# SECTION 4.11

# HYDROLOGY AND WATER QUALITY

# 4.11 HYDROLOGY AND WATER QUALITY

This section describes federal, state and local regulations applicable to hydrology and water quality. It also describes the regional hydrologic setting, existing hydrology/drainage (on-site and off-site), and existing flood hazards in the vicinity of the solar field site parcels. Water quality is also described in terms of groundwater beneath the solar field site parcels and surface waters in the region and the Imperial Valley.

This section also describes effects on hydrology and water quality that would be caused by implementation of the proposed Project based on the *Drew Solar Conceptual Drainage Study and Storm Water Quality Analysis*, prepared by Fuscoe Engineering, Inc. (Fuscoe 2018a). This document is provided on the attached CD of Technical Appendices as **Appendix J** of this EIR.

## 4.11.1 REGULATORY FRAMEWORK

### A. FEDERAL

#### Federal Emergency Management Agency

Imperial County is a participant in the National Flood Insurance Program (NFIP), a federal program administered by the Federal Emergency Management Agency (FEMA). Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 has adopted, as a desired level of protection, an expectation that developments should be protected from floodwater damage of the Intermediate Regional Flood (IRF). The IRF is defined as a flood that has an average frequency of occurrence on the order of one in 100 years, although such a flood may occur in any given year. Imperial County is occasionally audited by the Department of Water Resources (DWR) to ensure the proper implementation of FEMA floodplain management regulations.

### B. STATE

#### The Porter-Cologne Water Quality Control Act

In the State of California, the State Water Resources Control Board (SWRCB) and local Regional Water Quality Control Boards (RWQCBs) have assumed the responsibility of implementing the US EPA's NPDES Program and other programs under the CWA such as the Impaired Waters Program and the Antidegradation Policy. The primary water quality control law in California is the Porter-Cologne Water Quality Act (Water Code Sections 13000 et seq.). Under Porter-Cologne, the SWRCB issues joint federal NPDES Storm Water permits and state Waste Discharge Requirements (WDRs) to operators of municipal separate storm sewer systems (MS4s), industrial facilities, and construction sites to obtain coverage for the storm water discharges from these operations.

#### State Water Resources Control Board

In the State of California, the State Water Resources Control Board (SWRCB) and the local Regional Water Quality Control Boards (RWQCBs) have assumed the responsibility of implementing the US EPA's NPDES Program and other programs under the CWA such as the Impaired Waters Program and the Antidegradation Policy. The primary water quality control law in California is the Porter-Cologne Water

Quality Act (Water Code Sections 13000 et seq.). Under Porter-Cologne, the SWRCB issues joint federal NPDES Storm Water permits and state Waste Discharge Requirements (WDRs) to operators of municipal separate storm sewer systems (MS4s), industrial facilities, and construction sites to obtain coverage for the storm water discharges from these operations.

##### *Basin Plan Requirement*

In addition to its permitting programs, the SWRCB, through its nine RWQCBs, developed Regional Water Quality Control Plans (or Basin Plans) that designate beneficial uses and water quality objectives for California's surface waters and groundwater basins, as mandated by both the CWA and the state's

Porter-Cologne Water Quality Control Act. Water quality standards are thus established in these Basin Plans and provide the foundation for the regulatory programs implemented by the state. The Colorado River Basin RWQCB Basin Plan, which covers the Project Area, designates beneficial uses for surface waters and ground waters.

### *Construction General Permit*

The Construction General Permit (CGP), (Order 2009-0009-DWQ as modified by Order 2010-0014-DWQ, NPDES Permit No. CAS000002), issued by the SWRCB, regulates storm water and non-storm water discharges associated with construction activities disturbing one acre or greater of soil. Construction sites that qualify must submit a Notice of Intent (NOI) with the SWRCB to gain permit coverage or otherwise be in violation of the CWA and California Water Code.

The CGP requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) for each individual construction project greater than or equal to 1 acre of disturbed soil area. The SWPPP must list Best Management Practices (BMPs) that the discharger will use to control sediment and other pollutants in storm water and non-storm water runoff. The CGP requires that the SWPPP is prepared by a Qualified SWPPP Developer (QSD) and implemented at the site under the review/direction of a Qualified SWPPP Practitioner (QSP).

The Project includes over one acre of grading within the County of Imperial, and is therefore subject to the storm water discharge requirements of the CGP. The Project will submit a NOI and prepare a SWPPP prior to the commencement of soil disturbing activities. In the Colorado River Basin Region, where the project resides, the SWRCB is the permitting authority, while the County of Imperial and Colorado River Basin RWQCB provide local oversight and enforcement of the CGP.

### *Phase II MS4 Permit*

The State Water Resources Control Board (State Water Board) adopted the General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems under Order No. 2013-0001-DWQ (Statewide Small MS4 Permit) on February 5, 2013. The Statewide Small MS4 Permit, regulates storm water discharges from municipal areas serving populations less than 100,000 that are either located within a census-defined ("urbanized area") or designated as subject to the permit requirements. The State Small MS4 Permit was recently amended in December 2017 to include the adopted Trash Policy Implementation plan and Total Maximum Daily Load (TMDL) requirements." (SWRCB 2018).

### *Industrial Storm Water Permit*

In 2014, the State Water Resources Control Board adopted a new Industrial General Permit (Water Quality Order No. 2014-0057-DWQ). This NPDES permit was issued by the State of California to all qualifying industrial facilities based upon land use and Standard Industrial Code (SIC). Within the County of Imperial, the IGP is administered by the Colorado River Basin Regional Water Quality Control Board. Per Attachment A of Order 2014-0057-DWQ, facilities covered by the IGP include any facility that generates steam for electric power through the combustion of coal, oil, wood, etc. The Project is a solar energy facility utilizing traditional photovoltaic (PV) panels for the generation of electricity, and includes both storage of on-site generation and grid energy storage. The Project does not involve the generation of steam for electric power and does not match the description of any other facility given in Attachment A of Order 2014-0057-DWQ. As such the Project will not be required to enroll in the IGP (Fuscoe 2018a).

### *Water Quality Control Plan Colorado River – Region 7*

The Water Quality Control Plan - Colorado River Basin Plan (Basin Plan) was prepared by the RWQCB-7, and establishes beneficial uses in the Colorado River Basin. The Basin Plan also identifies water quality objectives that protect the beneficial uses of surface water and groundwater; describes an

implementation plan for water quality management in the Colorado River Region; and describes measures designed to ensure compliance with statewide plans and policies. Overall, the Basin Plan provides comprehensive water quality planning in Region 7 which encompasses all of Imperial County as well as portions of San Bernardino, Riverside and San Diego Counties (RWQCB-7 2006).

### *Clean Water Act (CWA) Section 303(d)*

Section 303(d) of the CWA deals with Water Quality Standards and Implementation Plans. Specifically, section (d) addresses the stringency of effluent limitations for state waters and whether the limitations are stringent enough to implement any water quality standard applicable to such waters. Section 303(d) requires each state to establish a priority ranking for such waters taking into account the severity of the pollution and the uses to be made of such waters. In addition, Section 303(d) requires each state to identify those waters or parts thereof within its boundaries for which controls on thermal discharges under Section 301 are not stringent enough to assure protection and propagation of a balanced indigenous population of shellfish, fish and wildlife. For the specific purpose of developing information, each state shall identify the total maximum daily load with seasonal variations and margins of safety for those pollutants which the Administrator identifies under section 204(a)(2) as suitable for such calculation and for thermal discharges at a level that would assure protection and propagation of a balanced indigenous population of fish, shellfish and wildlife. Section 303(d) also identifies Limitations on Revision of Certain Effluent Limitations and addresses instances where the standard is Not Attained as well as instances where the Standard is attained.

### *Clean Water Act (CWA) Section 401*

Section 401 of the CWA, water quality certification, provides states and authorized tribes with an effective tool to help protect water quality, by providing an opportunity to address the aquatic resource impacts of federally issued permits and licenses. Under Section 401, a federal agency cannot issue a permit or license for an activity that may result in a discharge to waters of the U.S. until the state or tribe where the discharge would originate has granted or waived section 401 certification. The central feature of CWA section 401 is the state or tribe's ability to grant, grant with conditions, deny or waive certification. Granting certification, with or without conditions, allows the federal permit or license to be issued consistent with any conditions of the certification. Denying certification prohibits the federal permit or license from being issued. Waiver allows the permit or license to be issued without state or tribal comment. States and tribes make their decisions to deny, certify, or condition permits or licenses based in part on a proposed Project's compliance with EPA-approved water quality standards. In addition, states and tribes consider whether the activity leading to the discharge will comply with any applicable effluent limitations guidelines, new source performance standards, toxic pollutant restrictions, and other appropriate requirements of state or tribal law.

### *Clean Water Act (CWA) Section 404*

CWA Section 404 establishes a program to regulate the discharge of dredged and fill material into waters of the United States (WUS), including wetlands. Responsibility for administering and enforcing Section 404 is shared by the U.S. Army Corps of Engineers (USACE) and EPA. USACE administers the day-to-day program, including individual permit decisions and jurisdictional determinations; develops policy and guidance; and enforces Section 404 provisions. EPA develops and interprets the environmental criteria used in evaluating permit applications, identifies activities that are exempt from permitting, review/comments on individual permit applications, enforces Section 404 provisions, and has authority to veto USACE permit decisions. With EPA approval and oversight, states and tribes can assume administration of the Section 404 permit program in certain "non-navigable" waters within their jurisdiction.

### California Toxic Rule

Under the California Toxic Rule (CTR), the USEPA has proposed water quality criteria to priority toxic pollutants for inland surface waters, enclosed bays, and estuaries. These federally promulgated criteria create water quality standards for California waters. The CTR satisfies CWA requirements and protects public health and the environment. The USEPA and the SWRCB have the authority to enforce these standard, which are incorporated into the NPDES permits that regulate the current discharges in the study areas.

## C. LOCAL

### Imperial County General Plan

The Imperial County General Plan contains goals, objectives, policies and programs created to ensure water resources are preserved and protected. **Table 4.11-1** identifies applicable General Plan goals, objectives, policies and programs from the Conservation and Open Space Element for water quality and flood hazards that are relevant to the Project. In addition, one policy and two programs from the Water Element that directly relate to the Project are also analyzed. While this EIR analyzes the Project's consistency with the General Plan pursuant to CEQA Guidelines Section 15125(d), the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

**TABLE 4.11-1**
**IMPERIAL COUNTY GENERAL PLAN CONSISTENCY ANALYSIS**

| General Plan Goals and Objectives | Consistent with General Plan? | Analysis |
|---|---|---|
| **CONSERVATION AND OPEN SPACE ELEMENT** | | |
| **Preservation of Water Resources** | | |
| **Goal 6** The County will conserve, protect, and enhance water resources in the County. | Yes | The proposed Project would protect water quality during construction through compliance with Imperial County design and detention requirements and the NPDES GCP, as well as preparation and implementation of Project-specific SWPPP(s), which will incorporate the requirements referenced in the State Regulatory Framework, design features, and BMPs. Therefore, the proposed Project would be consistent with this goal for both the Full Build-out Scenario and the Phased CUP Scenario. |

**TABLE 4.11-1**
**IMPERIAL COUNTY GENERAL PLAN CONSISTENCY ANALYSIS**

| General Plan Goals and Objectives | Consistent with General Plan? | Analysis |
|---|---|---|
| **Objective 6.2** Ensure proper drainage and provide accommodation for storm runoff from urban and other developed areas in manners compatible with requirements to provide necessary agricultural drainage. | Yes | To ensure proper drainage and accommodate storm water runoff, the proposed Project would rely on existing drainage patterns coupled with proposed detention basins and shallow ponding basins. The *Conceptual Drainage Study and Storm Water Quality Analysis* (Fuscoe 2018a) confirmed the adequacy of drainage for the proposed Project. Proposed detention basins and shallow ponding basins would be designed to meet County of Imperial Requirements. Final limits of the detention basins and shallow ponding would be determined during final design, subject to review and approval by the County. Therefore, the proposed Project would be consistent with this objective for both the Full Build-out Scenario and the Phased CUP Scenario**.** |

**TABLE 4.11-1**
**IMPERIAL COUNTY GENERAL PLAN CONSISTENCY ANALYSIS**

| General Plan Goals and Objectives | Consistent with General Plan? | Analysis |
|---|---|---|
| **Objective 6.3** Protect and improve water quality and quantity for all water bodies in Imperial County. | Yes | The proposed Project would protect water quality during construction through compliance with the NPDES GCP, SWPPP, and BMPs. Design features and BMPs have also been identified to address water quality for the Project as described below in Section 4.11.3, Impacts and Mitigation Measures. For example, each CUP Area owner would be required to file a NOI to comply with the NPDES GCP during construction. Water quantity would be maintained for the proposed Project by retaining the majority of the Solar Field Site Parcels with pervious surfaces. Temporary conversion of the Solar Field Site Parcels from agricultural uses to a solar energy generation and storage facility may also improve runoff quality by eliminating use of fertilizers and pesticides. Even if the proposed Project does not improve water quality and quantity as anticipated, it will protect existing conditions and satisfy County requirements. Therefore, the proposed Project would be consistent with this objective for both the Full Build-out Scenario and the Phased CUP Scenario. |

**TABLE 4.11-1**
**IMPERIAL COUNTY GENERAL PLAN CONSISTENCY ANALYSIS**

| General Plan Goals and Objectives | Consistent with General Plan? | Analysis |
|---|---|---|
| **WATER ELEMENT** | | |
| **Protection of Water Resources from Hazardous Materials** | | |
| **Policy:** Adoption and implementation of ordinances, policies, and guidelines which assure the safety of County ground and surface waters from toxic or hazardous materials and/or wastes. | Yes | The Project would preserve ground and surface water quality from hazardous materials and wastes during construction, operation and decommissioning activities. The proposed Project would protect water quality during construction through compliance with NPDES GCP, SWPPP, which will incorporate the requirements referenced in the State Regulatory Framework and BMPs. Applicant proposed Measures/Project Design Features have also been identified to address water quality during Project operations (refer to Table 2.0-6 in Chapter 2.0, Project Description). It is anticipated that Project decommissioning activities would be subject to similar or more stringent ground and surface water regulations in place at the end of each CUP AREA. Therefore, the proposed Project would comply with this policy for both the Full Build-out Scenario and the Phased CUP Scenario**.** |

**TABLE 4.11-1**
**IMPERIAL COUNTY GENERAL PLAN CONSISTENCY ANALYSIS**

| General Plan Goals and Objectives | Consistent with General Plan? | Analysis |
|---|---|---|
| **Program:** The County of Imperial shall make every reasonable effort to limit or preclude the contamination or degradation of all groundwater and surface water resources in the County. | Yes | A Conceptual Drainage Study and Stormwater Quality Analysis report has been prepared for the proposed Project (Fuscoe 2018a). As noted under the analysis Objective 8.5 of the Conservation and Open Space Element (above), the Project includes Applicant proposed Measures/Project Design Features in addition to required compliance with a general NPDES permit and SWPPP during construction and with BMPs during operation. Compliance with these features would ensure Project-related application of herbicides and dust-suppressants would not be allowed to degrade ground and surface waters in the County. Finally, it is anticipated that Project decommissioning activities would be subject to similar or more stringent ground and surface water regulations in place at the end of each CUP's operational lifetime, whichever is later. Therefore, the proposed Project would not significantly contaminate ground or surface waters. Temporary conversion of the Solar Field Site Parcels from agricultural uses to a solar generation facility may improve runoff quality by eliminating use of fertilizers and pesticides. Therefore, the proposed Project would be consistent with this program for both the Full Build-out Scenario and the Phased CUP Scenario**.** |
| **Program:** All development proposals brought before the County of Imperial shall be reviewed for potential adverse effects on water quality and quantity, and shall be required to implement appropriate mitigation measures for any significant impacts. | Yes | No adverse effects on water quality are anticipated in association with implementation of the proposed Project. The Project would comply with applicable County, Imperial County Air Pollution Control District (ICAPCD), Imperial Irrigation District (IID) and SWRCB requirements regarding water quality and quantity. The Project would also implement Applicant proposed Measures/Project Design Features (refer to Table 2.0-6 in Chapter 2.0, Project Description) to ensure compliance with applicable regulations. Therefore, the proposed Project would be consistent with this program. Refer also to the analysis for Conservation and Open Space Element Objective 6.3 for both the Full Build-out Scenario and the Phased CUP Scenario**.** |

### County of Imperial Land Use Ordinance, Title 9

Division 16 of Title 9 of the Land Use Ordinance addresses Flood Damage Prevention Regulation. The purpose of this division is to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provision of design to protect human life and minimize damage. Division 16 of Title 9 of the Land Use Ordinance requires an application for development in the floodplain to be submitted to the County's Floodplain Administrator. This division restricts floodplain uses; requires that floodplain uses be protected against flood damage; controls alteration of floodplains and stream channels; controls filling and grading in floodplains; and prevents diversion of flood flows where these would increase flood hazards in other areas.

Division 22 of Title 9 of the Land Use Ordinance addresses groundwater. The focus of this division is to preserve, protect and manage the groundwater within the County.

### County of Imperial Engineering Design Guidelines Manual for the Preparation and Checking of Street Improvements, Drainage and Grading Plans within Imperial County

The *County of Imperial Engineering Design Guidelines Manual for the Preparation and Checking of Street Improvements, Drainage and Grading Plans within Imperial County* (Imperial County 2008) provides drainage design standards for development throughout the County. Specific standards

applicable to the Project include:

- Detention volume of three inches of rainfall with no assumed infiltration or evaporation for development of impervious areas. Detention basins are to empty within 72 hours after receiving water.
- Finished pad elevations for buildings shall be at or above the 100-year flood elevation. Finished floors shall be six inches above the 100-year flood.
- Drainage report required for all developments.

### Imperial Irrigation District

IID's Water Department has been serving the Imperial Valley's water needs for over 100 years. The district provides raw Colorado River water for irrigation and also for non-potable residential and industrial use. The IID Water Department is responsible for the timely operation and maintenance of the extensive open channel system, and effectively delivers its annual entitlement of 3.1 million acre-feet, less water transfer obligations, to nearly one-half million acres for agricultural, municipal and industrial use. Of the water IID transports, approximately 97 percent is used for agricultural purposes, making possible Imperial County's ranking as one of the top 10 agricultural regions nationwide. The remaining three percent of its water deliveries supply seven municipalities, one private water company and two community water systems as well as a variety of industrial uses and rural homes or businesses. As on-farm conservation efficiency measures are implemented, this ratio will change (IID 2018).

Water diverted at Imperial Dam for use in the Imperial Valley first passes through one of three de-silting basins, used to remove silt and clarify the water. From the de-silting basins, water is then delivered to the Imperial Valley through the 80-mile long All-American Canal. To facilitate water delivery, IID operates 1,668 miles of canals and laterals. IID also maintains approximately 1,456 miles of drainage ditches used to collect surface runoff and subsurface drainage from the tile drains underlying Imperial Valley farmland. Most of these drainage ditches ultimately discharge water into either the Alamo River or the New River (IID 2018).

## 4.11.2 ENVIRONMENTAL SETTING

Information contained in this section is summarized from the *Drew Solar Conceptual Drainage Study and Storm Water Quality Analysis* (Fuscoe 2018a).

### A. HYDROLOGIC UNIT

**Hydrologic Unit Contribution**

The project is located in the Brawley Hydrologic Area, in the Imperial Hydrologic Unit. The corresponding number designation is 723.10.

The Imperial Hydrologic Unit consists of the majority of the Imperial Valley, encompassing over 1.3 million acres of land. The watershed includes vast acreages of agricultural land; towns such as El Centro, Calexico, and Brawley, along with a large network of IID operated Canals and Drains. The watershed is atypical of most watersheds in California, as it currently and historically has been shaped by man-made forces. The watershed's primary watercourses, the New and Alamo rivers, flow north, from the Mexican border toward their final destination, the Salton Sea. The Salton Sea, a 376 square mile closed inland lake was created in 1905 through a routing mistake and subsequent flood on the Colorado River. The Sea has been fed primarily by agricultural runoff from the New and Alamo Rivers ever since.

CWA Section 303(d) listed water quality impairments and TMDLs are present for the receiving waters of the project, and are discussed shown in **Table 4.11-2** and **Table 4.11-3**, below.

### B. WATER QUALITY

**Beneficial Uses**

According to Table 2-3 of the *Water Quality Control Plan for the Colorado River Basin Region* (Basin Plan), the beneficial uses for the project's receiving waters are:

***Imperial Valley Drains***

FRSH - Freshwater Replenishment REC I – Water Contact Recreation (unauthorized, infrequent fishing activity)

REC II - Non-Contact Water Recreation (unauthorized)

WARM - Warm Freshwater Habitat

WILD - Wildlife Habitat RARE – Preservation of Rare, Threatened or Endangered Species (only exists in some of the waterways)

The above beneficial uses for the Imperial Valley Drain system are broadly based considering the fact that many of the Drains are maintained and operated as open channel conveyance systems.

***New River***

FRSH – Freshwater Replenishment IND- Industrial Service Supply (potential)

REC I – Water Contact Recreation (hazardous due to contamination)

REC II – Non-Contact Water Recreation

WARM – Warm Freshwater Habitat

WILD – Wildlife Habitat RARE – Preservation of Rare, Threatened or Endangered Species

***Salton Sea***

AQUA - Aquaculture IND- Industrial Service Supply (potential)

REC I – Water Contact Recreation

REC II – Non-Contact Water Recreation

WARM – Warm Freshwater Habitat

WILD – Wildlife Habitat RARE – Preservation of Rare, Threatened or Endangered Species

**Section 303(d) Status**

According to the California 2006 303d list published by the State Water Resources Control Board (SWRCB), the Project's receiving waters have beneficial use impairments as follows:

**TABLE 4.11-2**
**303(D) IMPAIRMENTS**

| Receiving Water | Hydrologic Unit Code | 303(d) Impairment(s) | Distance from Project (miles) |
|---|---|---|---|
| Imperial Valley Drains (Mt. Signal Drain, Greeson Drain) | 723.10 | DDT<br>Dieldrin<br>Endosulfan<br>PCBs<br>Selenium<br>Toxaphene | <0.1 miles |
| New River | 728.00 | Chlordane<br>Chloroform<br>Chlorpyrifos<br>Copper<br>DDT<br>Diazinon<br>Dieldrin<br>Mercury<br>Nutrients<br>Organic/Low DO<br>PCBs<br>Xylene<br>Pesticides<br>Toluene<br>Selenium<br>Toxaphene<br>Toxicity<br>Trash<br>Cymene<br>Dichlorobenzene | 5 miles |
| Salton Sea | 728.00 | Nutrients<br>Salinity<br>Selenium | 28 miles |

*Source: Fuscoe 2018a.*

**TMDL Status**

TMDLs established for receiving waters of the project are summarized in **Table 4.11-3** and **Table 4.11-4** below.

**TABLE 4.11-3**
**TMDLS**

| Receiving Water | Hydrologic Unit Code | 303(d) Impairment(s) | Distance from Project (miles) |
|---|---|---|---|
| Imperial Valley Drains | 723.10 | Sediment/Siltation | <0.1 mile |
| New River | 728.00 | Pathogens<br>Sediment/Siltation<br>Trash | <0.1 mile |

*Source: Fuscoe 2018a.*

The Imperial Valley Drains' 2005 Sediment/Siltation TMDL sets numeric targets on the Imperial Valley Drains for Total Suspended Solids (TSS). The target is 200 mg/L which would achieve a low to moderate level of protection. According to the 2005 TMDL implementation plan, an overall 63% reduction from the current TSS level is required to meet the minimum targets set forth by the TMDL.

High sedimentation in the Imperial Valley Drains has led to increased mobilization of agricultural pesticides and a highly turbid environment for sensitive aquatic species. The main source of sediment to the New River is agricultural runoff from the Imperial Valley (Fuscoe 2018a).

The New River's 2002 Pathogens TMDL sets numeric targets on the New River with 30 day mean, and instantaneous maximum limits for Fecal Coliforms, E. Coli, and Enterococci. Those limits are shown in **Table 4.11-4**, below.

**TABLE 4.11-4**
**TMDL LIMITS**

| | Fecal Coliform | E. Coli | Enterococci |
|---|---|---|---|
| 30-day Geometric Mean | 200 | 126 | 33 |
| Instantaneous Maximum | <10% Over 400 | 400 | 100 |

*Source: Fuscoe 2018a.*

The New River's main sources of pathogens (indicated by fecal coliforms and E. coli bacteria) are discharges of municipal wastes from the Mexicali Valley in Mexico and non-disinfected but treated wastewater from five domestic Imperial Valley wastewater treatment plants. Natural sources of pathogens play a relatively insignificant role. The significance of contributions from confined animal feeding operations and other nonpoint sources of pollution in the Imperial Valley are not fully known at this time (Fuscoe 2018a).

The New River's 2002 Sediment/Siltation TMDL sets numeric targets on the New River for Total Suspended Solids (TSS). The target is 200 mg/L which would achieve a low to moderate level of protection. According to the 2002 TMDL implementation plan, an overall 17 percent reduction from the current TSS level is required to meet the minimum targets set forth by the TMDL.

High sedimentation in the New River has led to increased mobilization of agricultural pesticides and a highly turbid environment for sensitive aquatic species. The main source of sediment to the New River is agricultural runoff from the Imperial Valley and Mexico.

The New River's 2007 Trash TMDL sets numeric targets on the New River for trash in the form of reduction percentages. These targets are a 75 percent reduction in trash within two years of USEPA approval of the TMDL, and a 100% reduction within three years of USEPA approval of the TMDL. This TMDL focuses on the reach of the New River immediately downstream of the international boundary, since this portion of the River is most impacted by trash, which primarily originates south of the international border (Fuscoe 2018a).

### Groundwater Quality

Geographically, the Project site is located within the Imperial Groundwater Basin (Fuscoe 2018a, p. 18). The Imperial Valley Groundwater basin is bounded on the east by the Sand Hills and on the west by the impermeable rocks of the Fish Creek and Coyote Mountains. To the north, the basin is bounded by the Salton Sea, which is the discharge point for groundwater in the basin. Major hydrologic features include the Alamo and New Rivers, which flow north towards the Salton Sea. Per Table 2-5 of the Basin Plan, beneficial uses of groundwater within the Imperial Hydrologic Unit include: MUN – Municipal and Domestic Supply; IND – Industrial Service Supply. The MUN beneficial use for groundwater within the Imperial Hydrologic Unit is limited only to a small portion of the ground water unit. Within the project area, groundwater is not used for municipal uses. Rather, all municipal and domestic water supply is obtained from the IID Canals.

Per Table 2-1 of the Basin Plan, IND is defined as a use of water for industrial activities that do not depend on water quality. Therefore, impacts from the Project on leading to a loss in beneficial uses of groundwater are not anticipated (Fuscoe 2018a).

## C. PROJECT SITE

### FEMA Zone

The Project is located within FEMA flood hazard Zone X. No portions of the Project Area are subject to inundation by the 100-year storm event (Fuscoe 2018a).

### Hydrologic Setting

The perimeter of the Project site is surrounded by State Route 98, public roads, IID Canals, and IID Drains. Based upon review of topography and perimeter conditions, it is determined that the only offsite flow that enters the project originates from adjacent paved and unpaved roads; flow from adjacent agricultural fields does not enter the Project. As such, this study includes consideration of runoff from adjacent paved and unpaved roads, but runoff from adjacent fields entering the Project site limits need not be considered (Fuscoe 2018a).

Under existing conditions, two types of flow, agricultural and storm water are discharged to the IID Drains through a combination of surface runoff collection and subsurface tail water drain lines and perforated tile drain lines and sump pumps. During the life of the proposed Project, agricultural runoff from the Project site limits to the drains will cease and the drains will only receive storm water runoff (Fuscoe 2018a).

The Project site is underlain by a network of perforated tile drains (typically clay pipes). This network of tile drains was installed by prior landowners (farmers) to collect runoff that percolates into the soil. Tile drains will only be removed from the site if they are in conflict with proposed septic leach field systems or structures including but not limited to substations, Operation and Maintenance Buildings, gen-tie lines/transmission poles, and collection systems.

IID facilities that accept flow from the Project site include the Mt. Signal Drain, Mt. Signal Drain #1, Mt. Signal Drain #1A, Mt. Signal Drain #1B, Carr Drain and Brockman Drain #1. Mt. Signal Drain #1A, and Mt. Signal Drain #1B discharge into Mt. Signal Drain #1. Mt. Signal Drain #1, Carr Drain and Brockman Drain #1 all discharge into Mt. Signal Drain. Mt. Signal Drain discharges to the Greeson Drain approximately 0.9 miles north-east of the Project site (Fuscoe 2018a).

The IID drain system was not designed to convey runoff from large storm events. Rather, the primary purpose of the drains is to convey agricultural runoff. The Drains typically have the capacity to convey peak flow from the 5-year to 10-year storm event. Runoff from larger storm events (for example the 100-year event) is detained within low lying areas of agricultural fields until the peak of the storm has passed, after which the detained runoff is slowly discharged to the Drains via pipe connections from surface collection and/or tile drains that are typically 12 inches in diameter or less.

To mimic the existing condition and provide storage of storm water runoff, the County of Imperial requires that projects provide storage for three inches of runoff from Project sites. The County of Imperial further requires that storage areas provided with development be designed such that they are able to drain within 72 hours, either via infiltration or through discharge to IID Drains. If the 72-hour drawdown time cannot be satisfied due to low potential of soil infiltration or if a project developer chooses to not process for approval of discharge to the IID Drains, per County requirements, storage of five inches of runoff must be provided and a Mosquito Abatement Plan must be prepared for review and approval by the Environmental Health Department (Fuscoe 2018a).

In addition, should a project developer choose to process for approval of a discharge into the IID Drains, the IID does not allow pipe connections that are greater than 12 inches in diameter. The proposed Project will satisfy the requirements (three inches of runoff storage if designed to discharge into IID drains, or five inches of runoff storage if designed not to discharge into IID drains along with preparation of a Mosquito Abatement Plan) as they apply to final Project design (Fuscoe 2018a).

The Project site is divided into individual fields by existing canals, drains, public roads, and private roads that have multiple discharge points to the various IID drains. Based upon a review of the proposed Project phasing (refer to Figure 2.0-3, Project Description), the limits of each individual CUP Area encompass the entirety of individual fields and do not propose partial development of a field in any singular CUP Area. The phasing of the buildout of the CUP Areas can be performed in a manner that does not require diversion of runoff from one existing point of discharge to a different location. Should the Applicant choose to process for approval of discharge into the IID Drains, doing so will be consistent with existing drainage patterns, and phasing of the Project is feasible from a storm water runoff perspective (Fuscoe 2018a).

### Precipitation

A precipitation estimate for the 100-year storm is obtained through referencing data available on the NOAA website for Imperial Valley. Storm duration of 24-hours is assumed, and the corresponding precipitation estimate is 3.79 inches (Fuscoe 2018).

### Project Area

The Project site has been delineated into tributary drainage basins for the existing and proposed conditions (refer to **Appendix J**). Points of concentration in drainage basins are shown on this map. Ultimate points of discharge to the IID Drains for the existing and proposed conditions will be similar (Fuscoe 2018a).

The Project site is divided into ten watersheds that are tributary into five IID Drains. Drainage Area A tributary to the Mt. Signal Drain #1A, Drainage Areas B and D tributary to the Mt. Signal Drain #1, Drainage Areas C, E, F and H tributary to the Mt. Signal Drain, Drainage Area G tributary to the Brockman Drain #1, Drainage Areas I and J tributary to the Mt. Signal Drain #1B (Fuscoe 2018a).

Ultimately, all discharge from the Project site tributary to an IID Drain is discharged to the Greeson Drain (Full Build-out Scenario). Flow from the Greeson Drain is discharged to the New River approximately 4.2 miles north of the Project site. Under the proposed Phased CUP Scenario, the conveyance situation described above will remain (Fuscoe 2018a).

## A. EXISTING CONDITIONS

**Storm Water Runoff**

Volumes of storm water runoff for the existing condition are provided in **Table 4.11-5**. The volume reported as "County Storage" is the volume based on three inches and five inches of runoff. The volume reported as "100-year Runoff" is the estimated volume anticipated based on a "C" factor of 0.3 and 100-year 24-hour precipitation of 3.79 inches. Each of the drainage basins given in **Table 4.11-5** are discharged directly to an IID Drain (Fuscoe 2018a).

**TABLE 4.11-5**
**EXISTING CONDITIONS STORM WATER RUNOFF**

| Receiving Drain: Mt. Signal Drain #1A | | | | |
|---|---|---|---|---|
| Drainage Area Name | Area (acres) | County Storage (AF) | | 100-Year Runoff (AF) |
| | | 3 inches | 5 inches | |
| A | 72.1 | 18.0 | 30.0 | 6.8 |
| TOTAL | 72.1 | 18.0 | 30.0 | 6.8 |
| **Receiving Drain: Mt. Signal Drain #1B** | | | | |
| Drainage Area Name | Area (acres) | County Storage (AF) | | 100-Year Runoff (AF) |
| | | 3 inches | 5 inches | |
| I | 83.0 | 20.8 | 34.6 | 7.9 |
| J | 79.2 | 19.8 | 33.0 | 7.5 |
| TOTAL | 162.2 | 40.6 | 37.6 | 15.4 |
| **Receiving Drain: Mt. Signal Drain #1** | | | | |
| Drainage Area Name | Area (acres) | County Storage (AF) | | 100-Year Runoff (AF) |
| | | 3 inches | 5 inches | |
| B | 75.5 | 18.9 | 31.4 | 7.2 |
| D | 82.4 | 20.6 | 34.3 | 7.8 |
| TOTAL | 157.9 | 39.5 | 65.7 | 15.0 |
| **Receiving Drain: Brockman Drain #1** | | | | |
| Drainage Area Name | Area (acres) | County Storage (AF) | | 100-Year Runoff (AF) |
| | | 3 inches | 5 inches | |
| G | 85.9 | 21.5 | 35.8 | 8.1 |
| TOTAL | 85.9 | 21.5 | 35.8 | 8.1 |
| **Receiving Drain: Mt. Signal Drain** | | | | |
| Drainage Area Name | Area (acres) | County Storage (AF) | | 100-Year Runoff (AF) |
| | | 3 inches | 5 inches | |
| C | 83.8 | 21.0 | 34.9 | 7.9 |
| E | 89.5 | 22.4 | 37.3 | 8.5 |
| F | 84.9 | 21.2 | 35.4 | 8.0 |
| H | 79.7 | 19.9 | 33.2 | 7.6 |
| TOTAL | 337.9 | 84.5 | 140.8 | 32.0 |

*Source: Fuscoe 2018; AF = acre-foot*

### Agricultural Runoff

In the existing condition, runoff from agricultural activities is discharged to the IID Drain system. The IID meters agricultural runoff to their Drain system. Metered values of agricultural runoff are not available, so an average annual volume of agricultural runoff from the Project site limits was not provided in the Conceptual Drainage Study and Storm Water Quality Analysis prepared for the proposed Project (Fuscoe 2018a).

However, in general, the average annual amount of water applied to fields and subsequently discharged to the Drain system from agricultural runoff is greater than that which is discharged from storm water runoff. For example, the average annual rainfall in Imperial Valley is approximately 2.9 inches (0.24 acre-feet per acre per year) and by contrast, alfalfa, the dominant crop grown in Imperial Valley, requires at least six acre-feet of irrigation water per acre per year under the surface/flood irrigation practices typically used at the site. The use of such flood irrigation practices results in annual agricultural runoff to the IID Drains that far exceeds the annual storm water runoff to the IID Drains (Fuscoe 2018a).

### Groundwater Quality

Geographically, the Project site is located within the Imperial Groundwater Basin. The Imperial Valley Groundwater basin is bounded on the east by the Sand Hills and on the west by the impermeable rocks of the Fish Creek and Coyote Mountains. To the north, the basin is bounded by the Salton Sea, which is the discharge point for groundwater in the basin. Major hydrologic features include the Alamo and New Rivers, which flow north towards the Salton Sea (Fuscoe 2018a). Per Table 2-5 of the Basin Plan, beneficial uses of groundwater within the Imperial Hydrologic Unit include:

MUN – Municipal and Domestic Supply - The MUN beneficial use for groundwater within the Imperial Hydrologic Unit is limited only to a small portion of the ground water unit. Within the Project Area, groundwater is not used for municipal uses. Rather, all municipal and domestic water supply is obtained from the IID Canals (Fuscoe 2018a).

IND – Industrial Service Supply - Per Table 2-1 of the Basin Plan, IND is defined as a use of water for industrial activities that do not depend on water quality. Therefore, impacts from the proposed Project related to a loss in beneficial uses of groundwater are not anticipated (Fuscoe 2018a).

## B. POTENTIAL POLLUTANTS

There is no sampling data available for the existing Project site condition. The following constituents have commonly been found on agricultural areas and could potentially affect water quality (Fuscoe 2018a):

- Organic compounds found in pesticides used on agricultural fields
- Agricultural waste
- Loose sediments
- Excess nutrients from fertilizers

In addition to potential pollutants due to the existing agricultural land use, potential pollutants due to the proposed land use of a solar power station include the following:

- Heavy metals from infrastructure and vehicular use
- Trash and debris from human activity
- Oil and grease from vehicular use

Potential pollutants include:

- Sediment
- Heavy Metals
- Organic Compounds
- Trash & Debris
- Oxygen Demanding Substances
- Nutrients
- Oil & Grease

In examining these anticipated pollutants, the proposed Project has the potential to be a source of pollutants based on historic/existing land use and typical activities involved in operating a solar energy facility. Through proper planning and operation of the facility however, the concentrations can be reduced to levels which will not contribute to the impairment of beneficial uses in downstream surface waters. In addition, through the source control BMPs outlined in **Table 4.11-10**, below, the amounts of these pollutants will be reduced to the maximum extent practicable, through behavioral and programmatic means. **Table 4.11-6** provides the primary pollutants of concern for the Project site (Fuscoe 2018a).

**TABLE 4.11-6**
**PRIMARY POLLUTANTS OF CONCERN**

| Primary Pollutants of Concern | Specific 303(D) Impairment |
|---|---|
| Sediment | Sedimentation/Siltation |
| Heavy Metals | Arsenic, Copper, Mercury, Selenium, Zinc |
| Oxygen Demanding Substances | Organic/Low DO |
| Trash and Debris | Trash |
| Organic Compounds | PCBs |
| Nutrients | Nutrients |

*Source: Fuscoe 2018a.*

## Sediment

Sediment can result from erosion during storm events, as well as from dust generated by wind erosion and vehicular traffic. Sediments increase the turbidity of the receiving waters and have the potential to adversely impact aquatic species.

## Heavy Metals

The primary sources of metals in storm water are metals typically used in transportation, buildings and infrastructure and also paints, fuels, adhesives and coatings. Potential sources of heavy metals from the project include vehicular use, building construction, substation construction, gen-tie construction, energy storage construction, solar array construction, and underground pipes. Copper, lead, and zinc are the most prevalent metals typically found in runoff from these sources. Other trace metals, such as cadmium, chromium, manganese, and mercury are typically not detected in runoff from these sources or are detected at very low levels. Trace metals have the potential to cause toxic effects on aquatic life and are a potential source of groundwater contamination.

### Oxygen Demanding Substances

Plant debris, food waste, and some chemical wastes fall into a category of water pollutants known as oxygen demanding substances. Such substances use dissolved oxygen in water when they decay or chemically react. If dissolved oxygen levels in water become too low, aquatic animals can become stressed or die. Animal wastes, food wastes, leaves and twigs, and other miscellaneous organic matter carried by storm water runoff into surface water can lead to reduced oxygen levels. Potential sources of oxygen demanding substances from the project include human use and landscaping. Slow-moving waters are particularly susceptible to oxygen depletion because aeration of the water by turbulence is lacking. Therefore, oxygen that is depleted in slow-moving waters due to the presence of excess organic matter or unnatural chemical compounds is not replaced. Reduced oxygen levels in these waters are often particularly severe after a storm.

### Trash and Debris

Improperly disposed or handled trash (from human use of the site) such as paper, plastics and debris including biodegradable organic matter such as leaves, grass cuttings, and food waste can accumulate on the ground surface where it can be entrained in urban runoff. A large amount of trash and debris can have significant negative impacts on the recreational value of water body. Excessive organic matter can create a high biochemical oxygen demand in a stream and lower its water quality.

### Organic Compounds

Organic compounds are carbon-based, and are typically found in pesticides, solvents and hydrocarbons.

Dirt, grease, and other particulates can also adsorb organic compounds in rinse water from cleaning objects, and can be harmful or hazardous to aquatic life either indirectly or directly. Organic compounds are therefore potentially present in runoff from the site due to prior agricultural use (pesticides), vehicular use (hydrocarbons and grease), and may be present in runoff during project operations due to washing of solar panels.

### Nutrients

The primary sources of nutrients in storm water are fertilizers. Potential sources of nutrients from the project include historic agricultural land use and landscaping. Nitrogen and phosphorus are the most prevalent nutrients typically found in urban runoff. Failing septic tanks are also potential sources of nutrients in runoff.

## 4.11.3 IMPACTS AND MITIGATION MEASURES

### A. STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following CEQA Guidelines, as listed in Appendix G. The Project would result in a significant impact to hydrology and water quality if it would result in any of the following:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impeded sustainable groundwater management of the basin.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

   i) result in a substantial erosion or siltation on- or off-site;

   ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.

   iii) create or contribute runoff water, which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or

   iv) impede or redirect flood flows.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

The following Standard of Significance listed under Utilities and Services Systems is applicable to the discussion of site drainage. Thus, it is discussed in this section.

a) Require of result in the relocation or construction of new or expanded storm water drainage facilities, the construction or relocation of which could cause significant environmental effects.

## B. Issues Scoped Out as Part of the Initial Study

Several criteria were scoped out as part of the Initial Study.

Criterion "c iv" was scoped out because the Project Area is located within FEMA flood hazard Zone X which is defined as an area of minimal flood hazard. These areas are outside the Special Flood Hazard Area and are higher than the elevation of the 0.2-percent-annual-chance flood.

Criterion "d" was scoped out because the Project site is not in a flood hazard area. As noted for Criterion "c iv" above, the Project Area is in FEMA Zone X with very minimal potential for flooding. The Project is also approximately 28 miles from the Salton Sea, which is the nearest large water body. Due to the distance, the Salton Sea is does not pose a particularly significant danger of inundation from seiche or tsunami as related to the proposed Project site. Given low flood potential, there is no risk of release of pollutants due to inundation. This issue is not discussed further in this section.

Criterion "e" was scoped out because the Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. The Project would require a general NPDES permit and SWPPP during construction and implement BMPs during operation. These measures would protect water quality. No impact would occur with regard to a groundwater management plan as the Project would not disrupt groundwater infiltration or rely on groundwater for construction or operational water demand. Therefore, impacts to water quality control plan or sustainable groundwater management plan are not discussed further in this section.

## C. Methodology

Hydrologic calculations in the *Drew Solar Conceptual Drainage Study and Storm Water Quality Analysis* were made in accordance with the following parameters/criteria (Refer to **Appendix J**; Fuscoe 2018a):

- The maximum volume of water to be detained will be equal to three-inch or five-inch of runoff from the project per County of Imperial Public Works Department (DPW) requirements.
- Should the Applicant or Individual CUP Area owner choose to discharge runoff from the project into the IID Drains, at final design a final hydrology study will be prepared and processed for approval with the IID. The final hydrology study will utilize standard industry practices that model factors such as runoff coefficient or curve number, infiltration into underlying soils, and flow in storm drain discharge pipes connected to the IID Drain system.
- Detention will be provided in shallow ponding areas within the project footprint or within designated detention basins outside arrays, or combination of both.
- Infiltration of runoff into native soils is preferred, where percolation rates allow.
- Discharge of runoff to IID Drains via 12" storm drain connection per IID standards for connection of private facilities may be utilized. Existing surface connection points to the IID Drain system will remain in their existing location and continue to be used if possible, be relocated as necessary, or be cut and capped if no longer needed. Addition of connection points to the IID Drain system is not proposed.
- The volume of runoff from the 100-year storm is calculated by the Rational Method with weighted C value.
- Information gained from the National Resource Conservation Service (NRCS) website is used to determine hydrologic soil classification.
- National Oceanic and Atmospheric Administration (NOAA) precipitation data is used for determination of the 100-year storm rainfall.

Refer to Appendix C of the *Drew Solar Conceptual Drainage Study and Storm Water Quality Analysis* (**Appendix J**) for reference material pertaining to County standards and Rational Method parameters (including runoff coefficient). The modeling of runoff and routing of flow through proposed detention areas/basins will be provided at the time of final design. Said modeling and routing is beyond the scope of this conceptual study and is dependent upon and will consider factors such as infiltration rates of underlying soils, flow in pipes discharging to the IID Drain system, final site development area, and final site finished ground topography.

Project Impacts and Mitigation Measures

**Violate Water Quality Standards or Waste Discharge Requirements**

**Impact 4.11.1** Implementation of the proposed Project, whether under the Full Build-out Scenario or phased by CUP Area under the Phased CUP Scenario, would generate small amounts of runoff during construction, operation and decommissioning. The Project would comply with all applicable water quality regulations and implement Applicant-proposed BMPs in order to meet water quality standards and waste discharge requirements. Therefore, this impact is considered **less than significant** under both the Full Build-out Scenario and Phased CUP Scenario.

## FULL BUILD-OUT SCENARIO/PHASED CUP SCENARIO

As a result of the recommended site design and source control measures, and the provision of shallow ponding areas and/or detention basins, water quality exceedances are not anticipated. Groundwater is not used at/near the Project site or for beneficial uses. Pollutants are not expected within Project runoff that would adversely affect beneficial uses in downstream receiving surface waters. Although specific County of Imperial regulations regarding storm water NPDES and new development do not exist, the project design features (settling ponds and/or detention basins) and implementation of BMPs pursuant to the Construction General Permit (Refer to Table 2.0-6 in Chapter 2.0, Project Description) will serve to limit discharges of pollutants to comply with the requirements of the General Permit. The Project would not impede sustainable groundwater management of the Imperial Groundwater Basin as it would not use groundwater or inhibit groundwater recharge. Therefore, the *Drew Solar Conceptual Drainage Study and Storm Water Quality Analysis* concluded that this issue is considered a **less than significant** impact under both the Full Build-out Scenario and Phased CUP Scenario (Fuscoe 2018a, p. 28).

### *Construction*

Construction of the Project includes site preparation, foundation construction, erection of major equipment and structures, installation of piping, electrical systems, control systems and start-up/testing. In addition, the construction of transmission lines, utility pole pads, conductors, and associated structures will be required.

During the construction phase, sedimentation and erosion can occur because of tracking from earthmoving equipment, erosion and subsequent runoff of soil, and improperly designed stockpiles. The utilization of proper erosion and sediment control BMPs is critical in preventing discharge to surface waters/drains. The Project proposes to employ proper SWPPP practices to minimize any discharges in order to meet the Best Available Technology/Best Conventional Technology (BAT/BCT) standard set forth in the Construction General Permit (CGP).

Although the Project site is relatively flat, the large amount of potential disturbed area results in the potential for erosion/sediment issues. In addition to erosion and sedimentation, the use of materials such as fuels, solvents, and paints has the potential to affect surface water quality. Many different types of hazardous compounds will be used during the construction phase, with proper containment being of high importance. Poorly managed construction materials can lead to the possibility for exposure of potential contaminants to precipitation. When this occurs, these visible and/or non-visible constituents become entrained in storm water runoff. If they are not intercepted or are left uncontrolled, the polluted runoff would otherwise freely sheet flow from the Project site to the IID Drains and could cause pollution accumulation in the receiving waters (Fuscoe 2018a, p. 19). **Table 4.11-7** provides a list of anticipated construction materials and their corresponding construction activity.

Prior to the beginning of construction, a complete SWPPP will be provided to show evidence that the development of the project will comply with the CGP and associated local NPDES regulations. Also, in accordance with the CGP, a Notice of Intent (NOI) for coverage of projects under the CGP will be filed with the SWRCB. The Waste Discharge Identification (WDID) Number will be issued to the Project before any land disturbance may begin. If the Project is constructed in multiple phases, a NOI will be filed for each phase of construction. Accordingly, the SWPPP will be implemented at the Project site, and revised as necessary, as administrative or physical conditions change. The Region 7 Colorado River Basin RWQCB, upon request, must instruct the developer to make the SWPPP available for public review. The SWPPP will fully describe Best Management Practices (BMPs) that address pollutant source

reduction and provide measures/controls necessary to mitigate potential pollutant sources. These include, but are not limited to: erosion controls, sediment controls, tracking controls, non-storm water management, materials and waste management, and good housekeeping practices. The above-mentioned BMPs for construction activities are discussed further below. The SWPPP will be prepared by a Qualified SWPPP Developer (QSD) and implemented at the site under the review/direction of a Qualified SWPPP Practitioner (QSP). Upon compliance with these regulatory requirements, Project Design Features, and Project-Proponent proposed mitigation measures, construction of the Project, under both the Full Build-out Scenario and Phased CUP Scenario, would result in a **less than significant impact** with regard to violating Water Quality Standards or Waste Discharge Requirements (Fuscoe 2018a, p. 19-20).

**TABLE 4.11-7**
**POTENTIAL CONSTRUCTION RELATED POLLUTANTS**

| Construction Activity | Construction Site Material | Visually Observable? |
|---|---|---|
| Paving | Hot Asphalt | Yes - Rainbow Surface or Brown Suspension |
| | Asphalt Emulsion | |
| | Liquid Asphalt (tack coat) | |
| | Cold Mix | |
| | Crumb Rubber | Yes – Black, solid material |
| | Asphalt Concrete (Any Type) | Yes - Rainbow Surface or Brown Suspension |
| Substation and Transmission | Gasoline/Diesel | No |
| Line Construction | Mineral and Crankcase Oil | |
| | Lubricants | |
| | Cleaning Solvents | |
| Equipment Cleaning | Acids | No |
| | Bleaches | |
| | Detergents | Yes - Foam |
| | Solvents | No |
| Concrete Work | Portland Cement (PCC) | Yes - Milky Liquid |
| | Masonry products | No |
| | Sealant (Methyl Methacrylate – MMA) | No |
| | Incinerator Bottom Ash, bottom Ash, Steel Slag, Foundry Sand, Fly Ash, Municipal Solid Waste | No |
| | Mortar | Yes - Milky Liquid |
| | Concrete Rinse Water | Yes - Milky Liquid |
| | Non-Pigmented Curing Compounds | No |
| | Lime | No |
| Painting | Paint | Yes |
| | Paint Strippers | No |
| | Resins | |
| | Sealants | |

**TABLE 4.11-7**
**POTENTIAL CONSTRUCTION RELATED POLLUTANTS**

| Construction Activity | Construction Site Material | Visually Observable? |
|---|---|---|
| | Solvents | |
| | Lacquers, Varnish, Enamels, and Turpentine | |
| | Thinners | |
| | Portable Toilet Waste | Yes |
| | Adhesives | No |
| Dust Control | Water | No |
| | Liquid Polymer or Polymer Blend | No |
| Vehicle Maintenance | Antifreeze and Other Vehicle Fluids | Yes – Colored Liquid |
| | Batteries | No |
| | Fuels, Oils, Lubricants | Yes - Rainbow Surface Sheen and Odor |
| Soil Amendment/Stabilization | Polymer/Copolymer | No |
| | Quicklime | No |
| | Herbicide, Pesticide | No |
| | Lignin Sulfonate | No |
| | Psyllium | |
| | Guar/Plant Gums | |
| | Gypsum | |
| Wood (Treated) Work | Ammoniacal-Copper-Zine0Arsenat, Copper-Chromium-Arsenic, Ammoniacal-Copper Arsenate, Copper Naphthenate | No |
| | Creosote | Yes -Rainbow Surface or Brown Suspension |

*Source: Fuscoe 2018a.*

### *Operation*

Solar modules may be washed on a periodic basis, up to four times per year, if determined to be beneficial to the Project. Approximately 14 acre-feet of water per year of the 60 acre-feet of water per year required for Project operations and maintenance will be used for panel washing. Fire protection is estimated to be one acre-foot of water per year, sanitary water is estimated to be five acre-feet of water per year, dust suppression is estimated to be 35 acre-feet of water per year, and potable water is estimated to be five acre-feet of water per year (Fuscoe 2018b, p. 39).

Panel washing activities (if they occur) are not anticipated to generate runoff or contain pollutants (e.g., grease, heavy metals) other than dust and perhaps trace amounts of pesticide drift that may have accumulated on the panels from neighboring parcels that are in active agricultural production. Any runoff from panel washing would evaporate or percolate through the ground, as a majority of the surfaces in the solar field would remain pervious.

The Project would be designed to include BMPs (source control BMPs and Treatment Control BMPs) which would reduce runoff, and prevent water pollution associated with Project operations (refer to **Table 2.0-6** and **Table 4.11-8**). During operation, quality of runoff would also be controlled in accordance with County standards, such as implementation of a Dust Control Plan (Rule 801) (discussed further in Section 4.4, Air Quality). Proposed BMPs to be implemented during Project operations are discussed below.

The Applicant / CUP Area owners will maintain all on-site site design, source control, and treatment control features.

*Post-Construction BMPs*

Post-construction BMPs will be maintained for the life of the Project. Maintenance requirements for source control BMPs as well as treatment control BMPs are shown below in **Table 4.11-8**. Preventative maintenance such as removal of trash and debris from the Project site will help ensure proper function of the BMPs.

**TABLE 4.11-8**
**O&M BMP SUMMARY**

| SUMMARY OF BMP O&M | |
|---|---|
| **BMP Name** | **Frequency** |
| Design Trash Storage Areas to Reduce Pollution Introduction | Inspect Monthly |
| Activity Restrictions | Review Bi-Yearly |
| Non-Storm Water Discharges | Review Bi-Yearly |
| Outdoor Loading And Unloading | Supervisors/Workers Shall Monitor Continuously |
| Spill Prevention, Control, And Cleanup | Supervisors/Workers Shall Monitor Continuously |
| Education | Review and Distribute Bi-Yearly |
| Integrated Pest Management | Review Protocols and Educate Bi-Yearly |
| Waste Handling and Disposal | Inspect Monthly |
| Vehicle And Equipment Fueling, Cleaning, and Repair | Inspect/Review Monthly |
| Hazardous Material Management | Supervisors/Workers Shall Monitor Continuously |
| Detention Basins | Inspect Quarterly |

*Source: Fuscoe 2018a.*

Maintenance of the Project site will be conducted by the Applicant / CUP Area owners. All construction and post construction BMPs will be the responsibility of the owner for the life of the Project. The Applicant / CUP Area owners are required to perform maintenance for the life of the Project, keeping maintenance records for submittal to the County of Imperial and Regional Water Quality Control Board, if requested. In addition, the following maintenance activities will be conducted.

- Continued education of staff responsible for hazardous material hauling, loading, and use.
- Periodic visual monitoring to ensure materials are not contaminating areas exposed to storm water.

If an ownership transfer of the Project site or individual CUP Area occurs, the Applicant / CUP Area owner will notify the County of Imperial, and the Region 7 Colorado River Basin Regional Water Quality Control Board. The new owner will assume all responsibilities for BMP maintenance.

*Treatment Control BMPs*

As discussed above, runoff from the Project would be directed towards on-site detention basins and/or shallow ponding areas to meet the County requirements for storage of three inches of runoff within the Project limits. Ultimate locations and limits of detention basins will be determined at the time of final engineering. The detention basin/ponding areas would either drain through infiltration into the underlying soils or through a connection to the IID drain system. Runoff from the Project would either be infiltrated or drain to the IID system within 72 hours. Precise drawdown times and outlet configurations would be determined during final engineering. The detention basins/ponding area would also have the capacity to store and infiltrate runoff from the more frequent storm events, which typically lead to storm water quality concerns (Fuscoe 2018a, p. 26).

*Non-Stormwater Management Controls*

Non-storm water discharges consist of all discharges from a municipal storm water conveyance which do not originate from precipitation events (i.e., all discharges from a conveyance system other than storm water). Non-storm water discharges also include vehicle equipment cleaning, fueling, and maintenance. Operations activities at the Solar Field Site Parcels may involve the use of heavy equipment and hazardous materials as well as application of water for panel washing and dust control. Dust control watering during construction of both the Full Build-out Scenario and the Phased CUP Scenario would be classified as having potential for discharge of non-storm water pollutants. Adequate BMPs and protections would be in place at all times (Fuscoe 2018a, p. 22).

Further, each CUP Area property owner would be responsible for operation and maintenance of site design, source control, and treatment control BMPs. Each CUP Area property owner would also be responsible for long-term funding for BMP maintenance. In addition, the County of Imperial would require access to each CUP Area for inspection through a formal agreement to ensure that each CUP Area owner is properly carrying out the BMPs over the life of the Project, as would be ensured through the County's Conditions of Approval for each CUP.

Upon implementation of recommended site design and source control measures and the provision of shallow ponding areas, water quality exceedances are not anticipated under the Full Build-out Scenario or Phased CUP Scenario. Pollutants within Project runoff are not expected to adversely affect beneficial uses in downstream receiving waters or groundwater. If the Phased CUP Scenario is implemented, each phase would comply with a Project-specific SWPPP or submit a SWPPP and comply with a SWPPP specific to each CUP Area. Compliance with these requirements would be ensured through the Conditions of Approval for each CUP. Therefore, the Project would result in a **less than significant impact** to water quality during operation of both the Full Build-out Scenario and the Phased CUP Scenario (Fuscoe 2018a, p. 28-29).

***Decommissioning/Reclamation***

Decommissioning activities that could affect water quality at each CUP Area include excavation and other earth-moving activities associated with the demolition, excavation, and removal of Project structures and solar panel foundations, as well as grading/soil improvement activities associates with the reclamation of the site for agricultural uses. As compliance with regulations in place at the time of decommissioning would be mandatory, it is anticipated that decommissioning activities under both the Full Build-out Scenario and the Phased CUP Scenario would result in a **less than significant** impact to water quality.

**Mitigation Measures**

None required.

**Significance after Mitigation**

Not applicable.

**Result in Decreased Groundwater Supplies or Interfere Substantially with Groundwater Recharge**

**Impact 4.11.2** Project implementation under both the Full Build-out Scenario and the Phased CUP Scenario would not impact groundwater supply as the Project does not propose use of groundwater. During construction and decommissioning, there is a small potential for encountering groundwater while excavating for structure foundations or Gen-Tie footings. If groundwater is encountered, it would be contained locally in the vicinity of Gen-Tie pole locations and substation foundations. The CUP Areas would largely remain pervious during Project operation. Therefore, impacts associated with decreasing groundwater supplies or interfering with groundwater recharge are considered **less than significant** under both the Full Build-out Scenario and the Phased CUP Scenario.

## FULL BUILD-OUT SCENARIO/PHASED CUP SCENARIO

### *Construction*

The Project does not propose the use of groundwater during construction. However, a slight potential exists for encountering groundwater during construction. The groundwater in the Project Area is typically encountered at a depth of approximately five feet below ground surface (Landmark 2018). Potential construction activities that may require dewatering include: excavation activities associated with the construction of footings and foundations for the O&M buildings; construction of new Gen-Tie poles within the Project Area; and construction of the on-site overhead collection system poles. During the construction phase, a significant amount of construction dewatering is not expected to be required. Any groundwater that is encountered would be pumped to the surface and discharged on-site in accordance with applicable County and RWQCB requirements.

The existing site grade and drainage of each solar field site parcel would be retained or improved as part of construction. Further, minimal storm drains would be constructed. The impervious areas would drain on-site and be allowed to pond in the detention basins and/or ponding areas under the arrays. Therefore, under both the Full Build-out Scenario and the Phased CUP Scenario impacts related to groundwater supply and recharge would be **less than significant** during Project construction.

### *Operation*

The Project does not propose the use of groundwater or contain components that would adversely affect groundwater recharge during operation. Groundwater recharge in the Project Area would not be significantly affected due to the fact that the majority of each CUP would feature a pervious landscape. Detention basins and shallow ponding areas would also provide infiltration and groundwater recharge. No pumping of groundwater is anticipated during Project operation. Further, overall water demand during operation under both the Full Build-out Scenario and Phased CUP Scenario is expected to be much less than the needs of the existing agricultural land use (Fuscoe 2018b, p. 42). Therefore, both the Full Build-out Scenario and the Phased CUP Scenario would result in a **less than significant** impact to groundwater supply and recharge during Project operation.

***Decommissioning/Reclamation***

Decommissioning would result in the dismantling and removal of infrastructure constructed as part of the proposed Project. Removal of Project structures and infrastructure would result in an increase in the amount of pervious surface at each solar field site parcel and the Project Area as a whole. Groundwater may be encountered during the removal of footings and foundations for the O&M buildings or overhead Gen-Tie poles. Dewatering associated with removal of these structures would be localized to transmission pole locations and building locations and would not result in a significant decrease in production rates of existing or planned wells. Therefore, under both the Full Build-out Scenario and the Phased CUP Scenario a **less than significant** impact to groundwater supply and recharge would occur during Project decommissioning. Likewise, groundwater is not anticipated to be used as part of reclamation.

**Mitigation Measures**

None required.

**Significance after Mitigation**

Not applicable.

**Result in Substantial Erosion or Siltation On- or Off-site**

**Impact 4.11.3** During construction, operation and maintenance and decommissioning activities, the Project shall comply with a Project-specific SWPPP, file for coverage under the construction and operational NPDES permits and comply with all other applicable State and local regulations. Therefore, under both the Full Build-out Scenario and Phased CUP Scenario, Project implementation would result in a **less than significant** impact regarding earth disturbance and potential for erosion and loss of top soil.

**FULL BUILD-OUT SCENARIO/PHASED CUP SCENARIO**

***Construction***

Soil erosion could result during construction of the proposed Solar Energy Generation Component, Energy Storage Component, and Drew Switchyard and Gen-Tie Lines in association with grading and earthmoving activities under both the Full Build-out Scenario and Phased CUP Scenario. The solar field site parcels consist of agricultural land voice of structures with the exception of IID and landowner irrigation facilities

The solar field site parcels would be disturbed by construction activities such as grading and clearing as a part of site preparation. To the extent feasible, site preparation would be planned and designed to minimize the amount of earth movement. Compaction of the soil to support building and traffic loads as well as the PV module supports may be required and is dependent on final engineering design. During

construction, erosion would be controlled in accordance with County standards which include preparation, review and approval of a grading plan by the County Engineer; implementation of a Dust Control Plan (Rule 801) (discussed further in Section 4.4, Air Quality); and compliance with the NPDES GCP. Imperial County requires 100 percent detention of the runoff associated with the site, assuming zero percolation into the ground. The Project proposes on-site detention basins designed and sized to capture storm water as if none of it would penetrate into the ground. Consequently, any erosion associated with storm water runoff would be captured in the on-site detention basins.

In addition, the Project would prepare a SWPPP in accordance with SWRCB requirements and incorporate approved erosion and sedimentation control BMPs as described below and in **Table 2.0-6** of the Project Description:

*Erosion Control BMPs*

- Erosion Control, also referred to as soil
- EC-2 Preservation of Existing Vegetation
- EC-5 Soil Binders
- EC-6 Straw Mulch
- EC-7 Geotextiles and Mats
- EC-8 Wood Mulching
- EC-9 Earth Dikes and Swales
- EC-10 Velocity Dissipation Devices
- EC-11 Slope Drains

*Sediment Control BMPs*

Sediment controls are structural measures that are intended to complement and enhance the soil stabilization/erosion control measures and reduce sediment discharges from construction areas. Sediment controls are designed to intercept and filter out soil particles that have been detached and transported by the force of water. In addition, silt fencing will be installed along the perimeter of work areas upstream of discharge points, and will also be placed around stockpiles, and areas of soil disturbance. Check dams or chevrons will be situated in areas where high velocity runoff is anticipated/potential (such as in drainage ditches/swales). Gravel bag berms or fiber rolls should be used to intercept sheet flows on streets or at the toe of slopes (such as along streets or canal and drain access roads) to minimize sediment mobilization. Street sweeping will also be scheduled in areas where sediment can be tracked from the Project site onto paved streets or roads. Below is a list of approved construction BMPs that can be implemented for the proposed Project's SWPPP (Fuscoe 2018a, p. 21):

- SE-1 Silt Fence
- SE-2 Desilting Basin (Detention Basins)
- SE-3 Sediment Trap
- SE-4 Check Dam
- SE-5 Fiber Rolls
- SE-6 Gravel Bag Berm
- SE-7 Street Sweeping
- SE-8 Sandbag Barrier
- SE-9 Straw Bale Barrier
- SE-10 Chemical Treatment
- SE-11 Chemical Treatment

*Tracking Controls*

The proposed Project site will stabilize all construction entrance/exit points to reduce the tracking of sediments onto paved streets and roads by construction vehicles. Construction roadways should also be stabilized to minimize off-site tracking of mud and dirt. Wind erosion controls will be employed in conjunction with tracking controls. Below is a list of approved construction BMPs that can be implemented for the proposed Project's SWPPP (Fuscoe 2018, p. 22):

- TC-1 Stabilized Construction Entrance/Exit
- TC-2 Stabilized Construction Roadway
- TC-3 Entrance/Outlet Tire Wash
- WE-1 Wind Erosion Control

*Non-Storm Water Management Controls*

Non-storm water discharges consist of all discharges from a municipal storm water conveyance which do not originate from precipitation events (i.e., all discharges from a conveyance system other than storm water). Paving and grinding operations on the Project site, along with any operations which involve using water on landscape are classified as having potential for non-storm water pollutants. This also includes illegal connection and dumping on the construction site, vehicle equipment cleaning, fueling, and maintenance. The construction of the Project would involve the use of heavy equipment

and some hazardous materials. Adequate BMPs and protections will be in place at all times (Fuscoe 2018, p. 22):

- NS-2 Dewatering Operations
- NS-3 Paving and Grinding Operations
- NS-4 Temporary Stream Crossing
- NS-5 Clear Water Diversion
- NS-6 IC/ID Detection and Reporting
- NS-7 Potable Water / Irrigation
- NS-8 Vehicle & Equipment Cleaning
- NS-10 Vehicle & Equipment Maintenance
- NS-11 Pile Driving Operations
- NS-12 Concrete Curing
- NS-13 Concrete Finishing
- NS-14 Material Use Over Water
- NS-15 Demolition Over Water
- NS-16 Temporary Batch Plants

*Materials and Waste Management*

Waste management consists of implementing procedural and structural BMPs for collecting, handling, storing and disposing of wastes generated by a construction Project to prevent the release of waste materials into storm water discharges. All materials with the potential to contaminate storm water runoff should be delivered and stored in designated areas with secondary containment measures (i.e. covered and bermed). Chemicals, drums, and bagged materials will not be stored directly on soil, but on pallets instead. Personnel will also be trained on the proper use of the materials. Construction staging areas will be located on the site. These areas will include construction yards that serve as field offices, reporting locations for workers, parking space for vehicles and equipment, and sites for material storage. Facilities will be fenced as necessary. Security guards will be stationed where needed.

A temporary barrier around stockpiles should be installed and a cover provided during the rainy season. Spill cleanup procedures and kits should be made readily available near hazardous materials and waste. Solid wastes, such as trash and debris, should be collected on a regular basis and stored in designated areas. Concrete and paint washout areas should be installed and properly maintained in areas conducting the associated activities. Below is a list of approved waste management construction BMPs that can be implemented for the proposed Project's SWPPP (Fuscoe 2018, p. 22-23):

- WM-1 Material Delivery & Storage
- WM-2 Material Use
- WM-3 Stockpile Management
- WM-4 Spill Prevention and Control
- WM-5 Solid Waste Management
- WM-6 Hazardous Waste
- WM-7 Contaminated Soil
- WM-8 Concrete Waste
- WM-9 Sanitary / Septic Waste
- WM-6 Hazardous Waste

*Monitoring Program*

A monitoring program will also be included in the SWPPP that outlines storm event inspections of the Project site and a sampling plan in accordance with the CGP. The monitoring program will be prepared by a QSD and implemented at the site under the review/direction of a QSP. The goals of the program are (1) to identify areas contributing to a storm water discharge; (2) to evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate, properly installed, and functioning in accordance with the terms of the CGP; and (3) whether additional control practices or corrective maintenance activities are needed. If a discharge is observed during these inspections, a sampling and analysis of the discharge is required as follows:

> *"Any breach, malfunction, leakage, or spill observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water shall trigger the collection of a sample of discharge…The goal of the sampling and analysis is to determine whether the BMPs employed and maintained on site are effective in preventing the potential pollutants from coming in contact with storm water and causing or contributing to an exceedance of water quality objectives in the receiving waters. In any case of breakage and potential for non-visible pollution, sampling and analysis will be required to ensure that the beneficial uses of downstream receiving waters are protected. In addition, sampling is required for any site which directly discharges runoff into a receiving water listed in the CGP listed as impaired for sedimentation"* (Fuscoe 2008a, p.22).

Upon implementation of recommended erosion and sediment control measures, the provision of detention facilities at each CUP Area, and compliance with SWPPP requirements, erosion and sedimentation are not anticipated to occur as a result of Project construction under the Full Build-out Scenario or as proposed by individual CUP Area under the Phased CUP Scenario. Potential construction impacts relative to soil erosion and sedimentation during construction under both the Full Build-out Scenario and the Phased CUP Scenario would be **less than significant**.

### *Operation*

Daily operations and routine maintenance (such as occasional PV panel washing) are not anticipated to increase erosion. During operational activities, soil erosion and sedimentation throughout the Solar Energy Generation Component, Energy Storage Component, and Drew Switchyard and Gen-Tie Lines would be controlled in accordance with NPDES GCP(s) and Project-specific SWPPP(s) prepared for the Full Build-out Scenario or by each individual CUP Area (if the Project is constructed under the Phased CUP Scenario), as applicable. Compliance with these requirements would be ensured through the Conditions of Approval for each CUP. The Project site would remain largely impervious over the operational life of the project. Therefore, potential soil erosion impacts occurring during Project operation under both the Full Build-out Scenario and the Phased CUP Scenario would be **less than significant**.

*Site Design BMPs*

The Project is designed to include Site Design BMPs which reduce runoff, prevent storm water pollution associated with the Project, and conserve natural areas onsite (Fuscoe 2018a, p. 24). **Table 4.11-9** lists the various Site Design BMPs.

**TABLE 4.11-9**
**SITE DESIGN BMPS**

| | Design Concept | Description |
|---|---|---|
| #1 | Minimize Impervious Footprint | The Project site will include a significant amount of undeveloped land and pervious area. The footprint for the solar arrays will be predominately pervious ground. A minimal amount of Class II base paving for access roads and parking will be constructed. Asphaltic concrete (AC) paving of driveway connections to public roads may be required per County of Imperial standards, however the limit of paving will be kept to the minimum amount required by the County. The County may also require additional paving on some public roads in accordance with PM10 requirements, but the amount of paving will be limited to the areas required by County. |

**TABLE 4.11-9**
**SITE DESIGN BMPS**

| | Design Concept | Description |
|---|---|---|
| #2 | Conserve Natural Areas | Only a small amount of existing site area can be classified as natural landscape, and will only be disturbed in necessary areas at the Project. |
| #3 | Protect Slopes and Channels | The Project site and surrounding areas is comprised of extremely flat topography. Erosion of slopes due to stabilization problems is not a concern. |
| #4 | Minimize DCIAs (Directly Connected Impervious Areas) | Minimal storm drain will be constructed onsite. The impervious areas will drain and will be allowed to pond in the detention basins and/or under the arrays. This will effectively limit all DCIAs on the Project site. |

*Source: Fuscoe 2018a.*

*Source Control BMPs*

"Source control BMPs (both structural and non-structural)" means land use or site planning practices, or structures that aim to prevent urban runoff pollution by reducing the potential for contamination at the source of pollution. Source Control BMPs minimize the contact between pollutants and urban runoff. **Table 4.11-10** identifies source control BMPs that would be applicable to the proposed Project (Fuscoe 2018a, p. 24-25).

**TABLE 4.11-10**
**SOURCE CONTROL BMPS**

| | Source Control BMP | Description |
|---|---|---|
| #1 | Design Trash Storage Areas to Reduce Pollution Introduction | Any outdoor trash storage areas will be designed not to allow run-on from adjoining areas, screened or walled to prevent off-site transport of trash. |
| #2 | Activity Restrictions | Restrictions include activities that have the potential to create adverse impacts on water quality. |
| #3 | Non-Storm Water Discharges | Illegal dumping educational materials as well as spill response materials will be provided to employees. |
| #4 | Outdoor Loading and Unloading | Material handling will be conducted in a manner as to prevent any storm water pollution. |
| #5 | Spill Prevention, Control, And Cleanup | The Project may require a Spill Prevention, Control, and Countermeasure (SPCC) Plan, and a Hazardous Materials Business Plan in accordance with Federal, State, or Local requirements. |
| #6 | Education | Employees will receive materials for storm water pollution prevention in the form of brochures and other information in a format approved by the County of Imperial. |
| #7 | Integrated Pest Management | If any pesticide is required onsite, the need for pesticide use in the Project design will be reduced by: |

**TABLE 4.11-10**
**SOURCE CONTROL BMPS**

| | Source Control BMP | Description |
|---|---|---|
| #8 | Vehicle And Equipment Fueling, Cleaning, and Repair | All vehicles will be serviced offsite whenever possible. If servicing is required onsite, it must be conducted in an area isolated from storm drain inlets or drainage ditch inlets. The area must be bermed and precluded from run on. Any spillage must be fully contained and captured and disposed of per County of Imperial Hazardous Waste requirements. |
| #9 | Waste Handling and Disposal | Materials will be disposed of in accordance with Imperial County Hazardous Material Management guidelines, and will be sent to appropriate disposal facilities. Under no circumstances shall any waste or hazardous materials be stored outside without secondary containment. |

*Source: Fuscoe 2018a, p. 25.*

In addition to Source Control BMPs discussed above, specific precautions will be taken when handling, storing or processing any materials during all phases of the proposed Project. The utmost care and planning will be taken when using materials outside, and near any storm drain/drainage ditch inlets.

*Treatment Control BMPs*

As discussed in the Hydrologic Analysis, runoff from the Project will be directed towards shallow ponding areas to meet the County requirements for storage of three inches or five inches of runoff within the project limits. The ponding areas will either drain through infiltration into the underlying soils or through a connection to the IID drain system, or be managed in accordance with the project's Mosquito Abatement Plan. As discussed previously, the County required three inches of runoff capacity from the Project will either be infiltrated or drain to the IID system within 72 hours. In a case of low potential for infiltration, and the potential desire to avoid connecting the project's runoff to the IID Drain system, retention requirements over the Project site will be satisfied by ponded area under the arrays such that the County of Imperial requirement of five inches of retention over the Project site will be satisfied. It is anticipated that stored runoff under the arrays will not drawdown in under 72 hours. Precise drawdown times and outlet configurations will be determined at the time of final engineering (Fuscoe 2018a, p. 26).

The ponding areas will also have the capacity to store runoff from the more frequent storm events, which typically lead to storm water quality concerns. The runoff volume for the water quality storm event was calculated based on the Urban Runoff Quality Management Approach outlined in the California Stormwater BMP Handbook for New Development and Redevelopment. The County required runoff volume will be designed to either infiltrate or drain to the IID system. Therefore, the basins are deemed adequate as treatment control BMPs for the Project (Fuscoe 2018a, p. 26).

***Decommissioning/Reclamation***

During decommissioning, soil erosion and would be controlled in accordance with NPDES GCP(s) and Project-specific SWPPP(s) prepared for both the Full Build-out Scenario and the Phased CUP Scenario). Decommissioning activities would require earth-moving activities that could contribute to soil erosion and/or release of sediment. Earth-moving activities would be typical of most construction sites and temporary in nature. During decommissioning, each CUP Area owner would continue to be responsible for implementing and funding BMPs as required by in accordance with Applicant-proposed design and

BMP measures. Further, compliance with requirements and BACTs in place at the time of decommissioning are anticipated to be similar to, or more stringent than, those currently required. Therefore, a **less than significant** impact regarding soil erosion and sedimentation would occur during Project decommissioning under the Full Build-out Scenario and as proposed by CUP Area under the Phased CUP Scenario.

**Mitigation Measures**

None required.

**Significance After Mitigation**

Not Applicable.

**Alteration of Drainage Pattern Substantially Increasing Surface Runoff/Construction of Stormwater Drainage**

**Impact 4.11.4** Upon Project implementation under both the Full Build-out Scenario and Phased CUP Scenario, Project site drainage patterns and the general drainage system will remain similar to the existing condition. Runoff will follow existing drainage patterns to proposed basins/ponding areas for detention and infiltration with storm flows conveyed toward existing IID Drains. Project implementation will also result in less run-off from the Project site as compared to the existing agricultural uses. Therefore, Project implementation would result in a **less than significant impact** with regard to substantially altering the existing drainage pattern in a manner which would result in flooding on- or off-site under both the Full Build-out Scenario and Phased CUP Scenario.

### FULL BUILD-OUT SCENARIO/PHASED CUP SCENARIO

#### *Construction, Operation and Decommissioning/Reclamation*

The proposed drainage patterns and general drainage system for the Project remain similar to existing conditions. The Project would not require or result in relocaito or construction of new or expanded storm water drainage facilities which would cause significant environmental effects. Basins will be constructed and drainage will be routed to these basins for detention and infiltration. The remainder of the solar field site parcels will follow existing drainage patterns, with storm flows conveyed toward existing IID Drains. Due to the postponement of agricultural irrigation during the operation life of the Project, the annual runoff from the Project site is anticipated to decrease in comparison to the existing condition which is similar to agricultural fields being fallowed and/or abandoned. As such, whether the Project is built at one time over an 18-month period (Full Build-out Scenario) or over five phases over a period of up to 10 years (Phased CUP Scenario) or one phase (Full Build-out Scenario), the Project can be constructed without substantial change to existing drainage patterns (Fuscoe 2018a, p. 29). The Project would not produce runoff that would result in flooding either on- or off-site. At the end of the Project's operational life, the Project will be decommissioned and the components removed. Drainage patterns would be substantially unchanged during decommissioning and would remain similar upon reclamation. Therefore, Project implementation would result in a **less than significant impact** to the existing drainage pattern or substantial erosion or siltation on- or off-site under both the Full Build-out Scenario and Phased CUP Scenario during construction, operation and decommissioning. The drainage pattern would be similar to pre-Project conditions upon reclamation.

**Mitigation Measures**

None required.

**Significance After Mitigation**

Not Applicable.

**Create or Contribute Runoff Exceeding Capacity/Provide Substantial Sources of Polluted Runoff**

**Impact 4.11.5** Implementation of the proposed Project would generate on-site runoff throughout the Project site as a whole under the Full Build-out Scenario and at each of the six CUP Areas if constructed under the Phased CUP Scenario. Alteration of the existing drainage pattern would not alter the course of a stream or river nor would the Project create additional sources of polluted runoff. Existing drainage patterns would be maintained and the surface of each CUP Area would remain mostly pervious. Sufficient capacity to collect on-site runoff is available in receiving IID drains and proposed on-site ponding areas/detention basins. Therefore, impacts associated with exceedance of existing or planned stormwater drainage systems capacity or providing additional sources of polluted runoff are considered **less than significant** under both the Full Build-out Scenario and the Phased CUP Scenario.

## FULL BUILD-OUT SCENARIO/PHASED CUP SCENARIO

### *Construction, Operation and Decommissioning/Reclamation*

*Storm Water Runoff*

Under proposed conditions, the existing drainage characteristics of the Project site will remain substantially the same. Existing low-lying areas which receive runoff will continue to do so in the proposed conditions. As discussed above under Hydrologic Setting, some on-site soils may have the potential to infiltrate runoff. Where this is the case, runoff will be infiltrated. Where infiltration is not feasible, runoff may be detained and slowly released to the IID Drain system such that the peak flowrate of runoff from the 100-year storm event in the proposed condition is equal to or less than it is in the existing condition. Should the Applicant choose, a final option available is to terminate runoff from the Project site to the IID Drains and retain a greater volume of water in accordance with County requirements. Therefore, there will be no resultant hydraulic impact to IID Drains as a result of Project implementation (Fuscoe 2018a, p. 8).

To enable the development of the solar arrays, private dirt roads and ditches within the Project site will be re-graded as necessary, and, if necessary, cultivated areas may be re-graded to provide smooth transitions across arrays and to produce positive surface drainage to the designated shallow ponding areas, which will provide storm water detention. A private perimeter access road will be constructed around the arrays. As discussed previously, this conceptual study calculates a maximum volume of runoff that may be detained in accordance with the County standard of three inches or five inches of runoff within the Project site. Detention requirements over the Project site will be satisfied by ponding areas within the Project footprint or within designated detention basins outside arrays, or combination of both. At the time of final design and engineering, a final hydrology study will be prepared and processed for approval with DPW utilizing standard industry practice that models factors such as runoff coefficient or curve number, infiltration into underlying soils, and flow in storm drain discharge pipes connected to the IID Drain system. Ultimate locations, volumes, and limits of detention basins will be determined at the time of final engineering (Fuscoe 2018a, p. 8-9).

**Table 4.11-11** provides the required volumes of detention to meet both the County standard of three inches and five inches of runoff from the Project and the 100-year runoff. Note that the required storage to meet the County standard is the same for the existing and proposed conditions due to the fact that the County does not consider the runoff coefficient in its standard. The 100-year runoff is the estimated volume based on a "C" factor of 0.60 and a 100-year 24-hour precipitation of 3.79 inches (Fuscoe 2018a, p. 9).The Project would utilize connection to existing discharge locations to the IID Drain System, connection to relocated discharge locations to the IID Drain System, and/or percolation into the

**TABLE 4.11-11**
**PROPOSED PROJECT STORM WATER RUNOFF**

| Drainage Area Name | Area (ac) | County Storage (AF) | | 100-Year Runoff (AF) |
|---|---|---|---|---|
| | | 3 inches | 5 inches | |
| **Receiving Drain: Mt. Signal Drain #1A** | | | | |
| A | 72.1 | 18.0 | 30.0 | 13.7 |
| TOTAL | 72.1 | 18.0 | 30.0 | 13.7 |
| **Receiving Drain: Mt. Signal Drain #1B** | | | | |
| I | 83.0 | 20.8 | 34.6 | 15.7 |
| J | 79.2 | 19.8 | 33.0 | 15.0 |
| TOTAL | 162.2 | 40.6 | 37.6 | 30.7 |
| **Receiving Drain: Mt. Signal Drain #1** | | | | |
| B | 75.5 | 18.9 | 31.4 | 14.3 |
| D | 82.4 | 20.6 | 34.3 | 15.6 |
| TOTAL | 157.9 | 39.5 | 65.7 | 29.9 |
| **Receiving Drain: Brockman Drain #1** | | | | |
| G | 85.9 | 21.5 | 35.8 | 16.3 |
| TOTAL | 85.9 | 21.5 | 35.8 | 16.3 |
| **Receiving Drain: Mt. Signal Drain** | | | | |
| C | 83.8 | 21.0 | 34.9 | 15.9 |
| E | 89.5 | 22.4 | 37.3 | 17.0 |
| F | 84.9 | 21.2 | 35.4 | 16.1 |
| H | 79.7 | 19.9 | 33.2 | 15.1 |
| TOTAL | 337.9 | 84.5 | 140.8 | 64.1 |

*Source: Fuscoe 2018a, p. 9.*

underlying soil. County of Imperial requirements for storage are significantly higher than the anticipated runoff from the 100-year storm. The five-inch and three-inch requirements, which will be applied depending on the final drawdown time, are 120 percent and 32 percent, respectively, greater than the anticipated volume of runoff from the 100-year storm event (Fuscoe 2018a, p. 9).

*Potential for Infiltration of Runoff*

Soil groups A, C and D are present on the Project site. In areas where the dominate soils belong to group A, infiltration of storm water runoff may be feasible. While infiltration testing has not been done on the site at this time, group A generally consists of soils that have moderate to high percolation rates (0.15 inches/hour and above) and are therefore suitable for infiltration. Soil group A is generally presents in the southern portion of the Project site. At the time of final engineering, infiltration tests will be performed to confirm infiltration feasibility and calculate drawdown times at the proposed ponding locations. At this preliminary stage, ponding areas which are underlain by group A soils are proposed to drain primarily through infiltration into the ground, although storm drain connection to the receiving IID Drain may be necessary. Ponding areas which are underlain by ground C or D soils, or are calculated to have a drawdown time of greater than 72 hours through infiltration alone, may be provided with a storm drain connection to the IID Drain system. These storm drain connections will take the place of existing connections, will be located at or near existing connections, and will be constructed in accordance with IID standard drawing number 12F-6855. The Project proposes to match or reduce the number of existing connections to the IID Drain system and at the time of final engineering outflow hydrographs will be provided for the existing and proposed conditions. The detention basins and outlet structures will be designed such that 100-yr peak flow rates in the proposed condition will be less than existing conditions. In combination with infiltration through the underlying soils, the connections will be designed to provide the ponding areas with a drawdown time of 72 hours or less while limiting proposed conditions flow rates to be equal to or below existing levels. At the time of final design, for locations where runoff from the Project site will be discharged to the IID Drains, outflow hydrographs will be developed for both the existing and proposed conditions. Final detention basin design and outlet structure design will be performed to demonstrate, via modeling, that the existing condition peak flowrate of runoff from the 100-year storm event is not increased in the proposed condition. Should the underlying soils prove to not be conducive to infiltration and if the developer does not intend to pursue

discharge of Project runoff into the IID Drains, then drawdown of stored runoff may exceed 72 hours. In said condition, the Project will prepare a Mosquito Abatement Plan and process it for approval with the County of Imperial Department of Environmental Health (Fuscoe 2018a, p. 10).

*Agricultural Runoff*

Under the proposed condition, runoff from agricultural activities will cease from the start of construction of a CUP Area through the life of the Project. As such, the total volume of runoff (storm water plus agricultural runoff) discharged to the IID Drain system will decrease during the life of the Project because water applied on the Project site during Project construction, operations and decommissioning will be substantially less than that applied during agricultural operations (Fuscoe 2018a, p. 10).

Runoff from the Project site will be controlled by shallow ponding areas/detention basins to not exceed existing peak storm water flow rates as discussed previously. Due to the postponement of agricultural irrigation during the life of the Project, it is anticipated that the annual runoff from the proposed Project site will decrease when compared to the existing condition.

The Project may be constructed in individual phases (Phased CUP Scenario). Due to the presence of roads, canals, and drains surrounding and crossing through the Project site, each individual CUP Area is hydrologically isolated from the other CUP Areas associated with the Project. As such, should the phasing of the Project be necessary (Phased CUP Scenario), the hydrologic aspects of the Project be necessary (Phased CUP Scenario), the hydrologic aspects of the Project would be similar to constructing the Project all at once over an 18-month period (Full Build-out Scenario).

Therefore, a **less than significant impact** would occur with regard to exceedance of existing or planned stormwater drainage systems capacity or providing additional sources of polluted runoff under both the Full Build-out Scenario and the Phased CUP Scenario during Project construction, operation and decommissioning. No impact would occur once the Project site is reclaimed.

## 4.11.4 CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

### A. CUMULATIVE SETTING

The cumulative setting (geographic scope) for hydrologic resources is the Imperial Hydrologic Unit of the Salton Sea watershed as defined by the RWQCB's 2006 Basin Plan. The Salton Sea Watershed encompasses an area of approximately 8,360 square miles that extends from San Bernardino County in the north to the Valley of Mexicali (Republic of Mexico) in the south**.** The Salton Sea lies at the lowest point in the watershed (approximately 227 feet below mean sea level) and collects runoff and agricultural drainage from most of Imperial County, a considerable portion of Riverside County, small portions of San Bernardino and San Diego Counties, as well as the northern portion of the Valley of Mexicali. The Salton Sea, a 376 square mile closed inland lake was created in 1905 through a routing mistake and subsequent flood on the Colorado River. The Salton Sea has been fed primarily by agricultural runoff from the New and Alamo Rivers ever since. In the Project Area, runoff flows into existing irrigation ditches and culverts around the perimeter of the fields, which drain into the Imperial Valley Drains to the New River to the Salton Sea. The impaired waterbodies listed on the 303 (d) list include the Imperial Valley Drains, the New River and the Salton Sea. Groundwater in the Project Area is not used for municipal or domestic supply (Fuscoe 2018a), and therefore is not further discussed in this cumulative impact analysis.

Table 3.0-1 in Chapter 3.0, Introduction to the Environmental Analysis and Assumptions Used identifies cumulative projects in the vicinity of the proposed Project, the majority of which are other solar projects.

### B. CUMULATIVE IMPACTS AND MITIGATION MEASURES

**Cumulative Water Quality and Runoff Impacts**

**Impact 4.11.6** With the implementation of legally required SWRCB, RWQCB, and County policies, plans and ordinances governing land use activities that may degrade or contribute to the violation of water quality standards, the proposed Project, in combination with approved, proposed and other reasonably foreseeable projects in the Salton Sea watershed would not contribute to the cumulative effects of degradation of water quality, or result in changes in water runoff patterns. This impact is considered **less than cumulatively considerable** under both the Full Build-out Scenario and the Phased CUP Scenario.

## FULL BUILD-OUT SCENARIO/PHASED CUP SCENARIO

### *Construction, Operation and Decommissioning/Reclamation*

*Water Quality*

All projects in the watershed in excess of one-acre, including, but not limited to, the proposed Project and the projects listed in Table 3.0-1, are required to comply with the SWRCB NPDES general permit for activities associated with construction (Order 2009-0009-DWQ as modified by Order 2010-0014-DWQ, NPDES Permit No. CAS000002), which is known as the Construction General Permit (CGP). Without laws requiring projects to obtain and comply with the CGP, grease, oils, sediment and heavy metals generated during construction and post-construction activities could enter the surrounding impaired waterways from the Project site. The CGP requires development and implementation of rain event action plan, adherence to numeric effluent limits, monitoring and reporting, as well as implementation of numeric action plans. It also requires post-construction storm water runoff site planning to assure that the rate of water runoff does not exceed pre-Project conditions. The SWRCB has determined that the CGP protects water quality, is consistent with the CWA, and addresses the cumulative impacts of construction activities throughout the state, which includes the cumulative impacts from construction of projects within the watershed.

Additionally, the transition from agricultural land to industrial land as embodied by the proposed Project would result in a substantial reduction in pesticide, herbicide, and fertilizer application, and storm water discharge. The impacts to the water quality of the receiving earthen ditches, Imperial Valley Drains and ultimately the impaired New River and Salton Sea, would be beneficial because of the reduction in organic compounds found in pesticides, agricultural waste, loose sediments and excess nutrients from fertilizers. Removal of these substances will result in a significant saline reduction in the receiving waters. The IID is currently implementing a drain water quality improvement plan (Resolution No 93-145 as updated through May 19, 2016) to achieve water quality objectives to comply with Section 303(d) of the CWA (IID 2016). A component of the IID plan is to reduce maintenance operations, which will result in a reduction of Total Suspended Solids (TSS).

As discussed under the Project-specific issue areas above, each CUP Area will be required to prepare and comply with a SWPPP including construction BMPs, Site Design BMPs, Source Control BMPs, and Treatment Control BMPs for the management on runoff flow and water quality applicable to Project construction, operation and maintenance and decommissioning activities. The Project will also be required to comply with County regulations requiring the preparation and implementation of a Hazardous Materials Business Plan and an Integrated Pest Management Plan to address potential hazards associated with on-site chemical use. Inclusion of all of these features at each of the CUP Areas will ensure that the quality of the Project site's storm water runoff is improved. As a result, the proposed Project would have a **less than cumulatively considerable** impact to water quality under both the Full Build-out Scenario and the Phased CUP Scenario. Likewise, all other cumulative development projects would also be required to incorporate similar BMPs and comply with the same regulatory requirements as the proposed Project for the protection of water quality. Therefore, the proposed Project, in combination with other cumulative projects would have a **less than cumulatively considerable** impact to cumulative water quality during construction, operation and decommissioning/reclamation under both the Full Build-out Scenario and Phased CUP Scenario.

*Hydrology/Runoff Patterns*

As discussed under the Project-specific issue areas above, the Project will not have a substantial impact on the hydrology of the surrounding area or of the IID Drain system. Post-Project site conditions reflect increases in unattenuated peak runoff generated by the Project. However, the provision of detention

(either through designated detention basins outside arrays or shallow areas of ponding under arrays, or a combination of both) will attenuate peak discharges from the Project site. Detained runoff will be either infiltrated into the underlying soil or slowly released at or below predevelopment levels into the IID Drain system in a manner consistent with existing conditions. The *Conceptual Drainage Study and Storm Water Quality Analysis* prepared for the Project indicated the County's runoff detention standards can be met within the limits of the Project site. The analysis also determined that whether implemented at one time (Full Build-out Scenario) or in multiple phases (Phased CUP Scenario), the Project can be constructed without substantial change to existing drainage patterns. At the time of final design and engineering, a final hydrology study will be prepared and processed for approval with DPW utilizing standard industry practice that models factors such as runoff coefficient or curve number, infiltration into underlying soils, and flow in storm drain discharge pipes connected to the IID Drain system. Ultimate locations, volumes, and limits of detention basins will be determined at the time of final engineering (Fuscoe 2018a, p. 38). The quantity of any flow released into the IID drain system will also be lower than under the existing agricultural uses, as the Project will require much less water for construction, operation and maintenance, and decommissioning activities. Finally, the Applicant / CUP Owners are required to return the Project site to pre-Project conditions upon expiration of each CUP. As a result, the proposed Project would have a **less than cumulatively considerable** impact to the hydrology and runoff patterns of the watershed under both the Full Build-out Scenario and Phased CUP Scenario.

The cumulative projects identified in Table 3.0-1 are other solar energy facilities, most of which have similar existing and proposed topography, on-site and surrounding IID drainage systems, relatively small increases in impervious surfaces (temporarily until decommissioning), and minimal water use requirements. These cumulative projects would also be required to comply with the same regulatory requirements as the proposed Project in regard to preparation and implementation of hydrologic studies, provision of on-site runoff detention capacity, and approvals for any releases into the IID Drain system. Further, the owners of each project are required to return their respective Project sites to pre-project conditions at the end of each of their operational lifespans. Therefore, the proposed Project, in combination with other cumulative projects, would have a **less than cumulatively considerable** impact to the hydrology and runoff patterns of the watershed during construction, operation and decommissioning/reclamation under both the Full Build-out Scenario and the Phased CUP Scenario.

**Mitigation Measures**

None required.

**Significance After Mitigation**

Not applicable.