4.8 HYDROLOGY AND WATER QUALITY

This section discusses the existing hydrologic setting and potential impacts on hydrology and water quality that may occur as a result of construction, operation, and maintenance of the proposed Projects.

Scoping Issues Addressed

During the scoping period for the Projects, two public scoping meetings were conducted and written comments were received from agencies and the public. Comments pertaining to this resource area were received in three letters: one from the Colorado River Board (CRB), one from the Imperial Irrigation District (IID) and one from the California Department of Fish and Game (CDFG). The following issues related to hydrology and water quality were raised during the scoping period and are addressed in this section:

- The CRB would like the County to check with the IID regarding any specific requirements IID may have related to the following:
  - Water diverted from IID canals during well drilling and facility construction, and water use during project operation.
  - An Encroachment Permit from IID.
  - The Project's connection to IID's interconnection transmission line/power grid system.
- IID water facilities "O" Lateral and "N" Drain could be impacted.
- Any construction or operation on IID property or within its existing and proposed right-of–way (ROW) or easements will require an encroachment permit.
- Grading, construction, and de-silting operations will be completed under a construction storm water general permit with erosion-related best management practices (BMPs) in use. It is recommended that downstream flows be monitored for a potential increase in downstream sedimentation with corrective measures to be planned and implemented, if needed.
- The Projects' water supply requirements can only be provided for under the IID's Interim Water Supply Policy; there is no "'landlord allocation'" available for industrial purposes. All new non-agricultural water projects supply requests are processed in accordance with the Interim Water Supply Policy.
- In order to obtain a water supply from IID, Hudson Ranch Power II LLC (applicant) will be required to enter into a water supply agreement with IID and comply with all applicable IID policies and regulations. Such policies and regulations require that all potential environmental and water supply impacts of the proposed projects are adequately assessed, appropriate mitigation developed, and

appropriate conditions adopted in accordance with the relevant land use permitting/approving agencies (refer to Section 4.15 Utilities).

- The Draft EIR should address impacts on IID's drains. One-third of the water delivered to agricultural users is discharged into the IID's drainage system. Reduction in the field drainage from land-use conversion has an incremental impact on both drain water quality and volume of the impacted drain and subsequent drainage path to the Salton Sea. This affects drainage habitat (flora and fauna) and the elevation of the Salton Sea (shoreline habitat and exposed acreage, which in turn may have air quality issues). Additionally, certain drains that run directly to the Salton Sea have been identified as desert pupfish (*Cyprinodon macularius*) drains that require additional protections under state and federal Endangered Species Acts (ESAs).

The following issues related to hydrologic and water resources were raised by the California Department of Fish and Game (CDFG) and are addressed in this section:

- The Department opposes the elimination of watercourses and/or their channelization or conversion to subsurface drains. All wetlands and watercourses, whether intermittent or perennial, must be retained and provided with substantial setbacks which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations.

- The Department is emphasizing in comment letters on projects with impacts to lakes or streambeds that alternatives and mitigation measures must be addressed in CEQA certified documents prior to submittal of an application of a Streambed Alteration Agreement (SAA). Any information which is supplied to the Department after the CEQA process is complete will not have been subject to the public review requirements of CEQA.

- In order for the Department to process a SAA agreement, the CEQA-certified documents must include an analysis of the impacts of the proposed Project on the lake or streambed, an analysis of the biological resources present on the site, copies of biological studies conducted on the site, biological survey methodology, and a discussion of any alternative, avoidance, or mitigation measures which will reduce the impacts of the proposed development to a level of insignificance. In addition, a discussion of potential adverse impacts from any increased runoff, sedimentation, soil erosion, and/or pollutants on streams and watercourses on or near the Project site, with mitigation measures proposed to alleviate such impacts must be included in the CEQA certified documents.

Applicant's Reports and Survey Results

Information used in preparing this section and in evaluating potential impacts on water quality resources was derived from a number of sources, including the SB 610 Water Supply Assessment (WSA) prepared for the proposed Hudson Ranch Power II Geothermal Flash Power Plant and the Simbol Calipatria II Plant Project, by Pangaea Land Consultants, Inc. (Pangaea) on March 15, 2012 (Appendix I).

4.8.1 EXISTING SETTING

REGIONAL SETTING

Hydrology

The Project site is located within the Salton Sea Transboundary Watershed (U.S. Geological Survey [USGS] Hydrologic Unit Code [HUC] 18100200) and the Brawley hydrologic area of the Imperial hydrologic unit in the Imperial Valley Planning Area (see Figure 4.8-1).

Surface water quality is a significant issue within and around the Salton Sea watershed. This watershed has been identified as a Category I impaired watershed under the 1997 California United Watershed Assessment (California Environmental Protection Agency [CalEPA] 2000). Poor surface water quality in the area is generally attributable to agricultural drainage containing high concentrations of nutrients and salts and to the discharge of the highly polluted New and Alamo rivers into the Salton Sea.

The area also receives the majority of its irrigation and potable water from the Colorado River through a series of canals diverted from the main branch of the Colorado River. The water quality of the Colorado River is degraded from its headwaters to its mouth by high salinity, carrying an annual average salt load of approximately 9 million tons past Hoover Dam, the uppermost location at which numeric criteria have been established (Colorado River Basin Salinity Control Forum 2011).

Groundwater

The Project site lies within the Colorado Desert Province. The principal aquifer media in the Colorado Desert province are volcanic rocks, carbonates, and basin-fill sediments. Together, these aquifers are called the Basin and Range aquifer system. The Basin and Range physiographic province is classified at the regional level into hydrographic basins, depending on geologic drainage features such as the drainage boundaries of a large river or stream. Groundwater in the East Salton Sea groundwater basin moves from the recharge areas east of Imperial Valley and the Salton Sea toward the axis of the valley and converges upon the Salton Sea or the New and Alamo rivers (Alward and Shatz 2009). Recharge to the East Salton Sea groundwater basin is highly seasonal and comes primarily from runoff from surrounding mountain ranges. There are no known groundwater wells within the Project site or the immediate vicinity.

Data on groundwater in the Project area are limited because there are few wells: groundwater in this part of the Colorado Desert and in the Imperial Valley is generally of poor quality due to high total dissolved solids (TDS) resulting from agricultural runoff, and well yields of clean water are relatively quite low (Alward and Shatz 2009). Historically, there has been little need to investigate and develop the groundwater in the area due to the availability and low cost of imported surface water (Alward and Shatz 2009). Most studies of groundwater conditions in the central area of Imperial Valley focus exclusively on the upper 1,000 feet of water-bearing strata (Alward and Shatz 2009). Studies show that groundwater in the central part of the Imperial Valley generally occurs in two water-bearing zones: (1) a shallow (0 to 300 feet), unconfined aquifer that is bounded at depth by a low permeability clay (aquitard); and (2) an intermediate (300 to 1,500

feet), semi-confined aquifer that is bounded above by the aquitard and at depth by older marine and non-marine sediments (Alward and Shatz 2009). A third, deeper aquifer has been identified by some authors and may be present at depths of more than 1,500 feet, but it is likely not productive in terms of water supply resources (Alward and Shatz 2009).

Project Sites

The Project sites are situated in an unincorporated area of County of Imperial approximately 2.3 miles west-southwest of the Town of Niland, California (see Chapter 3, Project Description, Figure 3-1). The Project sites are located on a 245-acre parcel of private land that has been developed for agricultural uses (irrigated agricultural) and surface water has been provided by IID for the agricultural uses on the Project site (see discussion in Section 4.15, Utilities). At the time of publication of the NOP, the agricultural fields were fallow. IID canals flow east to west on the north edges of the fields with the "O" Lateral south of McDonald Road and the "N" Lateral south of Schrimpf Road (see Chapter 3, Project Description, Figure 3-3).

Local uses of surface waters include supplying extensive irrigation for crops in the Imperial Valley; recreation and wildlife. The IID has implemented an interim water supply policy for non-agricultural projects within its service area that require water supply. The policy designates up to 25,000 acre-feet per year (AFY) for water supply for non-agricultural projects and requires the submission of a water supply application, as well as payment of application, reservation, and development fees based on the requested water quantity (IID 2009).

Adjacent Areas

Adjacent properties to the north, east, and south contain existing and proposed IID managed marshlands. Irrigated farmland is also located within the area surrounding the Project sites. A commercial algae production facility is located south of the Project sites. This facility includes a mobile home which, at the time of the publication of the NOP, served as a residence for the facility caretaker. The commercial algae facility is no longer in operation and is not part of the proposed Projects.

The nearest residence is approximately 0.5 miles north-northeast of the Project site, along English Road. Energy Source (Hudson Ranch Power II, LLC's parent company) owns the home and is allowing the current tenant to remain in the residence until Fall 2012. This residence would be demolished prior to the start of construction of either the HR-2 or SmCP-2 Project. The next closest residence is located 1.4 miles northwest of the Project.

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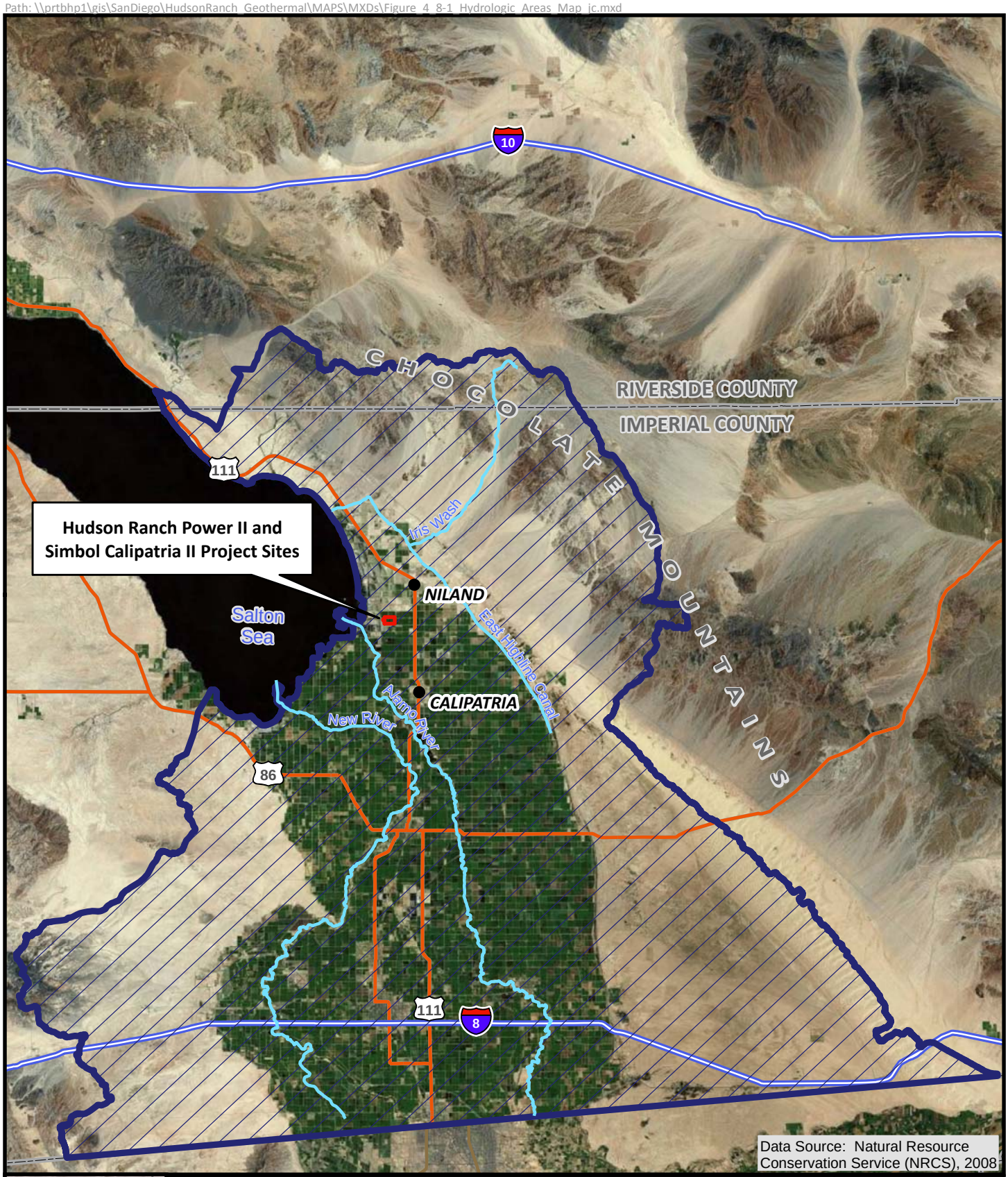

HR-2 and SmCP-2 Project Sites

HUC 10 Boundary

Brawley Hydrologic Area

Cities

Hudson Ranch Power II
CUP #G10-0002
& Simbol Calipartria II
CUP #12-0005
Hydrologic Area

Figure 4.8-1

N

0 4

Miles

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The Salton Sea is a significant surface water feature that is located approximately 1.5 miles west and downstream of the Project site. It is one of the world's largest inland seas and is also one of the earth's lowest locations, at 227 feet below sea level (California State Parks 2010). By virtue of its location in the Colorado Desert ecosystem, the Salton Sea receives minimal inflow from rain (average annual precipitation of 5.5 inches per year). The Salton Sea is mainly an agricultural drainage reservoir, a closed system with no outlet; 90% of the entire inflow is commercial agricultural runoff containing high concentrations of phosphates, nitrates, and salts from the Imperial, Coachella, and Mexicali valleys (Salton Sea Authority 2010). Evaporation has caused the Salton Sea's salinity to increase and, as a result, water quality conditions continue to decline and the Salton Sea cannot meet the beneficial uses assigned to it. The Salton Sea National Wildlife Refuge was designated in 1930, but recent bird die-offs suggest that declining water quality is adversely impacting avian populations (CalEPA 2011).

Geothermal Resources

Plate motion in the Salton Trough along major faults, such as the San Jacinto and Imperial faults, create local geothermal hot spots due to magmatic intrusions in the pull-apart regions (Newmark et al. 1988). Several geothermal energy fields such as the Salton Sea, Cerro Prieto, and Brawley geothermal fields are located at these hot spots. Here, water temperatures at depths of 8,000 feet can exceed 680 degrees Fahrenheit (°F). While several faults penetrate to the surface, most of the tectonically induced faults are located at depth, well below the shallow strata in which most low temperature groundwater is found (Lawrence Livermore 2008). Geothermal fluids below 7,000 feet from the Salton Sea area can vary in TDS from 7,000 milligrams per liter (mg/L) to more than 200,000 mg/L and can contain some suspended solids.

4.8.2 REGULATORY SETTING

FEDERAL AND STATE

Federal Water Pollution Control Act (Clean Water Act)

The Clean Water Act (CWA), 33 U.S.C. § 1251 - 1376, regulates discharges of pollutants into the waters of the United States. It also includes requirements to set water quality standards for all contaminants in surface waters. The CWA makes it unlawful for any person to discharge any pollutant from a point source into navigable waters without first obtaining a permit under its provision. In 1972, Section 404 of the CWA established a program to regulate the discharge of dredged or fill material into waters of the United States. The Rivers and Harbors Act of 1899 defined navigable waters of the United States as "those waters that are subject to the ebb and flow of the tides and/or are presently used, or have been used in the past, or maybe susceptible to use to transport interstate or foreign commerce." The CWA built on this definition and defined waters of the United States to include tributaries to navigable waters, interstate wetlands, wetlands that could affect interstate or foreign commerce, and wetlands adjacent to other waters of the United States.

Sections 401 and 402 Permitting

Section 401(a)(1) of the CWA specifies that any applicant for a federal license or permit to conduct any activity, including, but not limited to, the construction or operation of facilities that may result in any discharge into navigable waters, shall provide the federal licensing or permitting agency a certification from the state in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable water at the point where the discharge originates or will originate, that any such discharge will comply with the applicable provisions of the CWA."

Section 402 of the CWA prohibits the discharge of pollutants from point sources to waters of the United States, unless authorized under a National Pollutant Discharge Elimination System (NPDES) permit. NPDES permits can be issued by the U.S. Environmental Protection Agency (EPA) or by agencies in delegated states. The NPDES permit program has been delegated in California to the State Water Resources Control Board (SWRCB).

Safe Drinking Water Act

The Safe Drinking Water Act, 42 U.S.C. § 300f et seq., was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources, including rivers, lakes, reservoirs, springs, and groundwater wells. This act authorizes the EPA to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. The act also mandates that a groundwater/wellhead protection program be developed by each state in order to protect groundwater resources that are a source of public drinking water.

Consolidated Decree (Arizona v. California et al., 547 U.S. 150 [2006])

The Consolidated Decree in Arizona v. California et al., 547 U.S. 150 (2006), includes the determination of allocations of Colorado River water (consistent with those established in the Colorado River Compact), the approval of the construction of the Boulder Canyon Project (per the Boulder Canyon Project Act of 1929), the framework for the operation of federally owned dams on the Colorado River and tributaries, and the definition of the system of water rights that characterizes allocation. The decree states that the consumptive use of water means "diversion from the stream less such return flow thereto as is available for consumptive use in the United States or in satisfaction of the Mexican treaty obligation" and consumptive use "includes all consumptive uses of water of the mainstream, including water drawn from the mainstream by underground pumping."

The Colorado River Compact, signed in 1922, is an agreement that apportions Colorado River water among seven states, including the Upper Division states of Colorado, New Mexico, Utah, and Wyoming, and the Lower Division states of Arizona, California, and Nevada. Each division is allocated 7,500,000 AFY. The states within each division negotiated their allotments. Currently, California is allotted 4.4 million AFY.

Of this allotment, IID, the water supplier to the Project site, has agreed to cap its Colorado River water use at 3.1 million AFY based on the 2003 Quantification Settlement Agreement (QSA).

In 2007, the Department of the Interior implemented an interim set of guidelines, in effect until 2026, for managing water allotments to the Lower Division states during shortages in response to low river flows related to a multi-year drought (Department of the Interior 2007). The guidelines include three levels of shortages contingent on the elevation of Lake Mead, each of which carry a specific allotment reduction to the Lower Division states; however, California retains its 4.4-million AFY allotment in all three scenarios.

National Flood Insurance Program

The National Flood Insurance Program (NFIP) is administered by FEMA, a component of the U.S. Department of Homeland Security. The NFIP is a federal program enabling property owners in participating communities to purchase insurance protection against losses from flooding. Participation in the NFIP is based on an agreement between local communities and the federal government, which states that if a community adopts and enforces a floodplain management ordinance to reduce future flood risks to new construction in special flood hazard areas, the federal government makes flood insurance available within the community as a financial protection against flood losses.

The Federal Emergency Management Agency (FEMA) identifies flood hazard areas throughout the United States and its territories on Flood Hazard Boundary Maps, Flood Insurance Rate Maps, and Flood Boundary and Floodway Maps. Several areas of flood hazards are commonly identified on these maps. One of these areas is the special flood hazard area, or high-risk area, defined as any land that would be inundated by a flood having a 1% chance of occurring in any given year (also referred to as a base flood or 100-year flood).

California Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, passed in 1969, regulates surface water and groundwater within the state and also assigns responsibility for implementing CWA Sections 401 through 402 and 303(d) in California. It established the SWRCB and divided the state into nine regions, each overseen by an RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface and groundwater supplies, but much of its daily implementation authority is delegated to the nine RWQCBs. The Project sites are located within the jurisdiction of the CRB RWQCB. The regional boards govern the protection of surface waters by assessing the attainment of designated beneficial uses; 23 uses are currently established for surface waters within the state.

General Permit for Stormwater Discharges Associated with Construction

CWA Section 402 regulates construction-related storm water discharges to surface waters through the NPDES program. In California, the EPA has delegated authority to the SWRCB for administering the NPDES program through the RWQCBs and has developed a General Permit for Stormwater Discharges Associated with Construction Activity (Water Quality Order No. 2009-0009-DWQ (NPDES No.

CAS000002)). Projects that disturb 1 or more acre of soil, or projects that disturb less than 1-acre but are part of a larger common plan of development that, in total, disturbs 1 or more acres are required to obtain this permit from the CRB RWQCB. Construction activities subject to this permit include clearing, grading, and other ground disturbances such as stockpiling or excavation, but do not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

The General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP should contain a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the proposed plan. The SWPPP must list Best Management Practices (BMPs) the discharger will use to protect storm water runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants, and a sediment monitoring plan if the site discharges directly to a water body included on the 303(d) list for sediment. Section A of the General Permit describes the elements that must be contained in a SWPPP; however, if hazardous materials are maintained on-site, constant monitoring is required regardless of the status of BMPs.

Groundwater Protection Areas and Wellhead Protection

The California Department of Public Health established the Drinking Water Source Assessment and Protection Program, which provides guidance to local level agencies for protecting the sources surface water and groundwater drinking water supplies. The California Department of Pesticide Regulation's Groundwater Protection Program is charged with identifying areas sensitive to pesticide contamination and develops mitigation measures and regulations to prevent pesticide movement into groundwater systems.

California Laws for Conservation of Geothermal Resources

The California Division of Oil, Gas, and Geothermal Resources (CDOGGR) is primarily responsible for permitting and regulation of geothermal energy development under Public Resources Code (PRC) Title 14, Division 2, Chapter 4, and the Safe Drinking Water Act (SDWA) on private and state-owned lands within California. The Project site is within the jurisdiction of the District 1 office. Additionally, the geothermal well drilling and injection program will be submitted to the CRB RWQCB and to the public for review and comment.

LOCAL

Imperial Irrigation District Water Planning Efforts

Basin management for the Imperial Valley is administered by the Imperial Irrigation District (IID). With more than 3,000 miles of canals and drains, the IID is the largest irrigation district in the Nation (IID 2010). The IID water service area extends from the southern half of the Salton Sea to the U.S.–Mexico border. The IID Water Department is responsible for the timely operation and maintenance of the extensive open channel

system, and delivers up to 3.1 million AFY of IID's Colorado River entitlement to nearly 500,000-acres of irrigated land. Of the water IID transports, approximately 97% is used for agricultural purposes (IID 2010).

Quantification Settlement Agreement (2003)

Due to competing interests regarding water rights in Southern California, all major Southern California water agencies, including federal and state agencies, negotiated a Quantification Settlement Agreement (QSA) with IID in October 2003. At that time, IID agreed to 35 to 75 years of water conservation, which would result in millions of acre-feet of conserved water for urban uses in southern California. Under the QSA and related transfer agreements, IID agreed to cap of 3.1 million AFY of Colorado River water and a schedule for creating conserved water for transfer and environmental mitigation (Pangaea 2012). The QSA and IID water rights are described in further detail in Appendix I.

Strategic Plan (2008)

In 2008, the IID Board of Directors adopted the IID Strategic Plan, in part due to increased water demands of proposed geothermal projects and other economic development in the region. The objectives of the IID Strategic Plan were to:

- Prevent impacts to existing agricultural users of water and protect IID water rights.
- Define cost-effective projects and equitable cost-sharing agreements with those entities and water users that would receive benefits from proposed water management actions.
- Identify projects that are consistent with existing agreements on use and management of the Colorado River, including the QSA and IID transfer agreements.
- Recognize and resolve potential conflicts over use of available water resources.
- Promote economic development consistent with IID policies, standards, and guidelines for new consumptive uses of water.

The IID Strategic Plan also included an objective to develop an Integrated Water Resources Management Plan (IWRMP) by the end of 2009.

Interim Water Supply Policy (2009)

Pending adoption of the IWRMP, the IID adopted the Interim Water Supply Policy (IWSP) for Non-Agricultural Projects in 2009 (IID 2009). All non-agricultural projects that require a raw water supply from IID must apply for water service pursuant to the IWSP, which allocates 25,000 AFY for non-agricultural projects within the IID service area. Proposed non-agricultural projects may be required to pay a Reservation Fee, further described below. The reserved water shall be available for other users until such non-agricultural projects are implemented and require the reserved water supply. The IWSP will remain in effect pending

adoption of the Integrated Regional Water Management Plan, which is expected to make available up to 50,000 acre-feet per year of water for similar uses.

Integrated Regional Water Management Plan

Although the IWRMP was originally intended to be completed by 2009 (according to the IID Strategic Plan), as of the publication of the NOP, the IWRMP had not yet been finalized. However, the Draft IWRMP was adopted by the IID Board of Directors on September 23, 2008 and updated November 17, 2009. The effort is being managed by the Imperial Regional Water Management Group, consisting of elected representatives of the IID, County of Imperial, and local cities. The goal of the plan is to provide a strategic road map that defines a portfolio of water projects, demand management measures and policies intended to deliver a reliable water supply for municipal, commercial and industrial water users over a 37-year planning horizon from 2010 to 2047 (IID 2010).

The IWRMP Plan describes the existing district supplies, including the facilities, entitlements and contracts that define what water is available to meet current and future demands and seeks to identify a Water Supply Portfolio of 100,000 acre-feet per year to meet future MCI and environmental water demands through 2047. When completed, the IRWMP will include recommendations for implementing various programs and projects including storing Colorado River water in the Salton Sea groundwater basin, developing local groundwater supplies, desalinating irrigation drainwater, reusing wastewater, and developing demand-management programs.

Temporary Land Conversion Fallowing Policy (2012)

On May 8, 2012, the IID adopted a Temporary Land Conversion Fallowing Policy, which addresses projects that will remove land from agricultural production on a long-term temporary basis. Because water demands for certain non-agricultural projects are typically less than that required for agricultural use; this reduced demand allows additional water to be made available for other users under IID's annual consumptive use cap. This conserved water can then be used to satisfy IID's conserved water transfer obligations and for environmental mitigation purposes.

Certain non-agricultural projects temporarily remove land from agricultural production and the number of proposed non-agricultural projects is anticipated to increase as the economy of Imperial County diversifies and develops to address these new business opportunities (IID, 2012). If it appears to IID, that the proposed water usage for a non-agricultural project applying for water supply will require less water than the historical water usage associated with the agricultural production on that land, IID will determine, in its sole discretion, that the proposed project is suitable for temporary land conversion fallowing to create conserved water for transfer, or environmental mitigation purposes. In this case, the water supply agreement for a non-agricultural project will include a temporary land conversion fallowing agreement, which requires that the project developer, lessee and landowner return the project land to agricultural production.

County of Imperial

Floodplain Management

County of Imperial requires that a grading/drainage study be conducted for the proposed Projects to provide for property grading and drainage control, which shall also include prevention of sedimentation or damage to off-site properties. These studies are reviewed by the CRB RWQCB, the IID, and Imperial County Public Works Department. The IID regulates and controls the use of irrigation water throughout the County.

County of Imperial General Plan

The County of Imperial General Plan Conservation and Open Space Element and the Water Element contain goals, objectives, and policies related to water quality and hydrology. Table 4.8-1 identifies applicable General Plan policies related to water quality and hydrology and addresses the SmCP-2 Projects' consistency with the General Plan policies.

TABLE 4.8-1 HR-2 AND SMCP-2 PROJECTS' CONSISTENCY WITH GENERAL PLAN WATER AND HYDROLOGY GOALS AND OBJECTIVES

GENERAL PLAN POLICIES	CONSISTENCY	ANALYSIS
WATER ELEMENT (WE)		
WE Policy 1. Adequate Domestic Water Supply. The efficient regulation of land uses that economize on water consumption enhances equivalent dwelling unit demand for domestic water resources, and that makes available affordable resources for continued urban growth.	Yes	A water supply assessment was prepared for the proposed Projects (Pangaea Land Consultants 2012). The SB 610 Water Supply Assessment determined there is adequate water from the IID available for the proposed Projects' water needs. During construction the proposed Projects would utilize water from the IID obtained via water supply agreements, at a rate of 50,000 gallons/day. During operations, the proposed HR-2 Project would require 3,940 AFY. Approximately 98% of the demand for cooling tower make-up water (2,740 AFY) would be provided from HR-2's steam condensate. The proposed SmCP-2 Project would require 800 AFY of IID water during operations and additional water from steam condensate from HR-2. Both Projects have incorporated water conservation measures that would be implemented during operations. The HR-2 Project would incorporate geothermal steam condensate to supply approximately 98% of the cooling tower make-up water demand (HR-2 WPM WQ-1). The SmCP-2 would also use steam condensate from the HR-2 Project to minimize operational water demand from outside sources when possible SmCP-2 WQ-1).

TABLE 4.8-1 HR-2 AND SMCP-2 PROJECTS' CONSISTENCY WITH GENERAL PLAN WATER AND HYDROLOGY GOALS AND OBJECTIVES

GENERAL PLAN POLICIES	CONSISTENCY	ANALYSIS
WE Policy 4. Protection of Water Resources from Hazardous Materials Program: The County of Imperial shall make every reasonable effort to limit or preclude the degradation of all groundwater and surface water resources in the County.	Yes	The proposed HR-2 and SmCP-2 Projects have been designed to include environmental protection measures described in Section 4.8.3, that would limit the contamination and degradation of surface and groundwater resources from construction and operation activities. In addition, both projects will be required to comply with the NPDES construction stormwater pollution prevention program through preparation and implementation of a SWPPP, along with implementation of the required best management practices (MM WQ-1.1).
WE Policy 4. Protection of Water Resources from Hazardous Materials Goal 4: The County of Imperial will adopt and implement ordinances, policies an guidelines that assure the safety of County ground and surface waters from toxic or hazardous materials and wastes.	Yes	The HR-2 and SmCP-2 Projects are subject to federal and state water quality regulations of the CRB RWQCB. SWPPPs will be required during construction of the proposed Projects'. Under MM WQ-1.1, a SWPPP will be prepared for each project, which will include BMPs and recommendations to ensure that potential water quality impacts during construction are avoided and/or minimized. In addition, the HR-2 Project has incorporated into its design, specific EPMs to protect surface and groundwater from toxic or hazardous materials and wastes during operations. These include lining and monitoring the brine pond so that contents would not leach into the soil (HR-2 EPM WQ-2 and WQ-3); providing extra protection and monitoring of well casings and production well-heads (HR-2 EPM WQ-5); conducting routine inspections of pipelines (HR-2 EPM WQ-6); installing emergency shut-off valves and isolation valves on wellheads (HR-2 EPM WQ-7); using only non-hazardous drilling mud and storing waste drill mud and drill cuttings in the lined containment basin (HR-2 EPM WQ-8 and WQ-9); and providing secondary containment where accidental releases of hazardous and acutely hazardous materials could occur (HR-2 EPM HAZ-3). Likewise, the proposed SmCP-2 Project has incorporated into its design, specific EPMs to protect surface and groundwater from toxic or hazardous materials and wastes, including construction of delivery/return pipelines to prevent accidental releases (SMCP-2 EPM HAZ-5); and providing secondary containment where accidental releases of hazardous and acutely hazardous materials could occur (SmCP-2 EPM HAZ-6).

TABLE 4.8-1 HR-2 AND SMCP-2 PROJECTS' CONSISTENCY WITH GENERAL PLAN WATER AND HYDROLOGY GOALS AND OBJECTIVES

GENERAL PLAN POLICIES	CONSISTENCY	ANALYSIS
Program: All development proposals brought before the County of Imperial shall be reviewed for potential adverse effects on water quality, and shall be required to implement appropriate mitigation measures for any significant impacts.	Yes	Potential impacts on water quality and quantity that would result from implementation of the proposed HR-2 and SmCP-2 projects have been addressed in this EIR (Section 4.8 Hydrology and Water Quality and Section 4.15 Public Utilities, respectively). Implementation of the EPMs identified in Section 4.8.3, along with MM WQ-1.1 (Preparation and Implementation of a SWPPP) would ensure that ground and surface waters would not be degraded and that water quality impacts resulting from construction and operation activities are reduced to below a level of significance. An SB 610 Water Supply Assessment (WSA) has been prepared for the proposed HR-2 and SmCP-2 projects (Pangaea Land Consultants, 2012). During construction and operations, the proposed Projects would utilize water from the IID, obtained via water supply agreements. The WSA determined that there would be sufficient water available to meet both projects' demand through the year 2045 (i.e. throughout the 30-year life of each project).
Goal 2: Long-term viability of the Salton Sea, Colorado River, and other surface waters in the County will be protected for sustaining wildlife and a broad range of ecological communities.	Yes	The HR-2 and SmCP-2 Projects are subject to the federal and state water quality regulations of the Colorado River Basin RWQCB. Preparation an implementation of stormwater pollution prevention plan (SWPPP) will be required under MM WQ-1.1. In addition, SmCP-2 would implement a construction phase erosion control plan (SmCP-2 EPM WQ-2) to control run-off during construction. To control run-off after construction is complete, the Project site would be graded to direct surface water run-off into the proposed storm water retention basin, which would be shared by both Projects (HR-2 EPM WQ-4 and SmCP-2 EPM WQ-3). Additional EPMs, listed in Section 4.8.3, would prevent surface and/or groundwater contamination from drilling, potential pipeline releases and operation of both the geothermal and mineral extraction plant. These measures would reduce adverse surface water quality impacts during construction and operation, and thus would not impact water quality in the Salton Sea.
CONSERVATION AND OPEN SPACE ELEMENT (COSE)		
COSE Goal 8: The County will conserve, protect, and enhance the water resources in the planning area.	Yes	See Response for Policy 4, above.

TABLE 4.8-1 HR-2 AND SMCP-2 PROJECTS' CONSISTENCY WITH GENERAL PLAN WATER AND HYDROLOGY GOALS AND OBJECTIVES

GENERAL PLAN POLICIES	CONSISTENCY	ANALYSIS
COSE Objective 8.4: Ensure the use and protection of rivers and other waterways in the County. Ensure proper drainage and provide accommodation for storm water runoff from urban and other developed areas in manners compatible with requirements to provide necessary agricultural drainage.	Yes	Production and injection pipelines would be routinely inspected. Piping at each production wellhead would have an emergency shutoff valve to prevent potential releases. Cemented concentric steel and alloy casing will prevent produced fluids from polluting surface water and groundwater. Waste drilling mud and drill cuttings will be stored in the lined containment basin. The proposed HR-2 and SmCP-2 Projects sites would be graded to direct surface water runoff toward a storm water retention basin, which will be surrounded by a berm to prevent overflow (HR-2 EPM WQ-4 and SmCP-2 EPM WQ-3). Site drainage for both Projects would be designed to flow toward a stormwater retention pond located on the HR-2 power plant site via ditches, swales, and culverts. The stormwater drainage system would be sized to accommodate 3 inches of precipitation in a 24-hour period (a 100-year storm event) in compliance with applicable local codes and standards.
COSE Objective 8.5: Protect and improve water quality and quantity for all water bodies in County of Imperial.	Yes	See Response for Policy 4, above.
Objective 8.6: Eliminate potential surface and groundwater pollution through regulations as well as educational programs.	Yes	Surface and groundwater quality would be protected by the incorporation of cemented concentric steel and alloy casing that will prevent produced fluids from polluting surface water and groundwater. In addition, only non-toxic, non-hazardous drilling mud will be utilized during drilling operations for the HR-2 Project. Surface and groundwater quality would be protected by implementation of the construction and operational EPMs for the proposed HR-2 and SmCP-2 Projects listed in Section 4.8.3. These measures have been incorporated into the design of the Projects and include implementing a construction-phase erosion control plan; lining and monitoring the brine pond so that contents will not leach into the soil; providing extra protection and monitoring of well casings and production well-heads; conducting routine inspections of pipelines; using only non-hazardous drilling mud and storing waste drill mud and drill cuttings in the lined containment basin; providing secondary containment where accidental releases of hazardous and acutely hazardous materials could occur.

TABLE 4.8-1 HR-2 AND SMCP-2 PROJECTS' CONSISTENCY WITH GENERAL PLAN WATER AND HYDROLOGY GOALS AND OBJECTIVES

GENERAL PLAN POLICIES	CONSISTENCY	ANALYSIS
Objective 9.2: Reduce risk and damage from flood hazards by appropriate regulations.	Yes	The Project sites are not located within a 100-year flood hazard area as mapped on a Flood Insurance Rate Map.

Sources: County of Imperial 1993a, 1993b6

While this Draft EIR analyzes the Projects' consistency with the County of Imperial General Plan pursuant to California Environmental Quality Act (CEQA) Guidelines, Section 15125(d), the County of Imperial Planning Commission will determine the Projects' consistency with the General Plan.

4.8.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines, as listed in Appendix G. The Project would result in a significant impact on hydrology and water quality if the Project would:

1. Violate any water quality standards or waste discharge requirements.

2. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted).

3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off-site.

4. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site.

5. Create or contribute to runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

6. Otherwise substantially degrade water quality.

7. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary Map, Flood Insurance Rate Map, or other flood hazard delineation map.

8. Place structures within a 100-year flood hazard area that would impede or redirect flood flows.

9. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

10. Expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow

ENVIRONMENTAL PROTECTION MEASURES

Chapter 3 provides a complete list and description of environmental protection measures (EPMs) that Hudson Ranch Power II, LLC and Simbol, Inc. have incorporated into their respective projects to avoid or minimize impacts on all resources.

The following EPMs that are included as part of the proposed HR-2 Project to minimize or avoid hydrology and/or water quality impacts:

- HR-2 EPM WQ-1: Water Conservation: Steam condensate will be used to supply 98% of the cooling tower make-up water, which will minimize water demand from other sources.

- HR-2 EPM WQ-2: High-Density Polyethylene (HDPE) and Concrete-Lined Brine Pond: The brine pond will be of earth construction and double-lined with an HDPE liner and concrete liner such that the contents will not leach into the soil.

- HR-2 EPM WQ-3: Brine Pond Monitoring Wells: Potential release from the brine ponds to groundwater will be assessed with a system of monitoring wells placed around the periphery of the ponds.

- HR-2 EPM WQ-4: Stormwater Retention Basin and Berm: The plant site will be graded to direct surface water runoff toward a storm water retention basin, which will be surrounded by a berm to prevent overflow.

- HR-2 EPM WQ-5: Casing Shallow Portions of Production and Injection Wells: Casing the shallow portions of the production and injection wells will minimize the potential release of both construction-related drilling fluids and production-related geothermal brines to the shallow groundwater aquifer.

- HR-2 EPM WQ-6: Protective Pipeline Design and Detailed Inspection Routine: Production pipelines will be alloy-clad steel pipe. Injection pipelines will be constructed of concrete-lined carbon steel. Both will be routinely inspected to prevent potential releases.

- HR-2 EPM WQ-7: Production Wellheads: Piping at each production wellhead will be equipped with remotely operated electrical emergency shutoff valves and manual alloy isolation valves to prevent potential releases.

- HR-2 EPM WQ-8: Surface and Groundwater Quality Protection: Cemented concentric steel and alloy casing will prevent produced fluids from polluting surface water and groundwater. Only non-toxic, non-hazardous drilling mud will be utilized during drilling operations.

- HR-2 EPM WQ-9: Surface and Groundwater Quality Protection: Waste drilling mud and drill cuttings will be stored in the lined containment basin. Any runoff from the site will be discharged into the containment basin.

- HR-2 EPM HAZ-3: Secondary Containment: Curbs, berms, and concrete pits will be used where accidental releases of hazardous and acutely hazardous materials could occur. Containment areas will be drained to appropriate collection areas or neutralization tanks for recycling or for off-site disposal. Traffic barriers would protect piping and tanks from potential traffic hazards.

The following EPMs are included as part of the proposed SmCP-2 Project to minimize or avoid hydrology and/or water quality/water supply impacts:

- SmCP-2 EPM WQ-1: Water Conservation: Use of steam condensate from HR2 to minimize water demand from outside sources when possible. Water will be internally recycled to the extent practical.

- SmCP-2 EPM WQ–2: Surface and Ground Water Quality Protection: SmCP-2 will comply with all California Regional Water Quality Control Board, Colorado River Basin Region (CRWQCB) requirements to protect water resources. The Project will also submit additional encroachment permit applications to the IID for roads and activities that may occur in IID rights-of-way, and will comply with the IID permit conditions to protect irrigation channels and water delivery facilities in the area. Required permits would be obtained from the IID for any construction water to be produced from IID canals. The Project will file a Notice of Intent to comply with the requirements of the State Water Resources Control Board's (SWRCB) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities. Any runoff from the plant site will be discharged into the storm water retention basin.

- SmCP-2 EPM WQ–3: Construction-Phase Erosion Control Plan: An erosion control plan will be used at the SmCP-2 site during the construction phase to control sediment-laden runoff and ensure the integrity of the storm water collection system during construction. The plan will use control measures, as necessary, such as grass-covered swales and ditches, stabilized construction entrances, gravel-covered construction lay- down area, silt fencing, and seeding of the disturbed area. Specifically, runoff from all affected areas will be diverted to the erosion control measures before being discharging off-site.

- SmCP-2 EPM WQ–4: Storm Water Retention Basin: The SmCP-2 plant site will be graded to direct uncontained surface water runoff toward a storm water retention basin.

- SmCP-2 EPM HAZ-5: Protective Pipeline Design and Detailed Inspection Routine: Brine delivery/return pipelines will be constructed of appropriate materials to prevent accidental releases. The pipelines will be routinely inspected to prevent potential releases.

- SmCp-2 EPM HAZ-6: Secondary Containment: Curbed areas will be installed where accidental releases of hazardous materials could occur. Containment areas would be drained to appropriate collection areas or neutralization tanks for recycling or offsite disposal. Traffic barriers would be installed to protect piping and tanks from potential traffic hazards.

METHODOLOGY

Potential impacts on hydrology and water quality from implementation of the proposed Projects were evaluated based on review of published information and reports regarding regional hydrology, climate, and geology, including an SB 610 Water Supply Assessment prepared for the proposed Projects (Pangaea Land Consultants, Inc. 2012) (Appendix I), and the Geotechnical Investigation (Landmark Consultants, Inc. 2010) (Appendix G).

HR-2 IMPACTS AND MITIGATION MEASURES

Impact WQ-1: The HR-2 Project could violate water quality standards or waste discharge requirements.

Construction and operation activities at the HR-2 Project site could adversely impact water quality in the adjacent Salton Sea, a highly impacted surface water body, from an increase in erosion when ground is disturbed during construction. Surface water quality could be impacted by increased sediment loading associated with land disturbance and the release of drilling fluids, geothermal fluid, or other chemicals during exploration and construction. Disposal of drilling fluids produced during exploration activities may include mud and geothermal residue and may need to be disposed of in appropriate landfills to avoid adverse surface water quality impacts. Groundwater beneath the Project site is generally of poor quality and not used for drinking water supply.

The General Plan Water Element Policy 4 requires that an NPDES storm water pollution prevention program (SWPPP) and that required BMPs are incorporated into final Project design to reduce adverse impacts on water quality. Therefore, impacts to water quality during construction would be potentially significant unless mitigation is incorporated.

The HR-2 Project also proposes to grade the project site to direct run-off to a storm water retention basin (HR-2 EPM WQ-4), considered part of the Project design features, as a post-construction BMP. The power plant site will drain to a storm water retention basin. The retention basin will be sized to retain 100% of

runoff produced in the Project area during a 100-year/24-hour storm (assumed to be a total of 3 inches of rain).

To control run-off after construction is complete, the Project site would be graded to direct surface water run-off into the proposed storm water retention basin, which would be shared by both Projects (HR-2 EPM WQ-4). In addition, the HR-2 Project has incorporated into its design, specific EPMs to protect surface and groundwater from toxic or hazardous materials and wastes during operations. These include lining and monitoring the brine pond so that contents would not leach into the soil (HR-2 EPM WQ-2 and WQ-3); providing extra protection and monitoring of well casings and production well-heads (HR-2 EPM WQ-5); conducting routine inspections of pipelines (HR-2 EPM WQ-6); installing emergency shut-off valves and isolation valves on wellheads (HR-2 EPM WQ-7); using only non-hazardous drilling mud and storing waste drill mud and drill cuttings in the lined containment basin (HR-2 EPM WQ-8 and WQ-9); and providing secondary containment where accidental releases of hazardous and acutely hazardous materials could occur (HR-2 EPM HAZ-3). These measures would minimize adverse surface water quality impacts during operation, and thus would not impact water quality in the Salton Sea. Operation impacts would be less than significant.

MM WQ 1.1: Implementation of a SWPPP

Prior to the issuance of grading permits, Hudson Ranch Power II, LLC shall obtain coverage under the SWRCB's General Permit for Stormwater Discharges Associated with Construction Activity (Water Quality Order No. 2009-0009-DWQ (NPDES No. CAS000002)). Hudson Ranch Power II, LLC shall prepare a SWPPP to be administered during grading and Project construction. The SWPPP must contain BMPs and construction techniques accepted by the County for use in the Project area at the time of construction that meet the 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, that shall reduce the potential for runoff and the release, mobilization, and exposure of pollutants from the construction area, and that no water quality standards are violated. 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. Countermeasures may include measures to prevent or clean up spills of hazardous waste and of hazardous materials used for equipment operation, and emergency procedures for responding to spills. BMPs included in the SWPPP must be consistent with the California Stormwater Best Management Practices Handbook for Construction. The SWPPP must be

submitted to California RWQCB CRB and Imperial County for review prior to the issuance of grading permits. The SWPP shall identify and specify the pollutants that are likely to be used during construction that could be present in stormwater drainage and non-stormwater discharges, including fuels, lubricants, and other types of materials used for equipment operation and the means of waste disposal. The SWPPP shall specify personnel training requirements and procedures that shall be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP. The SWPPP shall also specify the appropriate personnel responsible for supervisory duties related to implementation of the SWPPP.

A copy of the approved SWPPP shall be maintained and available at all times on the construction site.

Timing/Implementation: Prior to issuing grading permits.

Enforcement/Monitoring: Hudson Ranch Power II, LLC and California RWQCB CRB.

Significance after Mitigation: Mitigation measure MM WQ-1.1 requires preparation and implementation of a SWPPP, which would reduce potential construction-phase water quality effects within the Project site. The BMPs that are provided in the SWPPP shall be shown to be effective as required under the adopted changes to Water Quality Order No. 2009-0009-DWQ (NPDES No. CAS000002) for general construction stormwater permit provisions. With implementation of mitigation measure MM WQ-1.1 and HR-2 EPM WQ-11 ~~EPM WQ-4~~, impacts from erosion on water quality would be less than significant.

Impact WQ-2: The HR-2 Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.

As discussed in Chapter 3 (Project Description), the proposed HR-2 Project would require a small amount of water for geothermal well drilling and dust control during site grading and construction activities. This water would be purchased from the IID and transported to the site by temporary pipeline or by water truck. During operations, the proposed HR-2 Project would require 3,940 AFY. Of this total, 1,200 AFY would be obtained from the IID, and 2,740 AFY would be provided from HR-2's steam condensate. There are no known groundwater wells within the Project site or the surrounding area and the proposed HR-2 Project would not

utilize groundwater as its water supply. Therefore, the proposed HR-2 Project would not deplete groundwater supplies.

Surface disturbances, such as vegetation removal and the construction of new impervious surfaces, may occur during the construction of the power plant, thereby resulting in increased potential for erosion and sedimentation.

Of the total 245-acre parcel on which the HR-2 Project would be located, permanent disturbance would be limited to 52 acres, or 21 percent of the total parcel. The areas of permanent disturbance, characterized by foundations for buildings, well pads, cooling towers, the freshwater pond and retention basin, the brine collection basin, electrical equipment, roadways, and pipelines, would introduce impermeable or substantially less permeable surfaces than present groundcover. This could affect water infiltration at the Project site.

However, the Project site would be graded to direct surface water run-off to a storm water retention basin, sized to retain 3 inches of precipitation in a 24-hour period (100-year storm event). This would allow collected run-off to recharge the groundwater table. In addition, the remainder of the Project site (145 aces) would not be covered with project facilities and these areas would allow for the continued infiltration to groundwater. The proposed increase in impermeable surfaces resulting from implementation of the proposed HR-2 Project would be minimal compared the groundwater recharge area of the Imperial Valley.

Therefore, project impacts with regard to groundwater depletion and groundwater interference are considered less than significant.

Impact WQ-3: The HR-2 Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site.

The entire project area is fairly level and construction of the proposed Project would not substantially alter the site's existing drainage pattern. The Project site would be graded and facilities installed such that drainage would flow towards a stormwater retention pond located on the power plant site, via ditches, swales and culverts (HR-2 EPM WQ-4). The proposed retention basin would be surrounded by a berm to prevent overflow. The stormwater drainage system would be sized to accommodate 3 inches of precipitation in a 24-hour period (a 100-year storm event) and would be subject to the conditions of a grading permit. In addition, implementation of a SWPPP (MM WQ-1.1), which complies with the requirements of the RWQCB would ensure that construction of the project would not result in substantial erosion or siltation on- or off-site. No structures or well pads are

proposed for placement in natural waterways or drainage canals. Therefore, a less than significant impact has been identified for this criteria.

Although Project construction could alter surface hydrology, it is unlikely that the existing drainage pattern of the site or area would be substantially altered. There are no stream or river courses on the Project site or within the immediate vicinity. Therefore, no alteration of rivers or streams, on or off the Project site would occur.

Mitigation Measures: No additional mitigation required.

Impact WQ-4: The HR-2 Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site.

As described above under Impact WQ-3, the proposed HR-2 Project would not substantially alter the existing drainage pattern of the site or alter the course of a stream or river. The proposed stormwater drainage system would be sized to accommodate 3 inches of precipitation in a 24-hour period (a 100-year storm event). In addition, the proposed retention basin would be surrounded by a berm to prevent overflow. All stormwater generated during the 3-inch storm event would be contained on-site (HR-2 EPM WQ-4).

In order to avoid stormwater runoff, the project will be required to prepare and implement a SWPPP (MM WQ-1.1) during construction, along with best management practices to ensure that ground and surface waters would not be degraded and that water quality impacts resulting from construction activities are reduced to below a level of significance. After construction is complete, stormwater would be directed to the stormwater retention basin. A berm would be constructed around the basin to prevent overflow.

The HR-2 Project has also incorporated into its design, specific EPMs to avoid and minimize potential spills and the creation of polluted run-off. These include lining and monitoring the brine pond so that contents would not leach into the soil (HR-2 EPM WQ-2 and WQ-3); providing extra protection and monitoring of well casings and production well-heads (HR-2 EPM WQ-5); conducting routine inspections of pipelines (HR-2 EPM WQ-6); installing emergency shut-off valves and isolation valves on wellheads (HR-2 EPM WQ-7); using only non-hazardous drilling mud and storing waste drill mud and drill cuttings in the lined containment basin (HR-2 EPM WQ-8 and WQ-9); and providing secondary containment where accidental releases of hazardous and acutely hazardous materials could occur (HR-2 EPM HAZ-3).

Thus, the proposed HR-2 Project would not contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. No significant impact has been identified.

Mitigation Measures: None required.

Impact WQ-5: The HR-2 Project would not create or contribute to runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

As stated in Impact WQ-3 above, surface disturbance would occur during construction of the HR-2 Project, and new impervious surfaces would be created. Urban/industrial pollutants could also be introduced to an area that in the recent past supported agriculture. Urban runoff typically consists of oils, grease, fuel, antifreeze, byproducts of combustion, and landscaping-related products. Precipitation could transmit these pollutants via stormwater runoff.

Because construction of the Project plant site would introduce impervious surfaces and structures, there is the potential for increased runoff. This impact is considered potentially significant.

To control run-off after construction is complete, the Project site would be graded to direct surface water run-off into the proposed storm water retention basin, which would be shared by both Projects (HR-2 EPM WQ-4). In addition, the HR-2 Project has incorporated into its design, specific EPMs to avoid runoff during operations. These include lining and monitoring the brine pond so that contents would not leach into the soil (HR-2 EPM WQ-2 and WQ-3); providing extra protection and monitoring of well casings and production well-heads (HR-2 EPM WQ-5); conducting routine inspections of pipelines (HR-2 EPM WQ-6); and providing secondary containment where accidental releases of hazardous materials could occur (HR-2 EPM HAZ-3). These measures would minimize runoff during operations, and thus would not impact water quality in the Salton Sea. Operation impacts would be less than significant.

With the implementation of a project SWPPP (MM WQ 1.1), along with the EPMs described above, the Project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff during construction.

MM WQ 1.1: Implementation of a SWPPP

See above discussion of MM WQ 1.1 for Impact WQ-1.

Timing/Implementation: Prior to issuance of grading permits.

Enforcement/Monitoring: CRB RWQCB.

Significance after Mitigation: With implementation of the SWPPP and design BMPs as described in the CUP application, EPM HR-2 WQ-2, WQ-3, WQ-4, WQ-5, WQ-6, HAZ-3 and mitigation measure MM WQ 1.1, the Project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff and impacts to stormwater drainage systems would be less than significant.

Impact WQ-6: The HR-2 Project would not otherwise substantially degrade water quality.

The Salton Sea, to which surface water runoff from the site would drain, has been designated an impaired water under CWA Section 303(d) due to discharges of primarily agricultural wastes from non-point source runoff. The HR-2 Project would install a storm water retention basin as a design feature to further reduce the potential for impacts to surface water drainage. Although the Project would reduce infiltration into the regional aquifer by eliminating the agricultural discharge by changing the land use type, this is not expected to significantly affect groundwater quality, particularly in an aquifer system already known to have high TDS and total suspended solids (TSS).

The Project SWPPP, that would be required as a matter of law and is also identified as MM WQ 1.1, would be prepared and implemented to further avoid and minimize run-off- during construction. In addition, the Project site would be graded to direct surface run-off to a stormwater retention basin (HR-2 EMP WQ-4) to reduce the potential for impacts to surface water drainage during operations. The potential for the Project to substantially further degrade the water quality in the Salton Sea through an increase in non-point source pollutants is negligible, as the untreated runoff from the existing agricultural land use would be changed to regulated and treated industrial water. Therefore, there would be no impact under this criterion.

Mitigation Measures: None required.

Impact WQ-7: The HR-2 Project would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary Map, Flood Insurance Rate Map, or other flood hazard delineation map.

The HR-2 Project site is not located within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. Furthermore, the HR-2 Project does not include the construction of housing units. Therefore, there would be no impact under this criterion.

Mitigation Measures: None required.

Impact WQ-8: The HR-2 Project would not place structures within a 100-year flood hazard area that would impede or redirect flood flows.

The HR-2 Project site is not located within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. It would not place structures within a 100-year flood hazard area such that flood flows would be impeded or redirected. Therefore, there would be no impact under this criterion.

Mitigation Measures: None required.

Impact WQ-9: The HR-2 Project would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

The HR-2 Project is not located within a within a FEMA-designated 100 year flood zone, and there are no upstream levees or dams which could fail and discharge floodwaters over the Project site. Therefore, the Project would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. Therefore, there would be no impact for this criterion.

Mitigation Measures: None required.

Impact WQ-10: The HR-2 Project would not expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow.

The Salton Sea is the closest large body of water, is about 1.5 miles northeast of the project area and the HR-2 Project site and the surrounding area consist of relatively flat ground and there are no dams or levees near the Project site. The project site is not subject to inundation by seiche, tsunami, or mudflow. For this

reason, construction and operation of the project would result in risk of exposure of people and structures to a seiche, tsunami, or mudflow. . Therefore, there would be no impact under this criterion.

Mitigation Measures: None required.

SMCP-2 IMPACTS AND MITIGATION MEASURES

Impact WQ-1: The SmCP-2 Project could violate water quality standards or waste discharge requirements.

Construction and operation activities at the SmCP-2 Project site could adversely impact water quality in the adjacent Salton Sea, a highly impacted surface water body, from an increase in erosion when ground is disturbed during construction. Surface water quality could be impacted by increased sediment loading associated with land disturbance and the release of chemicals during the mineral extraction process. Groundwater beneath the Project site is generally of poor quality and not used for drinking water supply.

The General Plan Water Element Policy 4 requires that an NPDES storm water pollution prevention program (SWPPP) and that required BMPs are incorporated into final Project design to reduce adverse impacts on water quality. An erosion control plan would be used at the SmCP-2 site during the construction phase to control sediment-laden runoff and ensure the integrity of the storm water collection system during construction (SmCP-2 EPM WQ–3). The plan would use control measures, as necessary, such as grass-covered swales and ditches, stabilized construction entrances, gravel-covered construction lay- down area, silt fencing, and seeding of the disturbed area. Specifically, runoff from all affected areas will be diverted to the erosion control measures to prevent discharging off-site. In addition, the proposed SmCP-2 Project would comply with all California Regional Water Quality Control Board, Colorado River Basin Region (CRWQCB) requirements to protect water resources (SmCP-2 EPM WQ–2). The Project will also comply with the IID encroachment permit conditions to protect irrigation channels and water delivery facilities in the area. Therefore, impacts to water quality during construction would be potentially significant unless mitigation is incorporated.

To control run-off after construction is complete, the Project site would be graded to direct surface water run-off into the proposed storm water retention basin, which would be shared by both Projects (SmCP-2 EPM WQ-4), considered part of the Project design features, as a post-construction BMP. The retention basin will be

sized to retain 100% of runoff produced in the Project area during a 100-year/24-hour storm (assumed to be a total of 3 inches of rain).

In addition, the SmCP-2 Project has incorporated into its design, specific EPMs to protect surface and groundwater from toxic or hazardous materials and wastes during operations. These include providing extra protection for, and routine monitoring of, brine delivery/return pipelines (SmCP-2 EPM HAZ-5); and providing secondary containment where accidental releases of hazardous materials could occur (SmCp-2 EPM HAZ-6). Containment areas would be drained to appropriate collection areas or neutralization tanks for recycling or offsite disposal. Traffic barriers would be installed to protect piping and tanks from potential traffic hazards. These measures would minimize adverse surface water quality impacts during operation, and thus would not impact water quality in the Salton Sea. Operation impacts would be less than significant.

MM WQ-1.1: Implementation of a SWPPP

Prior to the issuance of grading permits, Hudson Ranch Power II, LLC shall obtain coverage under the SWRCB's General Permit for Stormwater Discharges Associated with Construction Activity (Water Quality Order No. 2009-0009-DWQ (NPDES No. CAS000002)). Simbol, Inc. shall prepare a SWPPP to be administered during grading and Project construction. The SWPPP must contain BMPs and construction techniques accepted by the County for use in the Project area at the time of construction that meet the 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, that shall reduce the potential for runoff and the release, mobilization, and exposure of pollutants from the construction area, and that no water quality standards are violated. 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. Countermeasures may include measures to prevent or clean up spills of hazardous waste and of hazardous materials used for equipment operation, and emergency procedures for responding to spills. BMPs included in the SWPPP must be consistent with the California Stormwater Best Management Practices Handbook for Construction. The SWPPP must be submitted to California RWQCB CRB and Imperial County for review prior to the issuance of grading permits. The SWPP shall identify and specify the pollutants that are likely to be used during construction that could be present in stormwater drainage and non-stormwater discharges, including fuels, lubricants, and other types of materials used for equipment operation and the means of waste disposal.

The SWPPP shall specify personnel training requirements and procedures that shall be used to ensure that workers are aware of permit requirements and proper installation methods for BMPs specified in the SWPPP. The SWPPP shall also specify the appropriate personnel responsible for supervisory duties related to implementation of the SWPPP.

A copy of the approved SWPPP shall be maintained and available at all times on the construction site.

Timing/Implementation: Prior to issuing grading permits, construction planning.

Enforcement/Monitoring: Simbol, Inc. and California RWQCB CRB.

Significance after Mitigation: Mitigation measure MM WQ 1.1 requires preparation and implementation of a SWPPP, which would reduce potential construction-phase water quality effects within the Project site. The BMPs that are provided in the SWPPP shall be shown to be effective as required under the adopted changes to Water Quality Order No. 2009-0009-DWQ (NPDES No. CAS000002) for new general construction stormwater permit provisions. With implementation of mitigation measure MM WQ-1.1 and SmCP-2 EPMs WQ-2 and WQ-3, impacts from erosion and to water quality would be less than significant.

Impact WQ-2: The SmCP-2 Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.

As discussed in Chapter 3 (Project Description), the proposed SmCP-2 Project would require a small amount of water for dust control during site grading and other construction activities. This water would be purchased from the IID and transported to the site by temporary pipeline or by water truck. During operations, the proposed SmCP-2 Project would require 800 AFY from IID. Additional water would also be obtained from steam condensate from HR-2. There are no known groundwater wells within the Project site or the surrounding area and the proposed SmCP-2 Project would not utilize groundwater as its water supply. Therefore, the proposed HR-2 Project would not deplete groundwater supplies.

Surface disturbances, such as vegetation removal and the construction of new impervious surfaces, may occur during the construction of the mineral extraction plant, thereby resulting in increased potential for erosion and sedimentation.

Of the total 245-acre parcel on which the SmCP-2 Project would be located, permanent disturbance would be limited to 48-acres. Given that SmCP-2 could

not operate without the proposed HR-2 Project, the total increase in impervious surfaces would be 100-acres (52-acres for HR-2 + 48-acres for SmCP-2), or 41 percent of the total parcel. This increase could affect water infiltration at the Project site.

The areas of permanent disturbance, characterized by foundations for product handling, production, warehouse and storage building; roadways, pipelines, the cooling tower and other on-site facilities, would introduce impermeable or substantially less permeable surfaces than present groundcover. This could affect water infiltration at the Project site.

However, the Project site would be graded to direct surface water run-off to a storm water retention basin, sized to retain 3 inches of precipitation in a 24-hour period (100-year storm event). This would allow collected run-off to recharge the groundwater table. In addition, the remainder of the Project site (145 aces) would not be covered with project facilities and these areas would allow for the continued infiltration to groundwater. The proposed increase in impermeable surfaces resulting from implementation of the proposed SmCP-2 Project would be minimal compared the groundwater recharge area of the Imperial Valley.

Therefore, project impacts with regard to groundwater depletion and groundwater interference are considered less than significant.

Mitigation Measures: None required.

Impact WQ-3: The Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off-site.

Construction of the Project site could result in soil disturbance and cause increased erosion and sedimentation or the release of other pollutants to local waterways, including existing IID drainage canals that course through the Project area. There is a potential for short-term hydrological impacts related to land disturbance during construction of the Project's facilities; however, no permanent structures or well pads are proposed for placement in natural waterways or drainage canals. Surface disturbances, such as vegetation removal and the construction of new impervious surfaces, may occur during the construction of the mineral extraction plant and access roads, power lines, brine supply/return pipelines, and other Project features, thereby resulting in increased potential for erosion and sedimentation.

Although construction of these Project elements could alter surface hydrology, it is unlikely that the existing drainage pattern of the site or area would be substantially altered. There are no stream or river courses that would be altered in a manner which would result in substantial erosion or siltation on or off site. Therefore, erosion or siltation impacts on or off-site would be less than significant.

Furthermore, the implementation of the Project SWPPP required as a matter of law and as mitigation measure MM WQ 1.1 would further minimize erosion and siltation on site and would prevent the movement of sediment off site. In addition, the SmCP-2 Project would install a storm water retention basin as a design feature to reduce the potential for impacts to surface water drainage (SmCP-2 EPM WQ-3).

Mitigation Measures: None required.

Impact WQ-4: The SmCP-2 Project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site.

As described above under Impact WQ-3, the proposed SmCP-2 Project would not substantially alter the existing drainage pattern of the site or alter the course of a stream or river. The proposed stormwater drainage system would be sized to accommodate 3 inches of precipitation in a 24-hour period (a 100-year storm event). In addition, the proposed retention basin would be surrounded by a berm to prevent overflow. All stormwater generated during the 3-inch storm event would be contained on-site (SmCP-2 EPM WQ-4).

In order to avoid stormwater runoff, the project will be required to prepare and implement a SWPPP (MM WQ-1.1) during construction, along with best management practices to ensure that ground and surface waters would not be degraded and that water quality impacts resulting from construction activities are reduced to below a level of significance. BMPs included in the SWPPP must be consistent with the California Stormwater Best Management Practices Handbook for Construction. After construction is complete, stormwater would be directed to the stormwater retention basin. A berm would be constructed around the basin to prevent overflow.

The SmCP-2 Project has also incorporated into its design, specific EPMs to avoid and minimize the creation of polluted run-off. These include providing extra protection and monitoring of brine delivery/return pipelines and conducting routine inspections of pipelines (SmCP-2 EPM HAZ-5); providing secondary containment

where accidental releases of hazardous materials could occur, draining containment areas to appropriate collection areas or neutralization tanks for recycling or offsite disposal, and installing traffic barriers to protect piping and tanks from potential traffic hazards (SmCP-2 HAZ-6).

Thus, the proposed HR-2 Project would not contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. No significant impact has been identified.

Mitigation Measures: None required

Impact WQ-5: The SmCP-2 Project would not create or contribute to runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

As stated in Impact WQ-3 above, surface disturbance would occur during construction of the SmCP-2 Project, and new impervious surfaces would be created. Urban/industrial pollutants could also be introduced to an area that in the recent past supported agriculture. Urban runoff typically consists of oils, grease, fuel, antifreeze, byproducts of combustion, and landscaping-related products. Precipitation could transmit these pollutants via stormwater runoff.

Because construction of the Project plant site would introduce impervious surfaces and structures, there is the potential for increased runoff. This impact is considered potentially significant.

To control run-off after construction is complete, the Project site would be graded to direct surface water run-off into the proposed storm water retention basin, which would be shared by both Projects (SmCP-2 EPM WQ-4). In addition, the HR-2 Project has incorporated into its design, specific EPMs to avoid and minimize the creation of polluted run-off. These include providing extra protection and monitoring of brine delivery/return pipelines and conducting routine inspections of pipelines (SmCP-2 EPM HAZ-5); providing secondary containment where accidental releases of hazardous materials could occur, draining containment areas to appropriate collection areas or neutralization tanks for recycling or offsite disposal, and installing traffic barriers to protect piping and tanks from potential traffic hazards (SmCP-2 HAZ-6). Operation impacts would be less than significant.

With the implementation of a project SWPPP (MM WQ 1.1), along with the EPMs described above, the Project would not create or contribute runoff water that would

exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff during construction.

MM WQ 1.1: Implementation of a SWPPP

See above discussion of MM WQ 1.1 for Impact WQ-1. Timing/Implementation: Prior to issuance of grading permits.

Enforcement/Monitoring: CRB RWQCB.

Significance after Mitigation: With implementation with the implementation of the SWPPP and design BMPs as described in the CUP application and mitigation measure MM WQ 1.1 impacts to stormwater drainage systems would be less than significant

Impact WQ-6: The Project would not otherwise substantially degrade water quality.

The Salton Sea, to which surface water runoff from the site would drain, has been designated an impaired water under CWA Section 303(d) due to discharges of primarily agricultural wastes from non-point source runoff. The SmCP-2 Project would install a storm water retention basin as a design feature to further reduce the potential for impacts to surface water drainage. Although the Project would reduce infiltration into the regional aquifer by eliminating the agricultural discharge by changing the land use type, this is not expected to significantly affect groundwater quality, particularly in an aquifer system already known to have high TDS and total suspended solids (TSS). Therefore, the Project is not expected to otherwise substantially degrade water quality and the impact would be less than significant.

The Project SWPPP, that would be required as a matter of law and is also identified as MM WQ 1.1, would be prepared and implemented to further avoid and minimize run-off- during construction. In addition, the Project site would be graded to direct surface run-off to a stormwater retention basin (SmCP-2 EMP WQ-4) to reduce the potential for impacts to surface water drainage during operations. The potential for the Project to substantially further degrade the water quality in the Salton Sea through an increase in non-point source pollutants is negligible, as the untreated runoff from the existing agricultural land use would be changed to regulated and treated industrial water. Therefore, there would be no impact under this criterion.

Mitigation Measures: None required.

Impact WQ-7: The SmCP-2 Project would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary Map, Flood Insurance Rate Map, or other flood hazard delineation map.

The SMCP-2 Project site is located outside the 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. Furthermore, the SmCP-2 Project would not construct any housing as part of the project. Therefore, there would be no impact to 100-year flood hazard areas.

The SmCP-2 Project site is not located within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. Furthermore, the SmCP-2 Project does not include the construction of housing units. Therefore, there would be no impact under this criterion.

Mitigation Measures: None required.

Impact WQ-8: The Project would not place structures within a 100-year flood hazard area that would impede or redirect flood flows.

The SmCP-2 Project site is not located within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. It would not place structures within a 100-year flood hazard area such that flood flows would be impeded or redirected. Therefore, there would be no impact under this criterion.

Mitigation Measures: None required.

Impact WQ-9: The Project would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

The SmCP--2 Project is not located within a within a FEMA-designated 100 year flood zone, and there are no upstream levees or dams which could fail and discharge floodwaters over the Project site. Therefore, the Project would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. Therefore, there would be no impact to health or safety as a result of increased flood hazard

Mitigation Measures: None required.

Impact WQ-10: The SmCP-2 Project would not expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow

The Salton Sea is the closest large body of water, is about 1.5 miles northeast of the project area and the SmCP-2 Project site and the surrounding area consists of relatively flat ground and there are no dams or levees near the Project site. The project site is not subject to inundation by seiche, tsunami, or mudflow. For this reason, construction and operation of the project would result in risk of exposure of people and structures to a seiche, tsunami, or mudflow. Therefore, there would be no impact under this criterion.

Mitigation Measures: None required.

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