1.0\ g/cm^3$ or $1.0 * 10^{-6}\ \mu g/\mu m^3$.
- The solid particles were assumed to have the same density (ρ_{TDS}) as sodium chloride, (i.e., 2.2 g/cm^3).

Using the formula for the volume of a sphere, $V = 4\pi r^3/3$, and the density of pure water, $\rho_w = 1.0\ g/cm^3$, the following equations can be used to derive the solid particulate diameter, D_p, as a function of the TDS, the density of the solids, and the initial drift droplet diameter, D_d :

Volume of drift droplet = $(4/3)\pi(D_d/2)^3$ [2]

Mass of solids in drift droplet = (TDS)(ρ_w)(Volume of drift droplet) [3]

substituting,

Mass of solids in drift = (TDS)(ρ_w) $(4/3)\pi(D_d/2)^3$ [4]

Assuming the solids remain and coalesce after the water evaporates, the mass of solids can also be expressed as:

Mass of solids = (ρ_{TDS}) (solid particle volume) = (ρ_{TDS})$(4/3)\pi(D_p/2)^3$ [5]

Equations [4] and [5] are equivalent:

$(\rho_{TDS})(4/3)\pi(D_p/2)^3 = (TDS)(\rho_w)(4/3)\pi(D_d/2)^3$ [6]

Solving for D_p:

$D_p = D_d\ [(TDS)(\rho_w/\rho_{TDS})]^{1/3}$ [7]

Where,

TDS is in units of ppmw
D_p = diameter of solid particle, micrometers (μm)
D_d = diameter of drift droplet, μm

Using formulas [2] – [7] and the particle size distribution test data, Table 1 can be constructed for drift from a wet cooling tower having the same characteristics as our example; 7,700 ppmw TDS and a 0.0006% drift rate. The first and last columns of this table are the particle size distribution derived from test results provided by Brentwood Industries. Using straight-line interpolation for a solid particle size 10 μm in diameter, we conclude that approximately 14.9 percent of the mass emissions are equal to or smaller than PM_{10}. The balance of the solid

particulate are particulate greater than 10 μm. Hence, PM_{10} emissions from this tower would be equal to PM emissions x 0.149, or 3.38 lb/hr x 0.149 = 0.50 lb/hr. The process is repeated in Table 2, with all parameters equal except that the TDS is 11,000 ppmw. The result is that approximately 5.11 percent are smaller at 11,000 ppm. Thus, while total PM emissions are larger by virtue of a higher TDS, overall PM_{10} emissions are actually lower, because more of the solid particles are larger than 10 μm.

Table 1. Resultant Solid Particulate Size Distribution (TDS = 7700 ppmw)

EPRI Droplet Diameter (μm)	Droplet Volume (μm^3) [2][1]	Droplet Mass (μg) [3]	Particle Mass (Solids) (μg) [4]	Solid Particle Volume (μm^3)	Solid Particle Diameter (μm) [7]	EPRI % Mass Smaller
10	524	5.24E-04	4.03E-06	1.83	1.518	0.000
20	4189	4.19E-03	3.23E-05	14.66	3.037	0.196
30	14137	1.41E-02	1.09E-04	49.48	4.555	0.226
40	33510	3.35E-02	2.58E-04	117.29	6.073	0.514
50	65450	6.54E-02	5.04E-04	229.07	7.591	1.816
60	113097	1.13E-01	8.71E-04	395.84	9.110	5.702
70	179594	1.80E-01	1.38E-03	628.58	10.628	21.348
90	381704	3.82E-01	2.94E-03	1335.96	13.665	49.812
110	696910	6.97E-01	5.37E-03	2439.18	16.701	70.509
130	1150347	1.15E+00	8.86E-03	4026.21	19.738	82.023
150	1767146	1.77E+00	1.36E-02	6185.01	22.774	88.012
180	3053628	3.05E+00	2.35E-02	10687.70	27.329	91.032
210	4849048	4.85E+00	3.73E-02	16971.67	31.884	92.468
240	7238229	7.24E+00	5.57E-02	25333.80	36.439	94.091
270	10305995	1.03E+01	7.94E-02	36070.98	40.994	94.689
300	14137167	1.41E+01	1.09E-01	49480.08	45.549	96.288
350	22449298	2.24E+01	1.73E-01	78572.54	53.140	97.011
400	33510322	3.35E+01	2.58E-01	117286.13	60.732	98.340
450	47712938	4.77E+01	3.67E-01	166995.28	68.323	99.071
500	65449847	6.54E+01	5.04E-01	229074.46	75.915	99.071
600	113097336	1.13E+02	8.71E-01	395840.67	91.098	100.000

[1] Bracketed numbers refer to equation number in text.

The percentage of PM_{10}/PM was calculated for cooling tower TDS values from 1000 to 12000 ppmw and the results are plotted in Figure 1. Using these data, Figure 2 presents predicted PM_{10} emission rates for the 146,000 gpm example tower. As shown in this figure, the PM emission rate increases in a straight line as TDS increases, however, the PM_{10} emission rate increases to a maximum at around a TDS of 4000 ppmw, and then begins to decline. The reason is that at higher TDS, the drift droplets contain more solids and therefore, upon evaporation, result in larger solid particles for any given initial droplet size.

CONCLUSION

The emission factors and methodology given in EPA's AP-42[1] Chapter 13.4 *Wet Cooling Towers*, do not account for the droplet size distribution of the drift exiting the tower. This is a critical factor, as more than 85% of the mass of particulate in the drift from most cooling towers will result in solid particles larger than PM_{10} once the water has evaporated. Particles larger than PM_{10} are no longer a regulated air pollutant, because their impact on human health has been shown to be insignificant. Using reasonable, conservative assumptions and a realistic drift

droplet size distribution, a method is now available for calculating realistic PM_{10} emission rates from wet mechanical draft cooling towers equipped with modern, high-efficiency drift eliminators and operating at medium to high levels of TDS in the circulating water.

Table 2. Resultant Solid Particulate Size Distribution (TDS = 11000 ppmw)

EPRI Droplet Diameter (μm)	Droplet Volume (μm^3) [2][1]	Droplet Mass (μg) [3]	Particle Mass (Solids) (μg) [4]	Solid Particle Volume (μm^3)	Solid Particle Diameter (μm) [7]	EPRI % Mass Smaller
10	524	5.24E-04	5.76E-06	2.62	1.710	0.000
20	4189	4.19E-03	4.61E-05	20.94	3.420	0.196
30	14137	1.41E-02	1.56E-04	70.69	5.130	0.226
40	33510	3.35E-02	3.69E-04	167.55	6.840	0.514
50	65450	6.54E-02	7.20E-04	327.25	8.550	1.816
60	113097	1.13E-01	1.24E-03	565.49	10.260	5.702
70	179594	1.80E-01	1.98E-03	897.97	11.970	21.348
90	381704	3.82E-01	4.20E-03	1908.52	15.390	49.812
110	696910	6.97E-01	7.67E-03	3484.55	18.810	70.509
130	1150347	1.15E+00	1.27E-02	5751.73	22.230	82.023
150	1767146	1.77E+00	1.94E-02	8835.73	25.650	88.012
180	3053628	3.05E+00	3.36E-02	15268.14	30.780	91.032
210	4849048	4.85E+00	5.33E-02	24245.24	35.909	92.468
240	7238229	7.24E+00	7.96E-02	36191.15	41.039	94.091
270	10305995	1.03E+01	1.13E-01	51529.97	46.169	94.689
300	14137167	1.41E+01	1.56E-01	70685.83	51.299	96.288
350	22449298	2.24E+01	2.47E-01	112246.49	59.849	97.011
400	33510322	3.35E+01	3.69E-01	167551.61	68.399	98.340
450	47712938	4.77E+01	5.25E-01	238564.69	76.949	99.071
500	65449847	6.54E+01	7.20E-01	327249.23	85.499	99.071
600	113097336	1.13E+02	1.24E+00	565486.68	102.599	100.000

Figure 1: Percentage of Drift PM that Evaporates to PM10

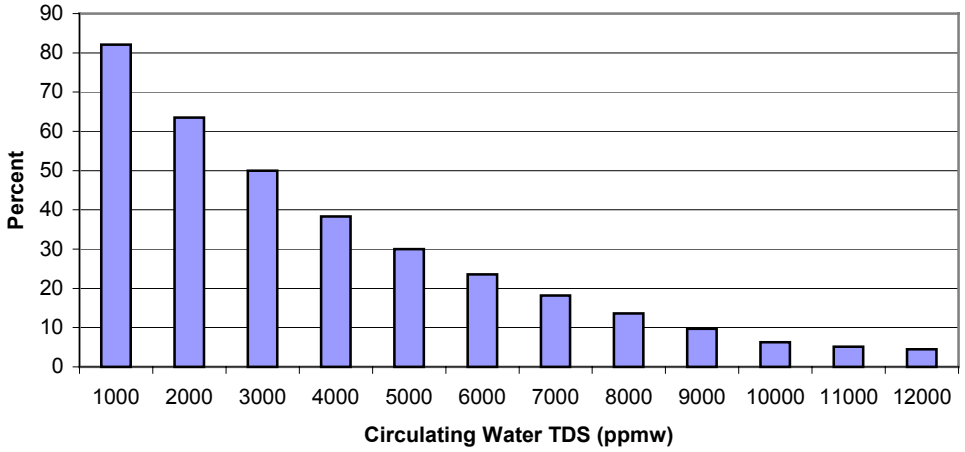
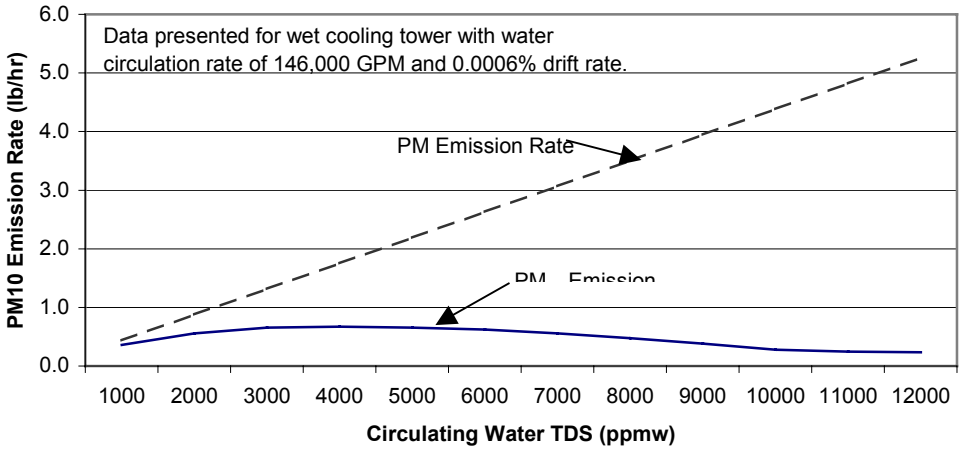


Figure 2: PM_{10} Emission Rate vs. TDS



REFERENCES

1. EPA, 1995. Compilation of Air pollutant Emission Factors, AP-42 Fifth edition, Volume I: *Stationary Point and Area Sources*, Chapter 13.4 Wet Cooling Towers, http://www.epa.gov/ttn/chief/ap42/, United States Environmental Protection Agency, Office of Air Quality Planning and Standards, January.

2. Aull, 1999. Memorandum from R. Aull, Brentwood Industries to J. Reisman, Greystone, December 7, 1999.

KEY WORDS

Drift
Drift eliminators
Cooling tower
PM_{10} emissions
TDS

Table 1: Resultant Solid Particulate Size Distribution						
EPRI Droplet Diameter	Droplet Volume [2]	Droplet Mass [3]	Particle Mass (Solids) [4]	Solid Particle Volume	Solid Particle Diameter [7]	EPRI % Mass Smaller
(µm)	(µm3)	(µg)	(µg)	(µm3)	(µm)	
10	524	5.24E-04	4.92E-06	2.24	1.623	0.000
20	4189	4.19E-03	3.94E-05	17.90	3.245	0.196
30	14137	1.41E-02	1.33E-04	60.40	4.868	0.226
40	33510	3.35E-02	3.15E-04	143.18	6.491	0.514
50	65450	6.54E-02	6.15E-04	279.65	8.113	1.816
60	113097	1.13E-01	1.06E-03	483.23	9.736	5.702
70	179594	1.80E-01	1.69E-03	767.36	11.359	21.348
90	381704	3.82E-01	3.59E-03	1630.91	14.604	49.812
110	696910	6.97E-01	6.55E-03	2977.71	17.850	70.509
130	1150347	1.15E+00	1.08E-02	4915.12	21.095	82.023
150	1767146	1.77E+00	1.66E-02	7550.53	24.340	88.012
180	3053628	3.05E+00	2.87E-02	13047.32	29.208	91.032
210	4849048	4.85E+00	4.56E-02	20718.66	34.076	92.468
240	7238229	7.24E+00	6.80E-02	30926.98	38.945	94.091
270	10305995	1.03E+01	9.69E-02	44034.70	43.813	94.689
300	14137167	1.41E+01	1.33E-01	60404.26	48.681	96.288
350	22449298	2.24E+01	2.11E-01	95919.73	56.794	97.011
400	33510322	3.35E+01	3.15E-01	143180.47	64.908	98.340
450	47712938	4.77E+01	4.49E-01	203864.37	73.021	99.071
500	65449847	6.54E+01	6.15E-01	279649.35	81.134	99.071
600	113097336	1.13E+02	1.06E+00	483234.07	97.361	100.000

Interpolated PM_{10} & $PM_{2.5}$	
Solid Particle Diameter (µm)	**EPRI % Mass Smaller**
2.5	0.106
10.0	8.246
PM2.5/PM10 Ratio	0.0129
PM10/PM Ratio	0.0825

Equation [2]	Volume of drift droplet = $(4/3)\,\pi\,(D_d/2)^3$
Equation [3]	Mass of solids in drift droplet = (TDS) (ρ_w) (Volume of drift droplet)
Equation [4]	Mass of solids in drift = (TDS) (ρ_w) $(4/3)\,\pi\,(D_d/2)^3$
Equation [7]	$D_p = D_d\,[(TDS)\,(\rho_w / \rho_{TDS})]^{1/3}$

TDS =	9400	ppmw
ρ_w =	1.00E-06	µg/µm^3
ρ_{TDS} =	2.20E-06	µg/µm^3
Dp =	diameter of solid particle, µm	
Dd =	diameter of drift droplet, µm	

ENVIRONMENTAL MANAGEMENT ASSOCIATES

MEMORANDUM

TO: East Brawley Project File

FROM: Dwight L. Carey

SUBJECT: Equipment and Vehicle Exhaust and Fugitive PM_{10} and $PM_{2.5}$ Air Pollutant Emissions from the East Brawley Project

DATE: January 30, 2012

Total PM_{10} and $PM_{2.5}$ air pollutant emissions for the East Brawley Project power plant and the Brawley waste water treatment facility (WWTF) grading, paving and construction; and the grading and construction of one of the East Brawley Project well pads, were estimated using the California Emission Estimator Model (CalEEMod) (version 2011.1) and other air pollutant emission factors. These air pollutant emissions were reported in the Environmental Management Associates, Inc. report "Updated Air Pollutant Emission Assessment, East Brawley Project Construction, Imperial County, California" (January 2012)). Similarly, the total PM_{10} and $PM_{2.5}$ air pollutant emissions calculated operation of the East Brawley Project power plant and the Brawley WWTF were reported in the Environmental Management Associates, Inc. report "Supplemental Air Pollutant Emission Assessment, East Brawley Project Operations, Imperial County, California" (January 2012).

Although these two reports report the total PM_{10} and $PM_{2.5}$ air pollutant emissions for the East Brawley Project, CalEEMod (and the other emission factors used) also provide separate calculations for the fugitive dust and engine exhaust PM_{10} and $PM_{2.5}$ air pollutant emissions. (Fugitive dust is typically soil particles lifted into the air by man-made (or natural) activities, such as the movement of soil or the travel of vehicles on roads or construction equipment on construction sites. Exhaust particulate matter (PM) is emitted directly from the exhaust of motor vehicles, construction equipment engines or other internal combustion engines.) The estimated daily fugitive dust and exhaust PM_{10} and $PM_{2.5}$ calculated for both the construction activities and operation of the power plant, the WWTF and the geothermal well pads and wells are provided in Attachment A.

In order to determine the daily Project-wide construction and operations fugitive dust and exhaust PM_{10} and $PM_{2.5}$ emissions, the daily fugitive dust and exhaust PM_{10} and $PM_{2.5}$ emissions presented in Attachment A must be summed across each activity which would be occurring at the same time. Attachment B identifies the Project construction activities and how they are expected to overlap in time. Power plant operations and WWTF operations will both commence in 2013, therefore, their emissions must be summed. Attachment C presents tables providing the winter and summer unmitigated and mitigated daily construction, power plant operations and WWTF fugitive dust and exhaust PM_{10} and $PM_{2.5}$ emissions (from Attachment A) summed by applicable activities across the twelve time periods outlined in Attachment B.

ATTACHMENT A

TABLES SUMMARIZING DAILY FUGITIVE AND EXHAUST PM_{10} AND $PM_{2.5}$ EMISSIONS CALCULATED BY CALEEMOD AND AP-42 FOR PROJECT CONSTRUCTION AND OPERATIONS

PP Site Prep

East Brawley - Winter PP Site Preparation and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Site Preparation	17.23	4.16	21.39	6.62	4.16	10.78
Site Preparation Traffic	0.10	0.00	0.10	0.00	0.00	0.01
Total	**17.33**	**4.16**	**21.49**	**6.62**	**4.16**	**10.79**
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Site Preparation	6.72	2.77	9.49	2.58	2.77	5.35
Site Preparation Traffic	0.10	0.00	0.10	0.00	0.00	0.01
Total	**6.82**	**2.77**	**9.59**	**2.58**	**2.77**	**5.36**
East Brawley - Summer PP Site Preparation and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Site Preparation	17.23	4.16	21.39	6.62	4.16	10.78
Site Preparation Traffic	0.10	0.00	0.10	0.00	0.00	0.01
Total	**17.33**	**4.16**	**21.49**	**6.62**	**4.16**	**10.79**
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Site Preparation	6.72	2.77	9.49	2.58	2.77	5.35
Site Preparation Traffic	0.10	0.00	0.10	0.00	0.00	0.01
Total	**6.82**	**2.77**	**9.59**	**2.58**	**2.77**	**5.36**

PP Grading

East Brawley - Winter PP Grading and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	8.01	7.46	15.47	3.31	7.46	10.77
Grading Traffic	0.43	0.05	0.48	0.01	0.05	0.06
Total	**8.44**	**7.51**	**15.95**	**3.32**	**7.51**	**10.83**
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	3.12	5.14	8.26	1.29	5.14	6.43
Grading Traffic	0.43	0.05	0.48	0.01	0.05	0.06
Total	**3.55**	**5.19**	**8.74**	**1.30**	**5.19**	**6.49**
East Brawley - Summer PP Grading and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	8.01	7.46	15.47	3.31	7.46	10.77
Grading Traffic	0.43	0.05	0.48	0.01	0.05	0.06
Total	**8.44**	**7.51**	**15.95**	**3.32**	**7.51**	**10.83**
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	3.12	5.14	8.26	1.29	5.14	6.43
Grading Traffic	0.43	0.05	0.48	0.01	0.05	0.06
Total	**3.55**	**5.19**	**8.74**	**1.30**	**5.19**	**6.49**

PP Construction A

East Brawley - Winter PP Construction A - Foundation Work and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction A	0.00	3.95	3.95	0.00	3.95	3.95
Construction A Traffic	2.83	0.77	3.59	0.15	0.77	0.92
Total	**2.83**	**4.72**	**7.54**	**0.15**	**4.72**	**4.87**
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction A	0.00	2.47	2.47	0.00	2.47	2.47
Construction A Traffic	2.83	0.77	3.59	0.15	0.77	0.92
Total	**2.83**	**3.24**	**6.06**	**0.15**	**3.24**	**3.39**
East Brawley - Summer PP Construction A - Foundation Work and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction A	0.00	3.95	3.95	0.00	3.95	3.95
Construction A Traffic	2.83	0.75	3.57	0.15	0.75	0.91
Total	**2.83**	**4.70**	**7.52**	**0.15**	**4.70**	**4.86**
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction A	0.00	2.47	2.47	0.00	2.47	2.47
Construction A Traffic	2.83	0.75	3.57	0.15	0.75	0.91
Total	**2.83**	**3.22**	**6.04**	**0.15**	**3.22**	**3.38**

PP Construction B

East Brawley - Winter PP Construction B - Mechanical Work and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction B	0.00	9.74	9.74	0.00	9.74	9.74
Construction B Traffic	2.83	0.77	3.59	0.15	0.77	0.92
Total	**2.83**	**10.51**	**13.33**	**0.15**	**10.51**	**10.66**
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction B	0.00	6.95	6.95	0.00	6.95	6.95
Construction B Traffic	2.83	0.77	3.59	0.15	0.77	0.92
Total	**2.83**	**7.72**	**10.54**	**0.15**	**7.72**	**7.87**
East Brawley - Summer PP Construction B - Mech/Elec Work and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction B	0.00	9.74	9.74	0.00	9.74	9.74
Construction B Traffic	2.83	0.75	3.57	0.15	0.75	0.91
Total	**2.83**	**10.49**	**13.31**	**0.15**	**10.49**	**10.65**
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction B	0.00	6.95	6.95	0.00	6.95	6.95
Construction B Traffic	2.83	0.75	3.57	0.15	0.75	0.91
Total	**2.83**	**7.70**	**10.52**	**0.15**	**7.70**	**7.86**

PP Coating

East Brawley - Winter Coating and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Coating	0.00	0.29	0.29	0.00	0.29	0.29
Coating Traffic	0.07	0.01	0.07	0.00	0.01	0.01
Total	**0.07**	**0.30**	**0.36**	**0.00**	**0.30**	**0.30**
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Coating	0.00	0.29	0.29	0.00	0.29	0.29
Coating Traffic	0.07	0.01	0.07	0.00	0.01	0.01
Total	**0.07**	**0.30**	**0.36**	**0.00**	**0.30**	**0.30**
East Brawley - Summer Coating and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Coating	0.00	0.29	0.29	0.00	0.29	0.29
Coating Traffic	0.07	0.01	0.07	0.00	0.01	0.01
Total	**0.07**	**0.30**	**0.36**	**0.00**	**0.30**	**0.30**
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Coating	0.00	0.29	0.29	0.00	0.29	0.29
Coating Traffic	0.07	0.01	0.07	0.00	0.01	0.01
Total	**0.07**	**0.30**	**0.36**	**0.00**	**0.30**	**0.30**

PP Paving

East Brawley - Winter Paving and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Paving	0.00	1.54	1.54	0.00	1.54	1.54
Paving Traffic	0.57	0.02	0.59	0.00	0.02	0.03
Total	**0.57**	**1.56**	**2.13**	**0.00**	**1.56**	**1.57**
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Paving	0.00	0.79	0.79	0.00	0.79	0.79
Paving Traffic	0.57	0.02	0.59	0.00	0.02	0.03
Total	**0.57**	**0.81**	**1.38**	**0.00**	**0.81**	**0.82**
East Brawley - Summer Paving and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Paving	0.00	1.54	1.54	0.00	1.54	1.54
Paving Traffic	0.57	0.02	0.59	0.00	0.02	0.03
Total	**0.57**	**1.56**	**2.13**	**0.00**	**1.56**	**1.57**
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Paving	0.00	0.79	0.79	0.00	0.79	0.79
Paving Traffic	0.57	0.02	0.59	0.00	0.02	0.03
Total	**0.57**	**0.81**	**1.38**	**0.00**	**0.81**	**0.82**

PP Operations

East Brawley - Winter PP Operations and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
PP Operations Area	0.00	0.00	0.00	0.00	0.00	0.00
PP Operations Energy	0.00	0.00	0.00	0.00	0.00	0.00
PP Operations Mobile	1.69	0.37	2.06	0.08	0.37	0.45
Total	**1.69**	**0.37**	**2.06**	**0.08**	**0.37**	**0.45**
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
PP Operations Area	0.00	0.00	0.00	0.00	0.00	0.00
PP Operations Energy	0.00	0.00	0.00	0.00	0.00	0.00
PP Operations Mobile	1.69	0.37	2.06	0.08	0.37	0.45
Total	**1.69**	**0.37**	**2.06**	**0.08**	**0.37**	**0.45**
East Brawley - Summer PP Operations and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
PP Operations Area	0.00	0.00	0.00	0.00	0.00	0.00
PP Operations Energy	0.00	0.00	0.00	0.00	0.00	0.00
PP Operations Mobile	1.69	0.38	2.06	0.08	0.38	0.46
Total	**1.69**	**0.38**	**2.06**	**0.08**	**0.38**	**0.46**
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
PP Operations Area	0.00	0.00	0.00	0.00	0.00	0.00
PP Operations Energy	0.00	0.00	0.00	0.00	0.00	0.00
PP Operations Mobile	1.69	0.38	2.06	0.08	0.38	0.46
Total	**1.69**	**0.38**	**2.06**	**0.08**	**0.38**	**0.46**

Fugitive Dust Emissions from Unpaved Roads

(Emission Factor Source: AP-42 (5th Ed. - 11/06) §13.2.2 - Unpaved Roads (Public))

EF_{PM} (lbs/VMT) = $((6.0)*((s/12)^{1})*((S/30)0.30)/((M/.50)^{0.30})-0.00047$

EF_{PM10} (lbs/VMT) = $((1.8)*((s/12)^{1})*((S/30)0.50)/((M/0.50)^{0.20})-0.00047$

$EF_{PM2.5}$ (lbs/VMT) = $((0.18)*((s/12)^{1})*((S/30)0.50)/((M/0.50)^{0.20})-0.00036$

Where:

s =Silt content of road surface material (%)

S =Mean Vehicle Speed (mph)

M = Surface material moisture content (%)

W = Mean Vehicle Weight (tons)

Road Segment	Silt Content	Vehicle Speed (mph)	Moisture Content	Vehicle Weight (tons)	PM Emission Factor (lb/VMT)	PM_{10} Emission Factor (lb/VMT)	$PM_{2.5}$ Emission Factor	VMT per day	Controlled Emissions (lbs/day)		
									PM	PM_{10}	$PM_{2.5}$
Unpaved Off-Site Well Pad Maintenance Traffic	8.5	25.0	0.5	2.40	4.0233	1.1634	0.1160	46.86	188.53	54.52	5.44

Well Pad Site Prep

East Brawley - Winter Well Pad Site Preparation and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Site Preparation	4.24	1.11	5.35	0.00	1.11	1.11
Site Preparation Traffic	11.14	0.00	11.15	1.11	0.00	1.11
Total	**15.38**	**1.11**	**16.50**	**1.11**	**1.11**	**2.22**
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Site Preparation	1.65	0.96	2.61	0.00	0.96	0.96
Site Preparation Traffic	4.39	0.00	4.39	0.43	0.00	0.44
Total	**6.04**	**0.96**	**7.00**	**0.43**	**0.96**	**1.40**
East Brawley - Summer Well Pad Site Preparation and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Site Preparation	4.24	1.11	5.35	0.00	1.11	1.11
Site Preparation Traffic	11.14	0.00	11.15	1.11	0.00	1.11
Total	**15.38**	**1.11**	**16.50**	**1.11**	**1.11**	**2.22**
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Site Preparation	1.65	0.96	2.61	0.00	0.96	0.96
Site Preparation Traffic	4.39	0.00	4.39	0.43	0.00	0.44
Total	**6.04**	**0.96**	**7.00**	**0.43**	**0.96**	**1.40**

Well Pad Grading_Construc

East Brawley - Winter Well Pad Grading and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	2.13	1.34	3.47	0.00	1.34	1.34
Grading Traffic	118.37	0.17	118.55	11.72	0.17	11.89
Total	**120.50**	**1.51**	**122.02**	**11.72**	**1.51**	**13.23**
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	0.83	1.05	1.88	0.00	1.05	1.05
Grading Traffic	46.93	0.17	47.12	4.58	0.17	4.77
Total	**47.76**	**1.22**	**49.00**	**4.58**	**1.22**	**5.82**
East Brawley - Summer Well Pad Grading and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	2.13	1.34	3.47	0.00	1.34	1.34
Grading Traffic	118.37	0.17	118.55	11.72	0.17	11.89
Total	**120.50**	**1.51**	**122.02**	**11.72**	**1.51**	**13.23**
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	0.83	1.05	1.88	0.00	1.05	1.05
Grading Traffic	46.93	0.17	47.11	4.58	0.17	4.76
Total	**47.76**	**1.22**	**48.99**	**4.58**	**1.22**	**5.81**

Well Assembly_Drill_Test

East Brawley - Winter Well Drill Assembly, Drilling, & Testing and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	0.00	0.40	0.40	0.00	0.40	0.40
Grading Traffic	70.56	0.06	70.62	7.02	0.06	7.08
Total	**70.56**	**0.46**	**71.02**	**7.02**	**0.46**	**7.48**
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	0.00	0.31	0.31	0.00	0.31	0.31
Grading Traffic	27.77	0.06	27.84	2.75	0.06	2.82
Total	**27.77**	**0.37**	**28.15**	**2.75**	**0.37**	**3.13**
East Brawley - Summer Well Drill Assembly, Drilling, & Testing and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	0.00	0.40	0.40	0.00	0.40	0.40
Grading Traffic	70.56	0.06	70.62	7.02	0.06	7.08
Total	**70.56**	**0.46**	**71.02**	**7.02**	**0.46**	**7.48**
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	0.00	0.31	0.31	0.00	0.31	0.31
Grading Traffic	27.77	0.06	27.84	2.75	0.06	2.82
Total	**27.77**	**0.37**	**28.15**	**2.75**	**0.37**	**3.13**

Well Field Construction

East Brawley - Winter Well Field Construction and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction B	0.00	9.74	9.74	0.00	9.74	9.74
Construction B Traffic	2.83	0.77	3.59	0.15	0.77	0.92
Total	**2.83**	**10.51**	**13.33**	**0.15**	**10.51**	**10.66**
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction B	0.00	6.95	6.95	0.00	6.95	6.95
Construction B Traffic	2.83	0.77	3.59	0.15	0.77	0.92
Total	**2.83**	**7.72**	**10.54**	**0.15**	**7.72**	**7.87**
East Brawley - Summer Well Field Construction and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction B	0.00	7.15	7.15	0.00	7.15	7.15
Construction B Traffic	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**7.15**	**7.15**	**0.00**	**7.15**	**7.15**
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction B	0.00	5.74	5.74	0.00	5.74	5.74
Construction B Traffic	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**5.74**	**5.74**	**0.00**	**5.74**	**5.74**

Drill Rig Summary

Gallons of Fuel Used (per day)		Emission Factors (lb/gal)						Average Emissions (lbs/day)					
		FUG PM10	EXH PM10	TOT PM10	FUG PM2.5	EXH PM2.5	TOT PM2.5	FUG PM10	EXH PM10	TOT PM10	FUG PM2.5	EXH PM2.5	TOT PM2.5
Avg Well:	931	0.000000	0.006827		0.000000	0.006281		0.00	6.36	6.36	0.00	5.85	5.85

WWTF Site Prep

East Brawley - Winter WWTF Site Preparation and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Site Preparation	6.36	2.24	8.60	0.00	2.24	2.24
Site Preparation Traffic	0.07	0.00	0.08	0.00	0.00	0.00
Total	**6.43**	**2.24**	**8.68**	**0.00**	**2.24**	**2.24**
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Site Preparation	2.48	1.70	4.18	0.00	1.70	1.70
Site Preparation Traffic	0.07	0.00	0.08	0.00	0.00	0.00
Total	**2.55**	**1.70**	**4.26**	**0.00**	**1.70**	**1.70**
East Brawley - Summer WWTF Site Preparation and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Site Preparation	6.36	2.24	8.60	0.00	2.24	2.24
Site Preparation Traffic	0.07	0.00	0.08	0.00	0.00	0.00
Total	**6.43**	**2.24**	**8.68**	**0.00**	**2.24**	**2.24**
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Site Preparation	2.48	1.70	4.18	0.00	1.70	1.70
Site Preparation Traffic	0.07	0.00	0.08	0.00	0.00	0.00
Total	**2.55**	**1.70**	**4.26**	**0.00**	**1.70**	**1.70**

WWTF Grading

East Brawley - Winter WWTF Grading and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	8.57	2.56	11.13	3.31	2.56	5.87
Grading Traffic	0.07	0.00	0.08	0.00	0.00	0.00
Total	**8.64**	**2.56**	**11.21**	**3.31**	**2.56**	**5.87**
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	3.34	1.77	5.11	1.29	1.77	3.06
Grading Traffic	0.07	0.00	0.08	0.00	0.00	0.00
Total	**3.41**	**1.77**	**5.19**	**1.29**	**1.77**	**3.06**
East Brawley - Summer WWTF Grading and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	8.57	2.56	11.13	3.31	2.56	5.87
Grading Traffic	0.07	0.00	0.08	0.00	0.00	0.00
Total	**8.64**	**2.56**	**11.21**	**3.31**	**2.56**	**5.87**
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Grading	3.34	1.77	5.11	1.29	1.77	3.06
Grading Traffic	0.07	0.00	0.08	0.00	0.00	0.00
Total	**3.41**	**1.77**	**5.19**	**1.29**	**1.77**	**3.06**

WWTF Construction

East Brawley - Winter WWTF Construction and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction	0.00	1.50	1.50	0.00	1.50	1.50
Construction Traffic	0.15	0.00	0.15	0.01	0.00	0.01
Total	**0.15**	**1.50**	**1.65**	**0.01**	**1.50**	**1.51**
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction	0.00	1.06	1.06	0.00	1.06	1.06
Construction Traffic	0.15	0.00	0.15	0.01	0.00	0.01
Total	**0.15**	**1.06**	**1.21**	**0.01**	**1.06**	**1.07**
East Brawley - Summer WWTF Construction and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction	0.00	1.50	1.50	0.00	1.50	1.50
Construction Traffic	0.15	0.00	0.15	0.01	0.00	0.01
Total	**0.15**	**1.50**	**1.65**	**0.01**	**1.50**	**1.51**
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Construction	0.00	1.06	1.06	0.00	1.06	1.06
Construction Traffic	0.15	0.00	0.15	0.01	0.00	0.01
Total	**0.15**	**1.06**	**1.21**	**0.01**	**1.06**	**1.07**

WWTF Operations

East Brawley - Winter WWTF Operations and Associated Traffic						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
WWTF Operations Area	0.00	0.00	0.00	0.00	0.00	0.00
WWTF Operations Energy	0.00	0.00	0.00	0.00	0.00	0.00
WWTF Operations Mobile	0.26	0.02	0.28	0.01	0.02	0.03
Total	**0.26**	**0.02**	**0.28**	**0.01**	**0.02**	**0.03**
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
WWTF Operations Area	0.00	0.00	0.00	0.00	0.00	0.00
WWTF Operations Energy	0.00	0.00	0.00	0.00	0.00	0.00
WWTF Operations Mobile	0.26	0.02	0.28	0.01	0.02	0.03
Total	**0.26**	**0.02**	**0.28**	**0.01**	**0.02**	**0.03**
East Brawley - Summer WWTF Operations and Associated Traffic						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
WWTF Operations Area	0.00	0.00	0.00	0.00	0.00	0.00
WWTF Operations Energy	0.00	0.00	0.00	0.00	0.00	0.00
WWTF Operations Mobile	0.26	0.02	0.28	0.01	0.02	0.03
Total	**0.26**	**0.02**	**0.28**	**0.01**	**0.02**	**0.03**
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
WWTF Operations Area	0.00	0.00	0.00	0.00	0.00	0.00
WWTF Operations Energy	0.00	0.00	0.00	0.00	0.00	0.00
WWTF Operations Mobile	0.26	0.02	0.28	0.01	0.02	0.03
Total	**0.26**	**0.02**	**0.28**	**0.01**	**0.02**	**0.03**

ATTACHMENT B

PROJECT CONSTRUCTION TIMELINE

Attachment B: East Brawley Project Construction Timeline

	2012																2013				
	Jan	Jan	Feb	Mar	Apr	May	Jun	Jun	Jul	Jul	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
	3 wks	1 wk	All	All	All	All	1st half	2nd half	1st Two Days	Next 5 Days	Last 3 weeks	All	All	All	All	All	All	All	All	All	All
PP Site Preparation	X																				
PP Site Grading		X	X	X																	
PP Foundation Construction					X	X	X														
PP Mechanical Construction								X	X	X	X	X	X	X	X	X	X	X	X		
Coating (Painting)													X								
Paving														X							
WWTF Site Preparation									X												
WWTF Grading										X											
WWTF Construction											X										
Well Site Preparation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Well Site Grading	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Drill Rig Assembly, Well Drilling/Testing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Well Field Construction								X	X	X	X	X	X	X	X	X	X	X	X		

ATTACHMENT C

TABLES PROVIDING UNMITIGATED AND MITIGATED DAILY FUGITIVE AND EXHAUST PM_{10} AND $PM_{2.5}$ EMISSIONS SUMMED BY TIME PERIOD

Early-Mid January 2012

PP Site Preparation & All Well Pad Activities						
Early through Mid January 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**223.77**	**13.60**	**237.39**	**26.47**	**13.09**	**33.72**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**No**	**No**	**No**	**No**	**No**
Early through Mid January 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**223.77**	**13.60**	**237.39**	**26.47**	**13.09**	**33.72**
ICAPCD Significance	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**	**55.00**
CEQA Significant?	**Yes**	**No**	**No**	**No**	**No**	**No**
Early through Mid January 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**88.39**	**11.68**	**100.10**	**10.34**	**11.17**	**21.56**
Early through Mid January 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**88.39**	**11.68**	**100.09**	**10.34**	**11.17**	**21.55**

Late January - March 2012

PP Grading & All Well Pad Activities						
Late January through March 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**214.88**	**16.95**	**231.85**	**23.17**	**16.44**	**39.61**
Late January through March 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**214.88**	**16.95**	**231.85**	**23.17**	**16.44**	**39.61**
Late January through March 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**85.12**	**14.10**	**99.25**	**9.06**	**13.59**	**22.69**
Late January through March 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**85.12**	**14.10**	**99.24**	**9.06**	**13.59**	**22.68**

April through Mid June 2012

PP Construction A - Foundation Work & All Well Pad Activities						
April thorugh Mid June 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**209.27**	**14.16**	**223.44**	**20.00**	**13.65**	**33.65**
April thorugh Mid June 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**209.27**	**14.14**	**223.42**	**20.00**	**13.63**	**33.64**
April thorugh Mid June 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**84.40**	**12.15**	**96.57**	**7.91**	**11.64**	**19.59**
April thorugh Mid June 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**84.40**	**12.13**	**96.54**	**7.91**	**11.62**	**19.57**

Mid June - Late June 2012

PP Construction B - Mechanical Work, Well Field Construction & All Well Pad Activities						
Mid June through Late June 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**212.10**	**30.46**	**242.56**	**20.15**	**29.95**	**50.10**
Mid June through Late June 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**209.27**	**27.08**	**236.36**	**20.00**	**26.57**	**46.58**
Mid June through Late June 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**87.23**	**24.35**	**111.59**	**8.06**	**23.84**	**31.94**
Mid June through Late June 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**84.40**	**22.35**	**106.76**	**7.91**	**21.84**	**29.79**

PP Construction B - Mechanical Work, Well Field Construction, WWTF Site Prep, & All Well Pad Activities						
Early July 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**218.53**	**32.70**	**251.24**	**20.15**	**32.19**	**52.34**
Early July 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**215.70**	**29.32**	**245.04**	**20.00**	**28.81**	**48.82**
Early July 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**89.78**	**26.05**	**115.85**	**8.06**	**25.54**	**33.64**
Early July 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**86.95**	**24.05**	**111.02**	**7.91**	**23.54**	**31.49**

PP Construction B - Mechanical Work, Well Field Construction, WWTF Grading, & All Well Pad Activities						
Mid July 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**220.74**	**33.02**	**253.77**	**23.46**	**32.51**	**55.97**
Mid July 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**217.91**	**29.64**	**247.57**	**23.31**	**29.13**	**52.45**
Mid July 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**90.64**	**26.12**	**116.78**	**9.35**	**25.61**	**35.00**
Mid July 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**87.81**	**24.12**	**111.95**	**9.20**	**23.61**	**32.85**

PP Construction B - Mechanical Work, Well Field Construction, WWTF Construction, & All Well Pad Activities						
Late July 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**212.25**	**31.96**	**244.21**	**20.16**	**31.45**	**51.61**
Late July 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**209.42**	**28.58**	**238.01**	**20.01**	**28.07**	**48.09**
Late July 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**87.38**	**25.41**	**112.80**	**8.07**	**24.90**	**33.01**
Late July 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**84.55**	**23.41**	**107.97**	**7.92**	**22.90**	**30.86**

PP Construction B - Mechanical Work, Well Field Construction & All Well Pad Activities						
August 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**212.10**	**30.46**	**242.56**	**20.15**	**29.95**	**50.10**
August 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**209.27**	**27.08**	**236.36**	**20.00**	**26.57**	**46.58**
August 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**87.23**	**24.35**	**111.59**	**8.06**	**23.84**	**31.94**
August 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**84.40**	**22.35**	**106.76**	**7.91**	**21.84**	**29.79**

PP Construction B - Mechanical Work, Well Field Construction, Coating, & All Well Pad Activities						
September 2012 - Unmitigated Winter						
Winter Unmitigated	Emission Rate (lbs/day)					
	FUG PM10	EXH PM10	TOT PM10	FUG PM2.5	EXH PM2.5	TOT PM2.5
Total	212.17	30.76	242.92	20.15	30.25	50.40
September 2012 - Unmitigated Summer						
Summer Unmitigated	Emission Rate (lbs/day)					
	FUG PM10	EXH PM10	TOT PM10	FUG PM2.5	EXH PM2.5	TOT PM2.5
Total	209.34	27.38	236.72	20.00	26.87	46.88
September 2012 - Mitigated Winter						
Winter Mitigated	Emission Rate (lbs/day)					
	FUG PM10	EXH PM10	TOT PM10	FUG PM2.5	EXH PM2.5	TOT PM2.5
Total	87.30	24.65	111.95	8.06	24.14	32.24
September 2012 - Mitigated Summer						
Summer Mitigated	Emission Rate (lbs/day)					
	FUG PM10	EXH PM10	TOT PM10	FUG PM2.5	EXH PM2.5	TOT PM2.5
Total	84.47	22.65	107.12	7.91	22.14	30.09

PP Construction B - Mechanical Work, Well Field Construction, Paving, & All Well Pad Activities						
October 2012 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**212.67**	**32.02**	**244.69**	**20.15**	**31.51**	**51.67**
October 2012 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**209.84**	**28.64**	**238.49**	**20.00**	**28.13**	**48.15**
October 2012 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**87.80**	**25.16**	**112.97**	**8.06**	**24.65**	**32.76**
October 2012 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**84.97**	**23.16**	**108.14**	**7.91**	**22.65**	**30.61**

PP Construction B - Mechanical Work, Well Field Construction & All Well Pad Activities						
November 2012 through March 2013 - Unmitigated Winter						
Winter Unmitigated	Emission Rate (lbs/day)					
	FUG PM10	EXH PM10	TOT PM10	FUG PM2.5	EXH PM2.5	TOT PM2.5
Total	212.10	30.46	242.56	20.15	29.95	50.10
November 2012 through March 2013 - Unmitigated Summer						
Summer Unmitigated	Emission Rate (lbs/day)					
	FUG PM10	EXH PM10	TOT PM10	FUG PM2.5	EXH PM2.5	TOT PM2.5
Total	209.27	27.08	236.36	20.00	26.57	46.58
November 2012 through March 2013 - Mitigated Winter						
Winter Mitigated	Emission Rate (lbs/day)					
	FUG PM10	EXH PM10	TOT PM10	FUG PM2.5	EXH PM2.5	TOT PM2.5
Total	87.23	24.35	111.59	8.06	23.84	31.94
November 2012 through March 2013 - Mitigated Summer						
Summer Mitigated	Emission Rate (lbs/day)					
	FUG PM10	EXH PM10	TOT PM10	FUG PM2.5	EXH PM2.5	TOT PM2.5
Total	84.40	22.35	106.76	7.91	21.84	29.79

Well Pad Site Prep, Grading, Drill Rig Assembly, Well Testing and Drilling						
April through May 2013 - Unmitigated Winter						
Winter Unmitigated	Emission Rate (lbs/day)					
	FUG PM10	EXH PM10	TOT PM10	FUG PM2.5	EXH PM2.5	TOT PM2.5
Total	212.10	30.46	242.56	20.15	29.95	50.10
April through May 2013 - Unmitigated Summer						
Summer Unmitigated	Emission Rate (lbs/day)					
	FUG PM10	EXH PM10	TOT PM10	FUG PM2.5	EXH PM2.5	TOT PM2.5
Total	209.27	27.08	236.36	20.00	26.57	46.58
April through May 2013 - Mitigated Winter						
Winter Mitigated	Emission Rate (lbs/day)					
	FUG PM10	EXH PM10	TOT PM10	FUG PM2.5	EXH PM2.5	TOT PM2.5
Total	87.23	24.35	111.59	8.06	23.84	31.94
April through May 2013 - Mitigated Summer						
Summer Mitigated	Emission Rate (lbs/day)					
	FUG PM10	EXH PM10	TOT PM10	FUG PM2.5	EXH PM2.5	TOT PM2.5
Total	84.40	22.35	106.76	7.91	21.84	29.79

2013 PP & WWTF Operations

PP & WWTF Operations						
2013 - Unmitigated Winter						
Winter Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**56.47**	**0.39**	**56.86**	**5.53**	**0.39**	**5.92**
2013 - Unmitigated Summer						
Summer Unmitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**56.47**	**0.40**	**56.86**	**5.53**	**0.40**	**5.93**
2013 - Mitigated Winter						
Winter Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**56.47**	**0.39**	**56.86**	**5.53**	**0.39**	**5.92**
2013 - Mitigated Summer						
Summer Mitigated	**Emission Rate (lbs/day)**					
	FUG PM10	**EXH PM10**	**TOT PM10**	**FUG PM2.5**	**EXH PM2.5**	**TOT PM2.5**
Total	**56.47**	**0.40**	**56.86**	**5.53**	**0.40**	**5.93**

ORMAT®

RECEIVED
JUN 21 2010
AIR POLLUTION
CONTROL DISTRICT

June 21, 2010

Mr. Jesus Ramirez
Imperial County Air Pollution Control District
150 South Ninth Street
El Centro, California 92243-2850

Subject: Amendment of Source Testing Requirements
North Brawley Geothermal Project
Brawley, California

Dear Mr. Ramirez:

ORNI 18, LLC – Ormat Nevada, Inc, (ORNI 18) has prepared this letter following our conference call on June 15, 2010, during which we discussed two specific concerns regarding the existing source testing requirements stipulated in the North Brawley Geothermal Project (North Brawley) Authority to Construct (ATC) #3731A and in a letter from the Imperial County Air Pollution Control District (ICAPCD) to Mr. Mario Martinez (previous Plant Manager for North Brawley), dated October 22, 2009. The first concern was with the PM-10 emissions testing of a sand separator and the second was with the analytical testing of geothermal brine and condensate in the non-condensable gases separated by the well pad separators.

The purpose of this letter is to present our rationale for eliminating/altering these source testing requirements within ATC #3731A and all subsequent ATC and Permits to Operate (PTO) for North Brawley.

PM-10 Emissions Testing of the Sand Separators

In a letter dated October 22, 2009, the ICAPCD acknowledged receipt of the source test protocols (dated September 27, 2009) for North Brawley. The letter also requested a first and one-time PM-10 emission test on the Non-Condensable Gas (NCG) Scrubber and an active sand separator system. The methodology and approved EPA test methods were included in a revised final source test protocol for North Brawley, dated April 15, 2010, and was subsequently submitted to the ICAPCD for review and approval.

However, upon further review after the source test protocols were submitted to the ICAPCD, it appears that testing for PM-10 emissions on the existing sand separators exhaust system is not feasible because the approved EPA testing method (EPA Method 201a) requires a continuous/uniform gas stream for at least 60 minutes and it needs to be a stationary source with a fixed stack.

The sand separators do not have a fixed stack and are only vented for a period of 20 to 30 seconds every four hours. During each of these events, sand particles, along with some geothermal brine and NCGs are discharged into a large, open topped holding tank located adjacent to the well pad. With each vent, a steam plume extends up approximately eight feet high and 2-3 feet wide with no visible opacity. Since each of these events only lasts for 20 to 30 seconds, the approved EPA testing method (EPA Method 201a) cannot be applied.

Therefore, it is the position of North Brawley that the sand separators are not testable using a standard and approved EPA, and should not be a required P10 emissions source by the ICAPCD.

In addition, North Brawley does not recognize the sand separators as a significant PM-10 emission source, and they were not included as a potential PM-10 emission source in the original ICAPCD application for ATC, dated July 25, 2007 or the ICAPCD amended application for ATC, dated March 26, 2008. As presented in the Amendment to ATC Permit #3731 for North Brawley, dated March 26, 2008, the only potential PM-10 emission sources at North Brawley are:

- North Cooling Tower (26.39 lbs/day)
- South Cooling Tower (26.39 lbs/day)
- "Black Start" generator (4.36 lbs/day); (not included in ATC #3731A)
- Emergency standby diesel fire-water pump (0.10 lbs/day)
- Emergency standby diesel generator (0.25 lbs/day)

As presented in the Amendment, total Potential PM-10 emissions for the entire North Brawley Project are estimated to be approximately 57.49 lbs/day. However, in part B-1 of ATC #3731A, the facility wide emissions for PM-10 is stated to be 53.05 lbs/day.

Therefore, North Brawley also requests that the ICAPCD revise this daily maximum in ATC #3731A and in all future ATC or PTO to reflect the estimated amount of 53.13 lbs/day (minus the "Black Start" generator PM-10 emissions).

Geothermal Brine and Condensate Sampling and Analysis

In part B-6 of ATC #3731A, the ICAPCD is requiring North Brawley to collect samples of geothermal brine and condensate in the NCG gases separated by the well pad separators. These samples shall be tested for dissolved hydrogen sulfide and benzene per gallon.

The North Brawley Geothermal Project operates as a binary process, meaning that the geothermal brine coming out of the production wells flows through the plant in a system of dedicated pipelines in a closed loop and is used to heat a secondary or motive fluid, isopentane. This motive fluid is then used to turn turbines and generators to produce electrical energy, which is then delivered to the existing Imperial Irrigation District electrical transmissions systems. Once the cycle is completed, the "spent" geothermal

brine is injected back into the geothermal reservoir through dedicated injection wells. During the entire process, the geothermal brine flows through a close loop pipeline and is never in direct contact with the motive fluid or the atmosphere. There is no condensate collected at the well pad site as stated in part B-6 of ATC #3731A.

However, "condensate" does accumulate along the NCG pipelines and is temporarily contained within holding tanks prior to being re-injected back into the geothermal reservoir. The fluid within these holding tanks is a mixture of condensate and geothermal brine at a temperature of approximately 150 to 190 degrees Fahrenheit. Therefore, this process needs to be further assessed with ICAPCD personnel in order to determine whether or not an appropriate sampling plan can be established that meets both the existing ICAPCD regulatory requirements and worker safety for ORNI 18 employees and its subcontractors.

Summary

The purpose of this letter is to follow-up on a conference call between North Brawley and the ICAPCD on June 15, 2010, where PM-10 emissions testing of a sand separator and the analytical testing of geothermal brine and condensate in the non-condensable gases separated by the well pad separators were discussed. Based on verbal agreements reached during this conference call, North Brawley makes the following requests related to ATC #3731A.

- Since the sand separators do not have a fixed stack and are only vented for very brief periods of time (20 to 30 seconds per event), they cannot be tested in accordance with EPA test method 201a, Determination of PM-10 emissions, constant sampling rate procedure. North Brawley requests that PM-10 emissions testing not be required for the sand separators.

- Total Potential PM-10 emissions for the entire North Brawley Project are estimated to be approximately 53.13 lbs/day. However, in part B-1 of ATC #3731A, the facility wide emissions for PM-10 is stated to be 53.05 lbs/day. North Brawley requests that the ICAPCD revise this daily maximum in ATC #3731A and all future ATC or PTO to reflect the estimated amount of 53.13 lbs/day.

- The accumulation of "condensate" along the NCG pipelines needs to be further assessed with ICAPCD personnel in order to determine whether or not an appropriate sampling plan can be established that meets both the existing ICAPCD regulatory requirements and worker safety for ORNI 18 employees and its subcontractors.

Please do not hesitate to contact me should you have any questions or comments, 760-234-8938.

Sincerely,
ORNI 18, LLC – ORMAT NEVADA, INC

Alex Smith
Plant Manager

ENVIRONMENTAL MANAGEMENT ASSOCIATES

MEMORANDUM

TO: East Brawley Project File

FROM: Dwight L. Carey

SUBJECT: Air Pollutant Emissions from East Brawley Project Well Flow Tests

DATE: September 12, 2011

The East Brawley Geothermal Development Project Air Quality Assessment (January 2011) states that "… H_2S emissions during drilling and flow testing would be short-term and temporary (about 20 days)." This statement is possibly imprecise, in that it has been interpreted by some to mean that the flow tests would last about 20 days, when in fact it is stating that the drilling and flow testing would together last about 20 days. That this is the correct interpretation of the statement is made clear by footnote 5 on page 13 of the East Brawley Geothermal Development Project Air Quality Assessment (January 2011) where, in estimating the GHG emissions from well testing, footnote 5 states that:

> This estimate assumes an average of approximately 6 hours of throttled steam flow per well test as observed during flow tests of the existing East Brawley wells with an average 1.7×10^5 ppm CO_2 and 51 ppm CH_4 in the steam (Personal Communication – Skip Matlick, Ormat Nevada, Inc.; July 6, 2009).

The Draft EIR states that "Only one well is typically flow tested at a time (Thomas 2010)." (page 4.3-16) Ormat has now reconfirmed that only one well would be flow-tested at one time (email from Charlene Wardlow, Ormat, Inc. August 27, 2011).

Finally, the East Brawley Geothermal Development Project Air Quality Assessment (January 2011) states that:

> Some hydrogen sulfide would be emitted to the atmosphere if the wells are flow-tested once drilling is complete. The amount of hydrogen sulfide emitted to the air would be small as any well flow test would be of short duration. Conservatively assuming that the geothermal fluid contains 70 ppm of hydrogen sulfide and that all of the hydrogen sulfide in the geothermal fluid is released to the atmosphere upon flashing, a well flow test conducted at rate of 500,000 lbs/hr would emit hydrogen sulfide at a rate of about 35 lbs/hr. (page 7)

However, more recent production well flow test data from the North Brawley well field, which was used in the calculation of air pollutant emissions for the East Brawley air permit application, indicates that the average production well hydrogen sulfide concentration in the total brine is about 2.3 ppmw. This means that the hydrogen sulfide emissions from a 500,000-lb/hr flow test would be only 1.15 lbs/hr, and would last about 6 hours.

ENVIRONMENTAL MANAGEMENT ASSOCIATES

January 30, 2012

via Email and U.S. Mail

Mr. Ron Leiken
Environmental/Regulatory Affairs Administrator
Ormat Nevada, Inc.
6225 Neil Road
Reno, Nevada 89511-1153

Re: East Brawley Geothermal Project – Assessment of Potential Cancer Risks from Diesel Particulate Matter Emissions from Emergency Diesel Engines

Dear Mr. Leiken:

Pursuant to your request, Environmental Management Associates, Inc. (EMA) has prepared this supplemental assessment of the potential health risks from diesel particulate matter (diesel PM) from the proposed East Brawley Geothermal Project (Project) emergency generator diesel engine and emergency fire water pump engine. Based on the analysis described below, the Project emissions of diesel PM, when added to the previously calculated benzene inhalation cancer risk (see EMA Letter Report "East Brawley Geothermal Project – Assessment of Potential Health Risks from Benzene and Hydrogen Sulfide Emissions from the Regenerative Thermal Oxidizer Stack and Bypass (Cooling Tower) Stack", May 26, 2010), produced a cancer risk that remains below that generally found acceptable.

Introduction

Diesel PM is emitted from the Project emergency generator diesel engine and emergency fire water pump engine when these engines are tested (typically once each week for less than one hour) to ensure their readiness for emergency use.

This assessment followed the guidance presented in the current version of "The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (August 2003)" produced by the Office of Environmental Health Hazard Assessment (OEHHA), California Environmental Protection Agency. The four steps involved in the risk assessment process are 1) hazard identification, 2) exposure assessment, 3) dose-response assessment, and 4) risk characterization.

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Hazard Identification

Diesel PM is listed as a toxic air contaminant by the California Air Resources Board (Title 17, California Code of Regulations, Section 93000 "Substances Identified As Toxic Air Contaminants").

Exposure Assessment

The purpose of the exposure assessment is to estimate the extent of public exposure to each substance for which potential cancer risk will be evaluated. This involves emission quantification, modeling of environmental transport, evaluation of environmental fate, identification of exposure routes, identification of exposed populations, and estimation of long-term exposure levels.

This supplement was conducted in a manner consistent with the 2010 health risk assessment, in that it:

- Used the same U.S. Environmental Protection Agency (USEPA)-approved AMS/EPA Regulatory Model (AERMOD) (Version 09292) with the same model defaults;
- Used the same five calendar years (1995 through 1999) of meteorological data; and
- Evaluated the same four residences (Residences 3 – 6) (see ATTACHMENT A) using the same elevations and hill height scale factors.

The diesel engine stacks were located using location information developed from a Facility plot plan provided by Ormat. Building wake (downwash) effects were calculated for all buildings or other major structures previously identified which were located proximate to the stacks. Applicable building downwash effects for all buildings were calculated using the USEPA Building Profile Input Program (BPIP) algorithms of the AERMOD program (version 04274).

This assessment modeled long-term (annual) diesel PM concentrations using emission rates calculated by averaging over 365 days the annual emissions from each stack, as quantified in the application to the ICAPCD for the Authority to Construct for the Project. These "daily" emissions were then modeled as emitted for one hour each day (at 1500 hours). The diesel PM emissions were modeled using typical stack heights, stack diameters, stack velocities and stack gas temperatures for diesel engines. A summary of the emission source parameters used in the modeling is attached as ATTACHMENT A.

One model run was conducted to evaluate the ambient diesel PM concentration at each receptor for the annual averaging time period for each of the five meteorological data sets, for a total of five model runs. Electronic copies of the input and output files for these five model runs, including the meteorological data and DEM files, are attached as ATTACHMENT B.

As the 2010 Letter Report determined that the increased cancer risk to off-site workers from exposure to the benzene emitted by the Project was less than 0.16 cancers per million,

substantially less than the residential cancer risk from the same emissions, this report only analyses the increased cancer risk to the residential receptors.

Table 1 lists the four residential receptors and the average modeled annual diesel PM concentrations for the five years modeled.

Table 1: Summary of Modeled Residential Diesel PM Concentrations

Modeled Years	Receptor	Average Annual Diesel PM Concentrations (µg/m3)
1995-1999	Residence 3	0.000056
1995-1999	Residence 4	0.000020
1995-1999	Residence 5	0.000000
1995-1999	Residence 6	0.000000

Dose-Response Assessment

Dose-response assessment is the process of characterizing the relationship between exposure to an agent and incidence of an adverse health effect in exposed populations. Cancer potency factors developed by OEHHA are expressed as the upper bound probability of developing cancer. For residential receptors, the upper bound probability conservatively assumes a continuous lifetime exposure to a substance at a dose of one milligram per kilogram of body weight, and is expressed in units of inverse dose as a potency slope [i.e., (mg/kg/day)-1]. Multiplication of the average daily inhalation dose over 70 years (mg/kg-day) with the cancer potency factor (mg/kg-day)-1 will give the inhalation cancer risk (unitless).

It is assumed in cancer risk assessments that risk is directly proportional to dose and that there is no threshold for carcinogenesis. Although the ICAPCD has not formally adopted cancer risk thresholds, it is generally accepted that a project cancer risk of less than one in one million is below *de minimus* levels.

Risk Characterization

Risk characterization consists of combining the modeled concentrations and public exposure information, which are determined through the exposure assessment, with the cancer potency factors that are developed through the dose-response assessment.

Table 2 lists the four residential receptors, the average modeled annual diesel PM concentration for the five years modeled, and the OEHHA-derived diesel PM cancer inhalation potency factor. The diesel PM inhalation dose is calculated by multiplying the modeled maximum average annual diesel PM concentrations times the daily breathing rate (393 liters/kg body weight) times the inhalation absorption factor (1) times the exposure frequency (350 days/yr) times the exposure duration (70 yrs) divided by the averaging time period (25,550 days/70 yrs). (OEHHA-recommended defaults used in the calculation are shown in parenthesis.) The dimensionless maximum cancer risk (derived by multiplying the inhalation potency factor by the

inhalation dose) from diesel is less than 0.023 cancers per million population, far below the generally accepted *de minimus* project cancer risk of one in one million.

Table 2: Summary of Diesel PM Residential Cancer Risk (Cancer Potency Factor)

Modeled Years	Receptor	Average Annual Diesel PM Concentrations	Diesel PM Inhalation Potency Factor	Inhalation Dose	Diesel PM Cancer Risk
		(µg/m3)	(mg/kg-day)-1	(mg/kg-day)	
1995-1999	Residence 3	0.000056	1.10E+00	2.11E-08	2.32E-08
1995-1999	Residence 4	0.000020	1.10E+00	7.54E-09	8.29E-09
1995-1999	Residence 5	0.000000	1.10E+00	0.00E+00	0.00E+00
1995-1999	Residence 6	0.000000	1.10E+00	0.00E+00	0.00E+00

Table 3 lists, for the same four residential receptors: the average modeled annual benzene concentration for the five years (as modeled in the 2010 Letter Report); the OEHHA-derived benzene cancer inhalation potency factor; the calculated benzene inhalation dose; and the dimensionless maximum benzene cancer risk (derived by multiplying the inhalation potency factor by the inhalation dose). Table 3 also lists, for each residence, the maximum diesel PM cancer risk and the total cancer risk (calculated by summing the cancer risk from benzene and from diesel PM). The maximum total Project cancer risk at these residential receptors is 0.985 cancers per million population, slightly higher than the 0.980 cancers per million population calculated from benzene alone, but still below the generally accepted *de minimus* project cancer risk of one in one million.

Table 3: Summary of Benzene Worker Cancer Risk (Cancer Potency Factor)

Modeled Years	Receptor	Average Annual Benzene Concentrations	Benzene Inhalation Potency Factor	Benzene Inhalation Dose	Benzene Cancer Risk	Diesel PM Cancer Risk	Total Cancer Risk
		(µg/m3)	(mg/kg-day)-1	(mg/kg-day)			
1995-1999	Residence 3	0.024604	1.00E-01	9.27E-06	9.27E-07	2.32E-08	9.50E-07
1995-1999	Residence 4	0.025920	1.00E-01	9.77E-06	9.77E-07	8.29E-09	9.85E-07
1995-1999	Residence 5	0.004838	1.00E-01	1.82E-06	1.82E-07	0.00E+00	1.82E-07
1995-1999	Residence 6	0.002428	1.00E-01	9.15E-07	9.15E-08	0.00E+00	9.15E-08

A copy of all of the model output files is attached as ATTACHMENT B.

Please do not hesitate to contact us if you have any questions or require any additional information.

Sincerely:

ENVIRONMENTAL MANAGEMENT ASSOCIATES, INC.

Dwight L. Carey, D.Env.
Principal

Attachments:

ATTACHMENT A: MODELING PARAMETERS

Stack Modeling Parameter-Diesel

Model ID	Description	Stack Source Modeling Parameters								
		UTM (meters - NAD83)		(meters)	Diesel PM	Stack Height	Stack Gas Temperature	Stack Gas Velocity	Stack Diameter	Stack Gas Flow Rate
		Easting	Northing	Elevation	(lbs/hr)	(feet)	(F°)	(feet/sec)	(feet)	(actual cubic feet/min)
EMERGEN	Emergency Generator	638992.00	3654134.00	-44.2	0.032294	8.00	800.00	150.00	0.50	1,767.15
FIREPUMP	Emergency Fire Water Pump	639095.83	3654188.46	-44.2	0.005844	8.00	800.00	150.00	0.33	769.77

Rectangular Building Parameters

Model ID	Description	East Brawley Rectangular Building Modeling Parameters						
		UTM (meters - NAD83)		(meters)	(feet)	(feet)	(feet)	(degrees)
		Easting	Northing	Elevation	Height	X-Length	Y-Length	Angle
NCOOLING	North Cooling Tower	639027.3	3654198.1	-44.20	54	493.00	60.0	0
SCOOLING	South Cooling Tower	639028.7	3654043.7	-44.20	54	493.00	60.0	0
OFFICE	Office Building	638958.5	3654173.8	-44.20	16	42.00	100.0	0
MACHELEC	Machine Electrical North Room	638991.5	3654135.8	-44.20	16	26.00	78.0	0
ELECROOM	Electrical Room South	638991.9	3654098.5	-44.20	16	26.00	78.0	0
RTOUNIT	RTO Unit	639001.1	3654199.4	-44.20	12	15.00	48.0	0
OEC1	OEC Unit #1	639018.6	3654137.2	-44.20	20	147.5	85.5	0
OEC2	OEC Unit #2	639079.6	3654137.6	-44.20	20	147.5	85.5	0
OEC3	OEC Unit #3	639140.7	3654138.1	-44.20	20	147.5	85.5	0
OEC4	OEC Unit #4	639020.4	3654096.6	-44.20	20	147.5	85.5	0
OEC5	OEC Unit #5	639079.3	3654095.0	-44.20	20	147.5	85.5	0

Remaining Residential Receptors

Model ID	Description	Residential Receptors		
		UTM (meters - NAD83)		(meters)
		Easting	Northing	Elevation
D3	Residence 3	639110	3653627	-42.67
D4	Residence 4	639287	3654828	-44.50
D5	Residence 5	639298	3655639	-45.72
D6	Residence 6	637505	3655618	-46.16

ATTACHMENT B: COMPACT DISK WITH ALL MODEL INPUT AND OUTPUT FILES

Appendix D – Original DEIR Air Quality Modeling Data

10/23/2009 12:46:47 PM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name:

Project Name: Brawley East River One Well Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 4/1/2010-4/30/2010 Active Days: 22	**3.08**	**25.08**	**14.03**	**0.00**	**10.00**	**1.25**	**11.25**	**2.09**	**1.15**	**3.24**	**2,317.46**
Fine Grading 04/01/2010-04/30/2010	3.08	25.08	14.03	0.00	10.00	1.25	11.25	2.09	1.15	3.24	2,317.46
Fine Grading Dust	0.00	0.00	0.00	0.00	10.00	0.00	10.00	2.09	0.00	2.09	0.00
Fine Grading Off Road Diesel	3.00	24.99	12.46	0.00	0.00	1.25	1.25	0.00	1.15	1.15	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.07	0.09	1.57	0.00	0.00	0.00	0.01	0.00	0.00	0.00	70.14

Phase Assumptions

Phase: Fine Grading 4/1/2010 - 4/30/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 2

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name:

Project Name: Brawley East River One Well Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 4/1/2010-4/30/2010 Active Days: 22	**3.08**	**25.08**	**14.03**	**0.00**	4.09	**1.25**	5.34	0.85	**1.15**	2.00	**2,317.46**
Fine Grading 04/01/2010-04/30/2010	3.08	25.08	14.03	0.00	4.09	1.25	5.34	0.85	1.15	2.00	2,317.46
Fine Grading Dust	0.00	0.00	0.00	0.00	4.08	0.00	4.08	0.85	0.00	0.85	0.00
Fine Grading Off Road Diesel	3.00	24.99	12.46	0.00	0.00	1.25	1.25	0.00	1.15	1.15	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.07	0.09	1.57	0.00	0.00	0.00	0.01	0.00	0.00	0.00	70.14

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 4/1/2010 - 4/30/2010 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

Phase Assumptions

Phase: Fine Grading 4/1/2010 - 4/30/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 2

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Winter Construction Unmitigated Emissions (Pounds/Day)

File Name:

Project Name: Brawley East River One Well Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Winter Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 4/1/2010-4/30/2010 Active Days: 22	**3.08**	**25.08**	**14.03**	**0.00**	**10.00**	**1.25**	**11.25**	**2.09**	**1.15**	**3.24**	**2,317.46**
Fine Grading 04/01/2010-04/30/2010	3.08	25.08	14.03	0.00	10.00	1.25	11.25	2.09	1.15	3.24	2,317.46
Fine Grading Dust	0.00	0.00	0.00	0.00	10.00	0.00	10.00	2.09	0.00	2.09	0.00
Fine Grading Off Road Diesel	3.00	24.99	12.46	0.00	0.00	1.25	1.25	0.00	1.15	1.15	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.07	0.09	1.57	0.00	0.00	0.00	0.01	0.00	0.00	0.00	70.14

Phase Assumptions

Phase: Fine Grading 4/1/2010 - 4/30/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 2

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

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Urbemis 2007 Version 9.2.4

Detail Report for Winter Construction Mitigated Emissions (Pounds/Day)

File Name:

Project Name: Brawley East River One Well Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Winter Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 4/1/2010-4/30/2010 Active Days: 22	**3.08**	**25.08**	**14.03**	**0.00**	4.09	**1.25**	5.34	0.85	**1.15**	2.00	**2,317.46**
Fine Grading 04/01/2010-04/30/2010	3.08	25.08	14.03	0.00	4.09	1.25	5.34	0.85	1.15	2.00	2,317.46
Fine Grading Dust	0.00	0.00	0.00	0.00	4.08	0.00	4.08	0.85	0.00	0.85	0.00
Fine Grading Off Road Diesel	3.00	24.99	12.46	0.00	0.00	1.25	1.25	0.00	1.15	1.15	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.07	0.09	1.57	0.00	0.00	0.00	0.01	0.00	0.00	0.00	70.14

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 4/1/2010 - 4/30/2010 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

Phase Assumptions

Phase: Fine Grading 4/1/2010 - 4/30/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 2

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

10/23/2009 12:45:47 PM

Urbemis 2007 Version 9.2.4

Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name:

Project Name: Brawley East River One Well Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2010	0.03	0.28	0.15	0.00	0.11	0.01	0.12	0.02	0.01	0.04	25.49
Fine Grading 04/01/2010-04/30/2010	0.03	0.28	0.15	0.00	0.11	0.01	0.12	0.02	0.01	0.04	25.49
Fine Grading Dust	0.00	0.00	0.00	0.00	0.11	0.00	0.11	0.02	0.00	0.02	0.00
Fine Grading Off Road Diesel	0.03	0.27	0.14	0.00	0.00	0.01	0.01	0.00	0.01	0.01	24.72
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77

Phase Assumptions

Phase: Fine Grading 4/1/2010 - 4/30/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 2

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

10/23/2009 12:46:11 PM

Urbemis 2007 Version 9.2.4

Detail Report for Annual Construction Mitigated Emissions (Tons/Year)

File Name:

Project Name: Brawley East River One Well Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2010	0.03	0.28	0.15	0.00	0.04	0.01	0.06	0.01	0.01	0.02	25.49
Fine Grading 04/01/2010-04/30/2010	0.03	0.28	0.15	0.00	0.04	0.01	0.06	0.01	0.01	0.02	25.49
Fine Grading Dust	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.01	0.00	0.01	0.00
Fine Grading Off Road Diesel	0.03	0.27	0.14	0.00	0.00	0.01	0.01	0.00	0.01	0.01	24.72
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 4/1/2010 - 4/30/2010 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

Phase Assumptions

Phase: Fine Grading 4/1/2010 - 4/30/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 2

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

10/23/2009 12:46:31 PM

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name:

Project Name: Brawley East River One Well Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	3.08	25.08	14.03	0.00	10.00	1.25	11.25	2.09	1.15	3.24	2,317.46
2010 TOTALS (lbs/day mitigated)	3.08	25.08	14.03	0.00	4.09	1.25	5.34	0.85	1.15	2.00	2,317.46

10/23/2009 12:47:28 PM

Urbemis 2007 Version 9.2.4

Summary Report for Winter Emissions (Pounds/Day)

File Name:

Project Name: Brawley East River One Well Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	3.08	25.08	14.03	0.00	10.00	1.25	11.25	2.09	1.15	3.24	2,317.46
2010 TOTALS (lbs/day mitigated)	3.08	25.08	14.03	0.00	4.09	1.25	5.34	0.85	1.15	2.00	2,317.46

10/23/2009 12:45:29 PM

Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name:

Project Name: Brawley East River One Well Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (tons/year unmitigated)	0.03	0.28	0.15	0.00	0.11	0.01	0.12	0.02	0.01	0.04	25.49
2010 TOTALS (tons/year mitigated)	0.03	0.28	0.15	0.00	0.04	0.01	0.06	0.01	0.01	0.02	25.49
Percent Reduction	0.00	0.00	0.00	0.00	59.14	0.00	52.56	59.12	0.00	38.13	0.00

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\Terry R. Thomas\Application Data\Urbemis\Version9a\Projects\Brawley East River Power Plant (OLD).urb924

Project Name: Brawley East River Power Plant Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 11/1/2010-12/31/2010 Active Days: 45	3.08	25.08	14.03	0.00	**80.00**	1.25	**81.25**	**16.71**	1.15	**17.86**	2,317.46
Fine Grading 11/01/2010-12/31/2010	3.08	25.08	14.03	0.00	80.00	1.25	81.25	16.71	1.15	17.86	2,317.46
Fine Grading Dust	0.00	0.00	0.00	0.00	80.00	0.00	80.00	16.71	0.00	16.71	0.00
Fine Grading Off Road Diesel	3.00	24.99	12.46	0.00	0.00	1.25	1.25	0.00	1.15	1.15	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.07	0.09	1.57	0.00	0.00	0.00	0.01	0.00	0.00	0.00	70.14
Time Slice 1/3/2011-10/31/2011 Active Days: 216	8.25	42.70	97.57	0.08	0.34	2.12	2.46	0.12	1.93	2.05	9,752.61
Building 01/01/2011-12/31/2011	8.25	42.70	97.57	0.08	0.34	2.12	2.46	0.12	1.93	2.05	9,752.61
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	1.80	23.15	19.51	0.05	0.18	0.89	1.08	0.06	0.82	0.88	4,920.52
Building Worker Trips	3.06	3.88	67.21	0.03	0.15	0.09	0.25	0.06	0.07	0.12	3,210.89

Time Slice 11/1/2011-12/30/2011 Active Days: 44	**188.00**	**57.89**	**111.92**	**0.08**	0.36	**3.39**	3.75	0.12	**3.10**	3.22	**11,280.36**
Asphalt 11/01/2011-12/31/2011	2.89	15.01	11.32	0.00	0.01	1.27	1.28	0.00	1.16	1.17	1,382.95
Paving Off-Gas	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.04	0.67	0.21	0.00	0.00	0.03	0.03	0.00	0.02	0.03	110.63
Paving Worker Trips	0.13	0.17	2.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	140.40
Building 01/01/2011-12/31/2011	8.25	42.70	97.57	0.08	0.34	2.12	2.46	0.12	1.93	2.05	9,752.61
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	1.80	23.15	19.51	0.05	0.18	0.89	1.08	0.06	0.82	0.88	4,920.52
Building Worker Trips	3.06	3.88	67.21	0.03	0.15	0.09	0.25	0.06	0.07	0.12	3,210.89
Coating 11/01/2011-01/31/2012	176.86	0.18	3.03	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.79
Architectural Coating	176.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.14	0.18	3.03	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.79
Time Slice 1/2/2012-1/31/2012 Active Days: 22	176.86	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92
Coating 11/01/2011-01/31/2012	176.86	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92
Architectural Coating	176.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.13	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92

Phase Assumptions

Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 25

Maximum Daily Acreage Disturbed: 4

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 6.25

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 1/1/2011 - 12/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 11/1/2011 - 1/31/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Mitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\Terry R. Thomas\Application Data\Urbemis\Version9a\Projects\Brawley East River Power Plant (OLD).urb924

Project Name: Brawley East River Power Plant Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 11/1/2010-12/31/2010 Active Days: 45	3.08	25.08	14.03	0.00	32.68	1.25	33.93	6.82	1.15	7.98	2,317.46
Fine Grading 11/01/2010-12/31/2010	3.08	25.08	14.03	0.00	32.68	1.25	33.93	6.82	1.15	7.98	2,317.46
Fine Grading Dust	0.00	0.00	0.00	0.00	32.67	0.00	32.67	6.82	0.00	6.82	0.00
Fine Grading Off Road Diesel	3.00	24.99	12.46	0.00	0.00	1.25	1.25	0.00	1.15	1.15	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.07	0.09	1.57	0.00	0.00	0.00	0.01	0.00	0.00	0.00	70.14
Time Slice 1/3/2011-10/31/2011 Active Days: 216	8.25	42.70	97.57	0.08	0.34	2.12	2.46	0.12	1.93	2.05	9,752.61
Building 01/01/2011-12/31/2011	8.25	42.70	97.57	0.08	0.34	2.12	2.46	0.12	1.93	2.05	9,752.61
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	1.80	23.15	19.51	0.05	0.18	0.89	1.08	0.06	0.82	0.88	4,920.52
Building Worker Trips	3.06	3.88	67.21	0.03	0.15	0.09	0.25	0.06	0.07	0.12	3,210.89

Time Slice 11/1/2011-12/30/2011 Active Days: 44	**188.00**	**57.89**	**111.92**	**0.08**	0.36	**3.39**	3.75	0.12	**3.10**	3.22	**11,280.36**
Asphalt 11/01/2011-12/31/2011	2.89	15.01	11.32	0.00	0.01	1.27	1.28	0.00	1.16	1.17	1,382.95
Paving Off-Gas	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.04	0.67	0.21	0.00	0.00	0.03	0.03	0.00	0.02	0.03	110.63
Paving Worker Trips	0.13	0.17	2.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	140.40
Building 01/01/2011-12/31/2011	8.25	42.70	97.57	0.08	0.34	2.12	2.46	0.12	1.93	2.05	9,752.61
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	1.80	23.15	19.51	0.05	0.18	0.89	1.08	0.06	0.82	0.88	4,920.52
Building Worker Trips	3.06	3.88	67.21	0.03	0.15	0.09	0.25	0.06	0.07	0.12	3,210.89
Coating 11/01/2011-01/31/2012	176.86	0.18	3.03	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.79
Architectural Coating	176.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.14	0.18	3.03	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.79
Time Slice 1/2/2012-1/31/2012 Active Days: 22	176.86	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92
Coating 11/01/2011-01/31/2012	176.86	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92
Architectural Coating	176.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.13	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

Phase Assumptions

Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 25

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Maximum Daily Acreage Disturbed: 4
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description
Acres to be Paved: 6.25
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 1/1/2011 - 12/31/2011 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 11/1/2011 - 1/31/2012 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Winter Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\Terry R. Thomas\Application Data\Urbemis\Version9a\Projects\Brawley East River Power Plant (OLD).urb924

Project Name: Brawley East River Power Plant Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Winter Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 11/1/2010-12/31/2010 Active Days: 45	3.08	25.08	14.03	0.00	**80.00**	1.25	**81.25**	**16.71**	1.15	**17.86**	2,317.46
Fine Grading 11/01/2010-12/31/2010	3.08	25.08	14.03	0.00	80.00	1.25	81.25	16.71	1.15	17.86	2,317.46
Fine Grading Dust	0.00	0.00	0.00	0.00	80.00	0.00	80.00	16.71	0.00	16.71	0.00
Fine Grading Off Road Diesel	3.00	24.99	12.46	0.00	0.00	1.25	1.25	0.00	1.15	1.15	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.07	0.09	1.57	0.00	0.00	0.00	0.01	0.00	0.00	0.00	70.14
Time Slice 1/3/2011-10/31/2011 Active Days: 216	8.25	42.70	97.57	0.08	0.34	2.12	2.46	0.12	1.93	2.05	9,752.61
Building 01/01/2011-12/31/2011	8.25	42.70	97.57	0.08	0.34	2.12	2.46	0.12	1.93	2.05	9,752.61
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	1.80	23.15	19.51	0.05	0.18	0.89	1.08	0.06	0.82	0.88	4,920.52
Building Worker Trips	3.06	3.88	67.21	0.03	0.15	0.09	0.25	0.06	0.07	0.12	3,210.89

Time Slice 11/1/2011-12/30/2011 Active Days: 44	**188.00**	**57.89**	**111.92**	**0.08**	0.36	**3.39**	3.75	0.12	**3.10**	3.22	**11,280.36**
Asphalt 11/01/2011-12/31/2011	2.89	15.01	11.32	0.00	0.01	1.27	1.28	0.00	1.16	1.17	1,382.95
Paving Off-Gas	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.04	0.67	0.21	0.00	0.00	0.03	0.03	0.00	0.02	0.03	110.63
Paving Worker Trips	0.13	0.17	2.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	140.40
Building 01/01/2011-12/31/2011	8.25	42.70	97.57	0.08	0.34	2.12	2.46	0.12	1.93	2.05	9,752.61
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	1.80	23.15	19.51	0.05	0.18	0.89	1.08	0.06	0.82	0.88	4,920.52
Building Worker Trips	3.06	3.88	67.21	0.03	0.15	0.09	0.25	0.06	0.07	0.12	3,210.89
Coating 11/01/2011-01/31/2012	176.86	0.18	3.03	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.79
Architectural Coating	176.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.14	0.18	3.03	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.79
Time Slice 1/2/2012-1/31/2012 Active Days: 22	176.86	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92
Coating 11/01/2011-01/31/2012	176.86	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92
Architectural Coating	176.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.13	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92

Phase Assumptions

Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 25

Maximum Daily Acreage Disturbed: 4

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 6.25

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 1/1/2011 - 12/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 11/1/2011 - 1/31/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Winter Construction Mitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\Terry R. Thomas\Application Data\Urbemis\Version9a\Projects\Brawley East River Power Plant (OLD).urb924

Project Name: Brawley East River Power Plant Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Winter Pounds Per Day, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 11/1/2010-12/31/2010 Active Days: 45	3.08	25.08	14.03	0.00	32.68	1.25	33.93	6.82	1.15	7.98	2,317.46
Fine Grading 11/01/2010-12/31/2010	3.08	25.08	14.03	0.00	32.68	1.25	33.93	6.82	1.15	7.98	2,317.46
Fine Grading Dust	0.00	0.00	0.00	0.00	32.67	0.00	32.67	6.82	0.00	6.82	0.00
Fine Grading Off Road Diesel	3.00	24.99	12.46	0.00	0.00	1.25	1.25	0.00	1.15	1.15	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.07	0.09	1.57	0.00	0.00	0.00	0.01	0.00	0.00	0.00	70.14
Time Slice 1/3/2011-10/31/2011 Active Days: 216	8.25	42.70	97.57	0.08	0.34	2.12	2.46	0.12	1.93	2.05	9,752.61
Building 01/01/2011-12/31/2011	8.25	42.70	97.57	0.08	0.34	2.12	2.46	0.12	1.93	2.05	9,752.61
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	1.80	23.15	19.51	0.05	0.18	0.89	1.08	0.06	0.82	0.88	4,920.52
Building Worker Trips	3.06	3.88	67.21	0.03	0.15	0.09	0.25	0.06	0.07	0.12	3,210.89

Time Slice 11/1/2011-12/30/2011 Active Days: 44	**188.00**	**57.89**	**111.92**	**0.08**	0.36	**3.39**	3.75	0.12	**3.10**	3.22	**11,280.36**
Asphalt 11/01/2011-12/31/2011	2.89	15.01	11.32	0.00	0.01	1.27	1.28	0.00	1.16	1.17	1,382.95
Paving Off-Gas	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.04	0.67	0.21	0.00	0.00	0.03	0.03	0.00	0.02	0.03	110.63
Paving Worker Trips	0.13	0.17	2.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	140.40
Building 01/01/2011-12/31/2011	8.25	42.70	97.57	0.08	0.34	2.12	2.46	0.12	1.93	2.05	9,752.61
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	1.80	23.15	19.51	0.05	0.18	0.89	1.08	0.06	0.82	0.88	4,920.52
Building Worker Trips	3.06	3.88	67.21	0.03	0.15	0.09	0.25	0.06	0.07	0.12	3,210.89
Coating 11/01/2011-01/31/2012	176.86	0.18	3.03	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.79
Architectural Coating	176.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.14	0.18	3.03	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.79
Time Slice 1/2/2012-1/31/2012 Active Days: 22	176.86	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92
Coating 11/01/2011-01/31/2012	176.86	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92
Architectural Coating	176.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.13	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

Phase Assumptions

Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 25

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Maximum Daily Acreage Disturbed: 4
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description
Acres to be Paved: 6.25
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 1/1/2011 - 12/31/2011 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 11/1/2011 - 1/31/2012 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\Terry R. Thomas\Application Data\Urbemis\Version9a\Projects\Brawley East River Power Plant (OLD).urb924

Project Name: Brawley East River Power Plant Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2010	0.07	0.56	0.32	0.00	1.80	0.03	1.83	0.38	0.03	0.40	52.14
Fine Grading 11/01/2010-12/31/2010	0.07	0.56	0.32	0.00	1.80	0.03	1.83	0.38	0.03	0.40	52.14
Fine Grading Dust	0.00	0.00	0.00	0.00	1.80	0.00	1.80	0.38	0.00	0.38	0.00
Fine Grading Off Road Diesel	0.07	0.56	0.28	0.00	0.00	0.03	0.03	0.00	0.03	0.03	50.56
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58

2011	5.03	5.89	13.00	0.01	0.04	0.30	0.35	0.02	0.28	0.29	1,301.45
Building 01/01/2011-12/31/2011	1.07	5.55	12.68	0.01	0.04	0.28	0.32	0.02	0.25	0.27	1,267.84
Building Off Road Diesel	0.44	2.04	1.41	0.00	0.00	0.15	0.15	0.00	0.14	0.14	210.76
Building Vendor Trips	0.23	3.01	2.54	0.01	0.02	0.12	0.14	0.01	0.11	0.11	639.67
Building Worker Trips	0.40	0.50	8.74	0.00	0.02	0.01	0.03	0.01	0.01	0.02	417.42
Asphalt 11/01/2011-12/31/2011	0.06	0.33	0.25	0.00	0.00	0.03	0.03	0.00	0.03	0.03	30.42
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.05	0.31	0.18	0.00	0.00	0.03	0.03	0.00	0.02	0.02	24.90
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.43
Paving Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.09
Coating 11/01/2011-01/31/2012	3.89	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.19
Architectural Coating	3.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.19
2012	1.95	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
Coating 11/01/2011-01/31/2012	1.95	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
Architectural Coating	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59

Phase Assumptions

Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 25

Maximum Daily Acreage Disturbed: 4

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description
Acres to be Paved: 6.25
Off-Road Equipment:
4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 1/1/2011 - 12/31/2011 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 11/1/2011 - 1/31/2012 - Default Architectural Coating Description
Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Annual Construction Mitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\Terry R. Thomas\Application Data\Urbemis\Version9a\Projects\Brawley East River Power Plant (OLD).urb924

Project Name: Brawley East River Power Plant Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2010	0.07	0.56	0.32	0.00	0.74	0.03	0.76	0.15	0.03	0.18	52.14
Fine Grading 11/01/2010-12/31/2010	0.07	0.56	0.32	0.00	0.74	0.03	0.76	0.15	0.03	0.18	52.14
Fine Grading Dust	0.00	0.00	0.00	0.00	0.74	0.00	0.74	0.15	0.00	0.15	0.00
Fine Grading Off Road Diesel	0.07	0.56	0.28	0.00	0.00	0.03	0.03	0.00	0.03	0.03	50.56
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58

2011	5.03	5.89	13.00	0.01	0.04	0.30	0.35	0.02	0.28	0.29	1,301.45
Building 01/01/2011-12/31/2011	1.07	5.55	12.68	0.01	0.04	0.28	0.32	0.02	0.25	0.27	1,267.84
Building Off Road Diesel	0.44	2.04	1.41	0.00	0.00	0.15	0.15	0.00	0.14	0.14	210.76
Building Vendor Trips	0.23	3.01	2.54	0.01	0.02	0.12	0.14	0.01	0.11	0.11	639.67
Building Worker Trips	0.40	0.50	8.74	0.00	0.02	0.01	0.03	0.01	0.01	0.02	417.42
Asphalt 11/01/2011-12/31/2011	0.06	0.33	0.25	0.00	0.00	0.03	0.03	0.00	0.03	0.03	30.42
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.05	0.31	0.18	0.00	0.00	0.03	0.03	0.00	0.02	0.02	24.90
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.43
Paving Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.09
Coating 11/01/2011-01/31/2012	3.89	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.19
Architectural Coating	3.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.19
2012	1.95	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
Coating 11/01/2011-01/31/2012	1.95	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
Architectural Coating	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

Phase Assumptions

Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 25

Maximum Daily Acreage Disturbed: 4

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Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 6.25

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 1/1/2011 - 12/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 11/1/2011 - 1/31/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Detail Report for Annual Construction Mitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\Terry R. Thomas\Application Data\Urbemis\Version9a\Projects\East Brawley with WWTF.urb924

Project Name: Brawley East River Power Plant Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Mitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2010	0.10	0.76	0.44	0.00	1.29	0.04	1.33	0.27	0.04	0.31	69.64
Fine Grading 11/01/2010-12/31/2010	0.10	0.76	0.44	0.00	1.29	0.04	1.33	0.27	0.04	0.31	69.64
Fine Grading Dust	0.00	0.00	0.00	0.00	1.29	0.00	1.29	0.27	0.00	0.27	0.00
Fine Grading Off Road Diesel	0.09	0.76	0.39	0.00	0.00	0.04	0.04	0.00	0.04	0.04	67.67
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97

CO2 (2010) = 69.64 tons
C02 (2011) = 1,463.02 tons
CO2 (2012) = 1,525.67 tons
Total CO2 = 3,058.09 tons
Total CO2 = 2,774.25 Metric Tonnes ~ 2,770 Metric Tonnes

2011	5.61	6.66	14.57	0.01	1.59	0.34	1.93	0.34	0.31	0.65	1,463.02
Building 01/01/2011-12/31/2011	1.15	5.97	14.04	0.01	0.05	0.29	0.34	0.02	0.26	0.28	1,394.69
Building Off Road Diesel	0.44	2.04	1.41	0.00	0.00	0.15	0.15	0.00	0.14	0.14	210.76
Building Vendor Trips	0.26	3.37	2.84	0.01	0.03	0.13	0.16	0.01	0.12	0.13	716.43
Building Worker Trips	0.44	0.57	9.79	0.00	0.02	0.01	0.04	0.01	0.01	0.02	467.51
Asphalt 11/01/2011-12/31/2011	0.06	0.33	0.25	0.00	0.00	0.03	0.03	0.00	0.03	0.03	30.72
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.05	0.31	0.18	0.00	0.00	0.03	0.03	0.00	0.02	0.02	24.90
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73
Paving Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.09
Coating 11/01/2011-01/31/2012	4.36	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.57
Architectural Coating	4.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.57
Fine Grading 12/01/2011-12/31/2011	0.04	0.35	0.21	0.00	1.54	0.02	1.56	0.32	0.02	0.34	34.05
Fine Grading Dust	0.00	0.00	0.00	0.00	1.54	0.00	1.54	0.32	0.00	0.32	0.00
Fine Grading Off Road Diesel	0.04	0.35	0.19	0.00	0.00	0.02	0.02	0.00	0.02	0.02	33.08
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97

2012	3.34	5.94	14.40	0.01	0.05	0.29	0.34	0.02	0.26	0.28	1,525.67
Building 01/01/2012-03/31/2012	0.27	1.36	3.29	0.00	0.01	0.07	0.08	0.00	0.06	0.06	348.78
Building Off Road Diesel	0.10	0.48	0.34	0.00	0.00	0.03	0.03	0.00	0.03	0.03	52.69
Building Vendor Trips	0.06	0.75	0.66	0.00	0.01	0.03	0.04	0.00	0.03	0.03	179.11
Building Worker Trips	0.10	0.13	2.29	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.98
Coating 11/01/2011-01/31/2012	2.18	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79
Architectural Coating	2.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79
Building 04/01/2012-08/31/2012	0.45	2.30	5.56	0.00	0.02	0.11	0.13	0.01	0.10	0.11	590.24
Building Off Road Diesel	0.17	0.81	0.58	0.00	0.00	0.06	0.06	0.00	0.05	0.05	89.17
Building Vendor Trips	0.10	1.26	1.12	0.00	0.01	0.05	0.06	0.00	0.04	0.05	303.11
Building Worker Trips	0.18	0.22	3.87	0.00	0.01	0.01	0.02	0.00	0.00	0.01	197.96
Building 06/01/2012-08/31/2012	0.27	1.38	3.34	0.00	0.01	0.07	0.08	0.00	0.06	0.07	354.14
Building Off Road Diesel	0.10	0.49	0.35	0.00	0.00	0.03	0.03	0.00	0.03	0.03	53.50
Building Vendor Trips	0.06	0.76	0.67	0.00	0.01	0.03	0.04	0.00	0.03	0.03	181.86
Building Worker Trips	0.11	0.13	2.32	0.00	0.01	0.00	0.01	0.00	0.00	0.00	118.78
Building 09/01/2012-10/31/2012	0.18	0.90	2.17	0.00	0.01	0.04	0.05	0.00	0.04	0.04	230.73
Building Off Road Diesel	0.07	0.32	0.23	0.00	0.00	0.02	0.02	0.00	0.02	0.02	34.86
Building Vendor Trips	0.04	0.49	0.44	0.00	0.00	0.02	0.02	0.00	0.02	0.02	118.49
Building Worker Trips	0.07	0.09	1.51	0.00	0.00	0.00	0.01	0.00	0.00	0.00	77.39

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

Phase Assumptions

Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 28

Maximum Daily Acreage Disturbed: 7

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 12/1/2011 - 12/31/2011 - WWTF Earthwork

Total Acres Disturbed: 28

Maximum Daily Acreage Disturbed: 7

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 7

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 1/1/2011 - 12/31/2011 - Default Building Construction Description

Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 1/1/2012 - 3/31/2012 - WWFT Foundations
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 4/1/2012 - 8/31/2012 - WWTF Mechanical
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 6/1/2012 - 8/31/2012 - WWTF Electrical
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 9/1/2012 - 10/31/2012 - Start Up
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 11/1/2011 - 1/31/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Terry R. Thomas\Application Data\Urbemis\Version9a\Projects\East Brawley with WWTF.urb924

Project Name: Brawley East River Power Plant Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	4.25	33.78	19.45	0.00	140.00	1.80	141.80	29.24	1.65	30.89	3,095.15
2010 TOTALS (lbs/day mitigated)	4.25	33.78	19.45	0.00	57.18	1.80	58.98	11.94	1.65	13.59	3,095.15
2011 TOTALS (lbs/day unmitigated)	213.85	92.95	141.38	0.09	140.40	5.20	145.60	29.38	4.76	34.14	15,382.01
2011 TOTALS (lbs/day mitigated)	213.85	92.95	141.38	0.09	140.40	5.20	145.60	29.38	4.76	34.14	15,382.01
2012 TOTALS (lbs/day unmitigated)	206.25	83.67	202.32	0.18	0.76	4.05	4.81	0.26	3.68	3.94	21,463.16
2012 TOTALS (lbs/day mitigated)	206.25	83.67	202.32	0.18	0.76	4.05	4.81	0.26	3.68	3.94	21,463.16

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

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	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 11/1/2010-12/31/2010 Active Days: 45	4.25	33.78	19.45	0.00	140.00	1.80	141.80	29.24	1.65	30.89	3,095.15
Fine Grading 11/01/2010-12/31/2010	4.25	33.78	19.45	0.00	140.00	1.80	141.80	29.24	1.65	30.89	3,095.15
Fine Grading Dust	0.00	0.00	0.00	0.00	140.00	0.00	140.00	29.24	0.00	29.24	0.00
Fine Grading Off Road Diesel	4.16	33.67	17.48	0.00	0.00	1.79	1.79	0.00	1.65	1.65	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.09	0.11	1.96	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.67
Time Slice 1/3/2011-10/31/2011 Active Days: 216	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building 01/01/2011-12/31/2011	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	2.02	25.93	21.85	0.05	0.21	1.00	1.21	0.07	0.91	0.98	5,510.99
Building Worker Trips	3.42	4.35	75.28	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,596.20

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Time Slice 11/1/2011-11/30/2011 Active Days: 22	209.86	61.23	122.72	0.09	0.40	3.51	3.91	0.14	3.21	3.34	12,286.78
Asphalt 11/01/2011-12/31/2011	2.94	15.09	11.34	0.00	0.01	1.27	1.28	0.00	1.17	1.17	1,396.23
Paving Off-Gas	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.05	0.75	0.23	0.00	0.00	0.03	0.03	0.00	0.03	0.03	123.91
Paving Worker Trips	0.13	0.17	2.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	140.40
Building 01/01/2011-12/31/2011	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	2.02	25.93	21.85	0.05	0.21	1.00	1.21	0.07	0.91	0.98	5,510.99
Building Worker Trips	3.42	4.35	75.28	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,596.20
Coating 11/01/2011-01/31/2012	198.09	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17
Architectural Coating	197.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.15	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17

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Time Slice 12/1/2011-12/30/2011 Active Days: 22	**213.85**	**92.95**	141.38	0.09	**140.40**	**5.20**	**145.60**	**29.38**	**4.76**	**34.14**	15,382.01
Asphalt 11/01/2011-12/31/2011	2.94	15.09	11.34	0.00	0.01	1.27	1.28	0.00	1.17	1.17	1,396.23
Paving Off-Gas	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.05	0.75	0.23	0.00	0.00	0.03	0.03	0.00	0.03	0.03	123.91
Paving Worker Trips	0.13	0.17	2.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	140.40
Building 01/01/2011-12/31/2011	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	2.02	25.93	21.85	0.05	0.21	1.00	1.21	0.07	0.91	0.98	5,510.99
Building Worker Trips	3.42	4.35	75.28	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,596.20
Coating 11/01/2011-01/31/2012	198.09	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17
Architectural Coating	197.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.15	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17
Fine Grading 12/01/2011-12/31/2011	3.99	31.71	18.66	0.00	140.00	1.69	141.69	29.24	1.55	30.79	3,095.23
Fine Grading Dust	0.00	0.00	0.00	0.00	140.00	0.00	140.00	29.24	0.00	29.24	0.00
Fine Grading Off Road Diesel	3.91	31.61	16.82	0.00	0.00	1.68	1.68	0.00	1.55	1.55	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.08	0.11	1.84	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.75

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Time Slice 1/2/2012-1/31/2012 Active Days: 22	206.25	42.02	104.33	0.09	0.39	2.03	2.42	0.13	1.84	1.98	10,893.89
Building 01/01/2012-03/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Coating 11/01/2011-01/31/2012	198.08	0.18	3.17	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.31
Architectural Coating	197.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.14	0.18	3.17	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.31
Time Slice 2/1/2012-3/30/2012 Active Days: 43	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building 01/01/2012-03/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Time Slice 4/2/2012-5/31/2012 Active Days: 44	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building 04/01/2012-08/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34

Time Slice 6/1/2012-8/31/2012 Active Days: 66	16.35	83.67	**202.32**	**0.18**	0.76	4.05	4.81	0.26	3.68	3.94	**21,463.16**
Building 04/01/2012-08/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Building 06/01/2012-08/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Time Slice 9/3/2012-10/31/2012 Active Days: 43	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building 09/01/2012-10/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34

Phase Assumptions

Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 28

Maximum Daily Acreage Disturbed: 7

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 12/1/2011 - 12/31/2011 - WWTF Earthwork

Total Acres Disturbed: 28

Maximum Daily Acreage Disturbed: 7

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 7

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 1/1/2011 - 12/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 1/1/2012 - 3/31/2012 - WWFT Foundations

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 4/1/2012 - 8/31/2012 - WWTF Mechanical

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 6/1/2012 - 8/31/2012 - WWTF Electrical

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 9/1/2012 - 10/31/2012 - Start Up

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

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3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 11/1/2011 - 1/31/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 11/1/2010-12/31/2010 Active Days: 45	4.25	33.78	19.45	0.00	57.18	1.80	58.98	11.94	1.65	13.59	3,095.15
Fine Grading 11/01/2010-12/31/2010	4.25	33.78	19.45	0.00	57.18	1.80	58.98	11.94	1.65	13.59	3,095.15
Fine Grading Dust	0.00	0.00	0.00	0.00	57.18	0.00	57.18	11.94	0.00	11.94	0.00
Fine Grading Off Road Diesel	4.16	33.67	17.48	0.00	0.00	1.79	1.79	0.00	1.65	1.65	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.09	0.11	1.96	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.67
Time Slice 1/3/2011-10/31/2011 Active Days: 216	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building 01/01/2011-12/31/2011	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	2.02	25.93	21.85	0.05	0.21	1.00	1.21	0.07	0.91	0.98	5,510.99
Building Worker Trips	3.42	4.35	75.28	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,596.20

Time Slice 11/1/2011-11/30/2011 Active Days: 22	209.86	61.23	122.72	0.09	0.40	3.51	3.91	0.14	3.21	3.34	12,286.78
Asphalt 11/01/2011-12/31/2011	2.94	15.09	11.34	0.00	0.01	1.27	1.28	0.00	1.17	1.17	1,396.23
Paving Off-Gas	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.05	0.75	0.23	0.00	0.00	0.03	0.03	0.00	0.03	0.03	123.91
Paving Worker Trips	0.13	0.17	2.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	140.40
Building 01/01/2011-12/31/2011	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	2.02	25.93	21.85	0.05	0.21	1.00	1.21	0.07	0.91	0.98	5,510.99
Building Worker Trips	3.42	4.35	75.28	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,596.20
Coating 11/01/2011-01/31/2012	198.09	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17
Architectural Coating	197.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.15	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17

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Time Slice 12/1/2011-12/30/2011 Active Days: 22	**213.85**	**92.95**	141.38	0.09	**140.40**	**5.20**	**145.60**	**29.38**	**4.76**	**34.14**	15,382.01
Asphalt 11/01/2011-12/31/2011	2.94	15.09	11.34	0.00	0.01	1.27	1.28	0.00	1.17	1.17	1,396.23
Paving Off-Gas	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.05	0.75	0.23	0.00	0.00	0.03	0.03	0.00	0.03	0.03	123.91
Paving Worker Trips	0.13	0.17	2.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	140.40
Building 01/01/2011-12/31/2011	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	2.02	25.93	21.85	0.05	0.21	1.00	1.21	0.07	0.91	0.98	5,510.99
Building Worker Trips	3.42	4.35	75.28	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,596.20
Coating 11/01/2011-01/31/2012	198.09	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17
Architectural Coating	197.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.15	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17
Fine Grading 12/01/2011-12/31/2011	3.99	31.71	18.66	0.00	140.00	1.69	141.69	29.24	1.55	30.79	3,095.23
Fine Grading Dust	0.00	0.00	0.00	0.00	140.00	0.00	140.00	29.24	0.00	29.24	0.00
Fine Grading Off Road Diesel	3.91	31.61	16.82	0.00	0.00	1.68	1.68	0.00	1.55	1.55	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.08	0.11	1.84	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.75

Time Slice 1/2/2012-1/31/2012 Active Days: 22	206.25	42.02	104.33	0.09	0.39	2.03	2.42	0.13	1.84	1.98	10,893.89
Building 01/01/2012-03/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Coating 11/01/2011-01/31/2012	198.08	0.18	3.17	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.31
Architectural Coating	197.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.14	0.18	3.17	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.31
Time Slice 2/1/2012-3/30/2012 Active Days: 43	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building 01/01/2012-03/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Time Slice 4/2/2012-5/31/2012 Active Days: 44	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building 04/01/2012-08/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34

Time Slice 6/1/2012-8/31/2012 Active Days: 66	16.35	83.67	**202.32**	**0.18**	0.76	4.05	4.81	0.26	3.68	3.94	**21,463.16**
Building 04/01/2012-08/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Building 06/01/2012-08/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Time Slice 9/3/2012-10/31/2012 Active Days: 43	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building 09/01/2012-10/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Terry R. Thomas\Application Data\Urbemis\Version9a\Projects\East Brawley with WWTF.urb924

Project Name: Brawley East River Power Plant Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	4.25	33.78	19.45	0.00	140.00	1.80	141.80	29.24	1.65	30.89	3,095.15
2010 TOTALS (lbs/day mitigated)	4.25	33.78	19.45	0.00	57.18	1.80	58.98	11.94	1.65	13.59	3,095.15
2011 TOTALS (lbs/day unmitigated)	213.85	92.95	141.38	0.09	140.40	5.20	145.60	29.38	4.76	34.14	15,382.01
2011 TOTALS (lbs/day mitigated)	213.85	92.95	141.38	0.09	140.40	5.20	145.60	29.38	4.76	34.14	15,382.01
2012 TOTALS (lbs/day unmitigated)	206.25	83.67	202.32	0.18	0.76	4.05	4.81	0.26	3.68	3.94	21,463.16
2012 TOTALS (lbs/day mitigated)	206.25	83.67	202.32	0.18	0.76	4.05	4.81	0.26	3.68	3.94	21,463.16

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

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	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 11/1/2010-12/31/2010 Active Days: 45	4.25	33.78	19.45	0.00	140.00	1.80	141.80	29.24	1.65	30.89	3,095.15
Fine Grading 11/01/2010-12/31/2010	4.25	33.78	19.45	0.00	140.00	1.80	141.80	29.24	1.65	30.89	3,095.15
Fine Grading Dust	0.00	0.00	0.00	0.00	140.00	0.00	140.00	29.24	0.00	29.24	0.00
Fine Grading Off Road Diesel	4.16	33.67	17.48	0.00	0.00	1.79	1.79	0.00	1.65	1.65	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.09	0.11	1.96	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.67
Time Slice 1/3/2011-10/31/2011 Active Days: 216	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building 01/01/2011-12/31/2011	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	2.02	25.93	21.85	0.05	0.21	1.00	1.21	0.07	0.91	0.98	5,510.99
Building Worker Trips	3.42	4.35	75.28	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,596.20

Time Slice 11/1/2011-11/30/2011 Active Days: 22	209.86	61.23	122.72	0.09	0.40	3.51	3.91	0.14	3.21	3.34	12,286.78
Asphalt 11/01/2011-12/31/2011	2.94	15.09	11.34	0.00	0.01	1.27	1.28	0.00	1.17	1.17	1,396.23
Paving Off-Gas	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.05	0.75	0.23	0.00	0.00	0.03	0.03	0.00	0.03	0.03	123.91
Paving Worker Trips	0.13	0.17	2.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	140.40
Building 01/01/2011-12/31/2011	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	2.02	25.93	21.85	0.05	0.21	1.00	1.21	0.07	0.91	0.98	5,510.99
Building Worker Trips	3.42	4.35	75.28	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,596.20
Coating 11/01/2011-01/31/2012	198.09	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17
Architectural Coating	197.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.15	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17

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Time Slice 12/1/2011-12/30/2011 Active Days: 22	**213.85**	**92.95**	141.38	0.09	**140.40**	**5.20**	**145.60**	**29.38**	**4.76**	**34.14**	15,382.01
Asphalt 11/01/2011-12/31/2011	2.94	15.09	11.34	0.00	0.01	1.27	1.28	0.00	1.17	1.17	1,396.23
Paving Off-Gas	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.05	0.75	0.23	0.00	0.00	0.03	0.03	0.00	0.03	0.03	123.91
Paving Worker Trips	0.13	0.17	2.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	140.40
Building 01/01/2011-12/31/2011	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	2.02	25.93	21.85	0.05	0.21	1.00	1.21	0.07	0.91	0.98	5,510.99
Building Worker Trips	3.42	4.35	75.28	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,596.20
Coating 11/01/2011-01/31/2012	198.09	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17
Architectural Coating	197.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.15	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17
Fine Grading 12/01/2011-12/31/2011	3.99	31.71	18.66	0.00	140.00	1.69	141.69	29.24	1.55	30.79	3,095.23
Fine Grading Dust	0.00	0.00	0.00	0.00	140.00	0.00	140.00	29.24	0.00	29.24	0.00
Fine Grading Off Road Diesel	3.91	31.61	16.82	0.00	0.00	1.68	1.68	0.00	1.55	1.55	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.08	0.11	1.84	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.75

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Time Slice 1/2/2012-1/31/2012 Active Days: 22	206.25	42.02	104.33	0.09	0.39	2.03	2.42	0.13	1.84	1.98	10,893.89
Building 01/01/2012-03/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Coating 11/01/2011-01/31/2012	198.08	0.18	3.17	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.31
Architectural Coating	197.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.14	0.18	3.17	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.31
Time Slice 2/1/2012-3/30/2012 Active Days: 43	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building 01/01/2012-03/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Time Slice 4/2/2012-5/31/2012 Active Days: 44	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building 04/01/2012-08/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34

Time Slice 6/1/2012-8/31/2012 Active Days: 66	16.35	83.67	**202.32**	**0.18**	0.76	4.05	4.81	0.26	3.68	3.94	**21,463.16**
Building 04/01/2012-08/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Building 06/01/2012-08/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Time Slice 9/3/2012-10/31/2012 Active Days: 43	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building 09/01/2012-10/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34

Phase Assumptions

Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 28

Maximum Daily Acreage Disturbed: 7

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 12/1/2011 - 12/31/2011 - WWTF Earthwork

Total Acres Disturbed: 28

Maximum Daily Acreage Disturbed: 7

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 7

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 1/1/2011 - 12/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 1/1/2012 - 3/31/2012 - WWFT Foundations

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 4/1/2012 - 8/31/2012 - WWTF Mechanical

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 6/1/2012 - 8/31/2012 - WWTF Electrical

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 9/1/2012 - 10/31/2012 - Start Up

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

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3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 11/1/2011 - 1/31/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 11/1/2010-12/31/2010 Active Days: 45	4.25	33.78	19.45	0.00	57.18	1.80	58.98	11.94	1.65	13.59	3,095.15
Fine Grading 11/01/2010-12/31/2010	4.25	33.78	19.45	0.00	57.18	1.80	58.98	11.94	1.65	13.59	3,095.15
Fine Grading Dust	0.00	0.00	0.00	0.00	57.18	0.00	57.18	11.94	0.00	11.94	0.00
Fine Grading Off Road Diesel	4.16	33.67	17.48	0.00	0.00	1.79	1.79	0.00	1.65	1.65	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.09	0.11	1.96	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.67
Time Slice 1/3/2011-10/31/2011 Active Days: 216	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building 01/01/2011-12/31/2011	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	2.02	25.93	21.85	0.05	0.21	1.00	1.21	0.07	0.91	0.98	5,510.99
Building Worker Trips	3.42	4.35	75.28	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,596.20

Time Slice 11/1/2011-11/30/2011 Active Days: 22	209.86	61.23	122.72	0.09	0.40	3.51	3.91	0.14	3.21	3.34	12,286.78
Asphalt 11/01/2011-12/31/2011	2.94	15.09	11.34	0.00	0.01	1.27	1.28	0.00	1.17	1.17	1,396.23
Paving Off-Gas	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.05	0.75	0.23	0.00	0.00	0.03	0.03	0.00	0.03	0.03	123.91
Paving Worker Trips	0.13	0.17	2.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	140.40
Building 01/01/2011-12/31/2011	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	2.02	25.93	21.85	0.05	0.21	1.00	1.21	0.07	0.91	0.98	5,510.99
Building Worker Trips	3.42	4.35	75.28	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,596.20
Coating 11/01/2011-01/31/2012	198.09	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17
Architectural Coating	197.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.15	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17

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Time Slice 12/1/2011-12/30/2011 Active Days: 22	**213.85**	**92.95**	141.38	0.09	**140.40**	**5.20**	**145.60**	**29.38**	**4.76**	**34.14**	15,382.01
Asphalt 11/01/2011-12/31/2011	2.94	15.09	11.34	0.00	0.01	1.27	1.28	0.00	1.17	1.17	1,396.23
Paving Off-Gas	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.34	14.17	8.17	0.00	0.00	1.24	1.24	0.00	1.14	1.14	1,131.92
Paving On Road Diesel	0.05	0.75	0.23	0.00	0.00	0.03	0.03	0.00	0.03	0.03	123.91
Paving Worker Trips	0.13	0.17	2.94	0.00	0.01	0.00	0.01	0.00	0.00	0.01	140.40
Building 01/01/2011-12/31/2011	8.83	45.95	107.98	0.09	0.38	2.24	2.62	0.13	2.04	2.17	10,728.38
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	2.02	25.93	21.85	0.05	0.21	1.00	1.21	0.07	0.91	0.98	5,510.99
Building Worker Trips	3.42	4.35	75.28	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,596.20
Coating 11/01/2011-01/31/2012	198.09	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17
Architectural Coating	197.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.15	0.20	3.39	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.17
Fine Grading 12/01/2011-12/31/2011	3.99	31.71	18.66	0.00	140.00	1.69	141.69	29.24	1.55	30.79	3,095.23
Fine Grading Dust	0.00	0.00	0.00	0.00	140.00	0.00	140.00	29.24	0.00	29.24	0.00
Fine Grading Off Road Diesel	3.91	31.61	16.82	0.00	0.00	1.68	1.68	0.00	1.55	1.55	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.08	0.11	1.84	0.00	0.00	0.00	0.01	0.00	0.00	0.00	87.75

Time Slice 1/2/2012-1/31/2012 Active Days: 22	206.25	42.02	104.33	0.09	0.39	2.03	2.42	0.13	1.84	1.98	10,893.89
Building 01/01/2012-03/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Coating 11/01/2011-01/31/2012	198.08	0.18	3.17	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.31
Architectural Coating	197.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.14	0.18	3.17	0.00	0.01	0.00	0.01	0.00	0.00	0.01	162.31
Time Slice 2/1/2012-3/30/2012 Active Days: 43	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building 01/01/2012-03/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Time Slice 4/2/2012-5/31/2012 Active Days: 44	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building 04/01/2012-08/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34

Time Slice 6/1/2012-8/31/2012 Active Days: 66	16.35	83.67	**202.32**	**0.18**	0.76	4.05	4.81	0.26	3.68	3.94	**21,463.16**
Building 04/01/2012-08/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Building 06/01/2012-08/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34
Time Slice 9/3/2012-10/31/2012 Active Days: 43	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building 09/01/2012-10/31/2012	8.18	41.83	101.16	0.09	0.38	2.03	2.41	0.13	1.84	1.97	10,731.58
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	1.85	22.95	20.31	0.05	0.21	0.89	1.09	0.07	0.81	0.88	5,511.04
Building Worker Trips	3.19	4.08	70.33	0.04	0.17	0.10	0.28	0.06	0.08	0.14	3,599.34

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\Terry R. Thomas\Application Data\Urbemis\Version9a\Projects\East Brawley with WWTF.urb924

Project Name: Brawley East River Power Plant Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (tons/year unmitigated)	0.10	0.76	0.44	0.00	3.15	0.04	3.19	0.66	0.04	0.70	69.64
2010 TOTALS (tons/year mitigated)	0.10	0.76	0.44	0.00	1.29	0.04	1.33	0.27	0.04	0.31	69.64
Percent Reduction	0.00	0.00	0.00	0.00	59.16	0.00	58.41	59.15	0.00	55.99	0.00
2011 TOTALS (tons/year unmitigated)	5.61	6.66	14.57	0.01	1.59	0.34	1.93	0.34	0.31	0.65	1,463.02
2011 TOTALS (tons/year mitigated)	5.61	6.66	14.57	0.01	1.59	0.34	1.93	0.34	0.31	0.65	1,463.02
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012 TOTALS (tons/year unmitigated)	3.34	5.94	14.40	0.01	0.05	0.29	0.34	0.02	0.26	0.28	1,525.67
2012 TOTALS (tons/year mitigated)	3.34	5.94	14.40	0.01	0.05	0.29	0.34	0.02	0.26	0.28	1,525.67
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010	0.10	0.76	0.44	0.00	3.15	0.04	3.19	0.66	0.04	0.70	69.64
Fine Grading 11/01/2010-12/31/2010	0.10	0.76	0.44	0.00	3.15	0.04	3.19	0.66	0.04	0.70	69.64
Fine Grading Dust	0.00	0.00	0.00	0.00	3.15	0.00	3.15	0.66	0.00	0.66	0.00
Fine Grading Off Road Diesel	0.09	0.76	0.39	0.00	0.00	0.04	0.04	0.00	0.04	0.04	67.67
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97

2011	5.61	6.66	14.57	0.01	1.59	0.34	1.93	0.34	0.31	0.65	1,463.02
Building 01/01/2011-12/31/2011	1.15	5.97	14.04	0.01	0.05	0.29	0.34	0.02	0.26	0.28	1,394.69
Building Off Road Diesel	0.44	2.04	1.41	0.00	0.00	0.15	0.15	0.00	0.14	0.14	210.76
Building Vendor Trips	0.26	3.37	2.84	0.01	0.03	0.13	0.16	0.01	0.12	0.13	716.43
Building Worker Trips	0.44	0.57	9.79	0.00	0.02	0.01	0.04	0.01	0.01	0.02	467.51
Asphalt 11/01/2011-12/31/2011	0.06	0.33	0.25	0.00	0.00	0.03	0.03	0.00	0.03	0.03	30.72
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.05	0.31	0.18	0.00	0.00	0.03	0.03	0.00	0.02	0.02	24.90
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73
Paving Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.09
Coating 11/01/2011-01/31/2012	4.36	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.57
Architectural Coating	4.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.57
Fine Grading 12/01/2011-12/31/2011	0.04	0.35	0.21	0.00	1.54	0.02	1.56	0.32	0.02	0.34	34.05
Fine Grading Dust	0.00	0.00	0.00	0.00	1.54	0.00	1.54	0.32	0.00	0.32	0.00
Fine Grading Off Road Diesel	0.04	0.35	0.19	0.00	0.00	0.02	0.02	0.00	0.02	0.02	33.08
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97

2012	3.34	5.94	14.40	0.01	0.05	0.29	0.34	0.02	0.26	0.28	1,525.67
Building 01/01/2012-03/31/2012	0.27	1.36	3.29	0.00	0.01	0.07	0.08	0.00	0.06	0.06	348.78
Building Off Road Diesel	0.10	0.48	0.34	0.00	0.00	0.03	0.03	0.00	0.03	0.03	52.69
Building Vendor Trips	0.06	0.75	0.66	0.00	0.01	0.03	0.04	0.00	0.03	0.03	179.11
Building Worker Trips	0.10	0.13	2.29	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.98
Coating 11/01/2011-01/31/2012	2.18	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79
Architectural Coating	2.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79
Building 04/01/2012-08/31/2012	0.45	2.30	5.56	0.00	0.02	0.11	0.13	0.01	0.10	0.11	590.24
Building Off Road Diesel	0.17	0.81	0.58	0.00	0.00	0.06	0.06	0.00	0.05	0.05	89.17
Building Vendor Trips	0.10	1.26	1.12	0.00	0.01	0.05	0.06	0.00	0.04	0.05	303.11
Building Worker Trips	0.18	0.22	3.87	0.00	0.01	0.01	0.02	0.00	0.00	0.01	197.96
Building 06/01/2012-08/31/2012	0.27	1.38	3.34	0.00	0.01	0.07	0.08	0.00	0.06	0.07	354.14
Building Off Road Diesel	0.10	0.49	0.35	0.00	0.00	0.03	0.03	0.00	0.03	0.03	53.50
Building Vendor Trips	0.06	0.76	0.67	0.00	0.01	0.03	0.04	0.00	0.03	0.03	181.86
Building Worker Trips	0.11	0.13	2.32	0.00	0.01	0.00	0.01	0.00	0.00	0.00	118.78
Building 09/01/2012-10/31/2012	0.18	0.90	2.17	0.00	0.01	0.04	0.05	0.00	0.04	0.04	230.73
Building Off Road Diesel	0.07	0.32	0.23	0.00	0.00	0.02	0.02	0.00	0.02	0.02	34.86
Building Vendor Trips	0.04	0.49	0.44	0.00	0.00	0.02	0.02	0.00	0.02	0.02	118.49
Building Worker Trips	0.07	0.09	1.51	0.00	0.00	0.00	0.01	0.00	0.00	0.00	77.39

Phase Assumptions

Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

Total Acres Disturbed: 28

Maximum Daily Acreage Disturbed: 7

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Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 12/1/2011 - 12/31/2011 - WWTF Earthwork

Total Acres Disturbed: 28

Maximum Daily Acreage Disturbed: 7

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 11/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 7

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 1/1/2011 - 12/31/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 1/1/2012 - 3/31/2012 - WWFT Foundations

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 4/1/2012 - 8/31/2012 - WWTF Mechanical

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 6/1/2012 - 8/31/2012 - WWTF Electrical

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 9/1/2012 - 10/31/2012 - Start Up

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 11/1/2011 - 1/31/2012 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010	0.10	0.76	0.44	0.00	1.29	0.04	1.33	0.27	0.04	0.31	69.64
Fine Grading 11/01/2010-12/31/2010	0.10	0.76	0.44	0.00	1.29	0.04	1.33	0.27	0.04	0.31	69.64
Fine Grading Dust	0.00	0.00	0.00	0.00	1.29	0.00	1.29	0.27	0.00	0.27	0.00
Fine Grading Off Road Diesel	0.09	0.76	0.39	0.00	0.00	0.04	0.04	0.00	0.04	0.04	67.67
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97

2011	5.61	6.66	14.57	0.01	1.59	0.34	1.93	0.34	0.31	0.65	1,463.02
Building 01/01/2011-12/31/2011	1.15	5.97	14.04	0.01	0.05	0.29	0.34	0.02	0.26	0.28	1,394.69
Building Off Road Diesel	0.44	2.04	1.41	0.00	0.00	0.15	0.15	0.00	0.14	0.14	210.76
Building Vendor Trips	0.26	3.37	2.84	0.01	0.03	0.13	0.16	0.01	0.12	0.13	716.43
Building Worker Trips	0.44	0.57	9.79	0.00	0.02	0.01	0.04	0.01	0.01	0.02	467.51
Asphalt 11/01/2011-12/31/2011	0.06	0.33	0.25	0.00	0.00	0.03	0.03	0.00	0.03	0.03	30.72
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.05	0.31	0.18	0.00	0.00	0.03	0.03	0.00	0.02	0.02	24.90
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73
Paving Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.09
Coating 11/01/2011-01/31/2012	4.36	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.57
Architectural Coating	4.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.57
Fine Grading 12/01/2011-12/31/2011	0.04	0.35	0.21	0.00	1.54	0.02	1.56	0.32	0.02	0.34	34.05
Fine Grading Dust	0.00	0.00	0.00	0.00	1.54	0.00	1.54	0.32	0.00	0.32	0.00
Fine Grading Off Road Diesel	0.04	0.35	0.19	0.00	0.00	0.02	0.02	0.00	0.02	0.02	33.08
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97

2012	3.34	5.94	14.40	0.01	0.05	0.29	0.34	0.02	0.26	0.28	1,525.67
Building 01/01/2012-03/31/2012	0.27	1.36	3.29	0.00	0.01	0.07	0.08	0.00	0.06	0.06	348.78
Building Off Road Diesel	0.10	0.48	0.34	0.00	0.00	0.03	0.03	0.00	0.03	0.03	52.69
Building Vendor Trips	0.06	0.75	0.66	0.00	0.01	0.03	0.04	0.00	0.03	0.03	179.11
Building Worker Trips	0.10	0.13	2.29	0.00	0.01	0.00	0.01	0.00	0.00	0.00	116.98
Coating 11/01/2011-01/31/2012	2.18	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79
Architectural Coating	2.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79
Building 04/01/2012-08/31/2012	0.45	2.30	5.56	0.00	0.02	0.11	0.13	0.01	0.10	0.11	590.24
Building Off Road Diesel	0.17	0.81	0.58	0.00	0.00	0.06	0.06	0.00	0.05	0.05	89.17
Building Vendor Trips	0.10	1.26	1.12	0.00	0.01	0.05	0.06	0.00	0.04	0.05	303.11
Building Worker Trips	0.18	0.22	3.87	0.00	0.01	0.01	0.02	0.00	0.00	0.01	197.96
Building 06/01/2012-08/31/2012	0.27	1.38	3.34	0.00	0.01	0.07	0.08	0.00	0.06	0.07	354.14
Building Off Road Diesel	0.10	0.49	0.35	0.00	0.00	0.03	0.03	0.00	0.03	0.03	53.50
Building Vendor Trips	0.06	0.76	0.67	0.00	0.01	0.03	0.04	0.00	0.03	0.03	181.86
Building Worker Trips	0.11	0.13	2.32	0.00	0.01	0.00	0.01	0.00	0.00	0.00	118.78
Building 09/01/2012-10/31/2012	0.18	0.90	2.17	0.00	0.01	0.04	0.05	0.00	0.04	0.04	230.73
Building Off Road Diesel	0.07	0.32	0.23	0.00	0.00	0.02	0.02	0.00	0.02	0.02	34.86
Building Vendor Trips	0.04	0.49	0.44	0.00	0.00	0.02	0.02	0.00	0.02	0.02	118.49
Building Worker Trips	0.07	0.09	1.51	0.00	0.00	0.00	0.01	0.00	0.00	0.00	77.39

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 11/1/2010 - 12/31/2010 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

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Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\Terry R. Thomas\Application Data\Urbemis\Version9a\Projects\Brawley East River Power Plant (OLD).urb924

Project Name: Brawley East River Power Plant Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	3.08	25.08	14.03	0.00	80.00	1.25	81.25	16.71	1.15	17.86	2,317.46
2010 TOTALS (lbs/day mitigated)	3.08	25.08	14.03	0.00	32.68	1.25	33.93	6.82	1.15	7.98	2,317.46
2011 TOTALS (lbs/day unmitigated)	188.00	57.89	111.92	0.08	0.36	3.39	3.75	0.12	3.10	3.22	11,280.36
2011 TOTALS (lbs/day mitigated)	188.00	57.89	111.92	0.08	0.36	3.39	3.75	0.12	3.10	3.22	11,280.36
2012 TOTALS (lbs/day unmitigated)	176.86	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92
2012 TOTALS (lbs/day mitigated)	176.86	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92

8/9/2010 5:19:25 PM

Urbemis 2007 Version 9.2.4

Summary Report for Winter Emissions (Pounds/Day)

File Name: C:\Documents and Settings\Terry R. Thomas\Application Data\Urbemis\Version9a\Projects\Brawley East River Power Plant (OLD).urb924

Project Name: Brawley East River Power Plant Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	3.08	25.08	14.03	0.00	80.00	1.25	81.25	16.71	1.15	17.86	2,317.46
2010 TOTALS (lbs/day mitigated)	3.08	25.08	14.03	0.00	32.68	1.25	33.93	6.82	1.15	7.98	2,317.46
2011 TOTALS (lbs/day unmitigated)	188.00	57.89	111.92	0.08	0.36	3.39	3.75	0.12	3.10	3.22	11,280.36
2011 TOTALS (lbs/day mitigated)	188.00	57.89	111.92	0.08	0.36	3.39	3.75	0.12	3.10	3.22	11,280.36
2012 TOTALS (lbs/day unmitigated)	176.86	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92
2012 TOTALS (lbs/day mitigated)	176.86	0.16	2.83	0.00	0.01	0.00	0.01	0.00	0.00	0.01	144.92

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Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Documents and Settings\Terry R. Thomas\Application Data\Urbemis\Version9a\Projects\Brawley East River Power Plant (OLD).urb924

Project Name: Brawley East River Power Plant Site

Project Location: Imperial County APCD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (tons/year unmitigated)	0.07	0.56	0.32	0.00	1.80	0.03	1.83	0.38	0.03	0.40	52.14
2010 TOTALS (tons/year mitigated)	0.07	0.56	0.32	0.00	0.74	0.03	0.76	0.15	0.03	0.18	52.14
Percent Reduction	0.00	0.00	0.00	0.00	59.16	0.00	58.24	59.15	0.00	55.34	0.00
2011 TOTALS (tons/year unmitigated)	5.03	5.89	13.00	0.01	0.04	0.30	0.35	0.02	0.28	0.29	1,301.45
2011 TOTALS (tons/year mitigated)	5.03	5.89	13.00	0.01	0.04	0.30	0.35	0.02	0.28	0.29	1,301.45
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012 TOTALS (tons/year unmitigated)	1.95	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
2012 TOTALS (tons/year mitigated)	1.95	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00