

5.17 Water Resources

The Amended Project's potential impacts on water resources are addressed in this section. Because geothermal brine is considered a geologic resource rather than a water resource, please refer to Section 2.0, Project Description and Section 5.5, Geologic Hazards and Resources for a discussion of geothermal brine. Also, because the Salton Sea is considered a biological resource rather than a water resource, please refer to Section 5.3, Biological Resources for a discussion of potential impacts on the Salton Sea.

5.17.1 Differences between the Amended and Original SSU6 Project

As with the original project, the Amended Project's impacts to water resources are expected to be less than significant. Although the footprint of the plant site and offsite facilities have been altered in the Amended Project, neither the surface water bodies and groundwater resources potentially impacted by the Amended Project, nor the Amended Project's effects on those resources, have changed.

The only difference in impacts to water resources between the Amended Project and the original SSU6 project is water usage. As was proposed for the original project, the Amended Project will use irrigation water from the Imperial Irrigation District (IID) primarily to adjust salt concentrations in the injected brine and provide a small percentage of the makeup cooling water needed (95 percent of the cooling water will come from condensed brine). At a 23.5 percent TDS, 'typical case' water usage for the original SSU6 project was estimated to be 290 acre-feet per year (afy). As a result of changes to plant processes, the 'typical case' water usage requirements for the Amended Project have increased to 483 afy for all three units combined. The original project estimated a 'conservative case' water usage at a 25 percent brine TDS of 987 afy. The Amended Project conservative case water usage applicable to summertime conditions is projected to be slightly less at 953 afy.

While under "typical conditions" the Amended Project may use more water than the original SSU6 project, it will remove approximately 181 acres of land from agricultural production (Section 5.7 Land Use). This change will result in an avoided agricultural water use of approximately 779 afy, calculated using the same factor used by the CEC for SSU6 (approximately 4.3 afy of water used for every acre removed from production at the site). Thus, under typical conditions, the Amended Project actually will result in net water savings of approximately 296 afy. Under conservative case conditions, considering the avoided agricultural water use, the Amended Project is estimated to use approximately 174 afy over pre-Project levels. Because the conservative case estimates are unlikely and water demand likely will be lower, impacts to water resources would be less than significant.

The Amended Project will not have significant water quality impacts. Because the site will be surrounded by a berm and will have an onsite detention basin for drainage, no discharges will leave the site. Thus, there would be no downstream erosion or sedimentation impacts. Compliance with RWQCB Waste Discharge Requirements (WDR) for the brine ponds and mud sumps, as well as the planned lining of Project well casings will ensure minimal risk of impacts to groundwater.

5.17.2 LORS Compliance

This section addresses the LORS applicable to water resources that are relevant to the Amended Project. Table 5.17-1 summarizes the LORS that are expected to apply. The Amended Project will comply with applicable LORS during construction and operation.

Table 5.17-1 LORS Applicable to Water Resources

| LORS | Applicability | Where Discussed in AP |
|--|--|--|
| Federal: | | |
| Clean Water Act (CWA) of 1977 (including 1987 amendments) Section 402, 33 United States Code (USC) Section 1342, 40 Code of Federal Regulations (CFR) Parts 112, 122 – 131 | The objective of the CWA (1977) is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The CWA regulates both direct and indirect discharges, including storm water discharges from construction and industrial activities. | Sections 5.17.2, 5.17.4, and 5.17.6 |
| CWA § 401, Water Quality Certification | Requires applicant for a Federal license or permit to conduct any activity that may result in a discharge to navigable waters to provide Section 401 certification. The certification, made by the state in which the discharge originates, declares that the discharge will comply with applicable provisions of the Act, including water quality-standards requirements. | Section 5.17.2 and Section 5.3, Biological Resources |
| CWA § 311, 33 USC Section 1321, Oil and Hazardous Substance Liability; 40 CFR 112 | Section 311 provides the U.S. Environmental Protection Agency (EPA) and the U.S. Coast Guard with authority to establish a program to prevent, prepare for, and respond to oil spills that occur in navigable waters of the U.S. 40 CFR 112 implements CWA oil spill prevention provisions (Spill Prevention Control and Countermeasures [SPCC] Plan requirements). | Section 5.17.2 |
| CWA § 404, Regulatory Programs; 33 CFR 323 and 328 | Requires applicants to coordinate with the U.S. Army Corps of Engineers for dredge and fill activities within delineated wetlands/ navigable waterways of the U.S. A 401 certification is necessary for receipt of a 404 permit. | Section 5.17.2 and Section 5.3, Biological Resources |
| State: | | |
| California Porter-Cologne Water Quality Control Act 1998; California Water Code (CWC) § 13000 - 14957; Division 7, Water Quality | Requires the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs) to adopt water quality criteria to protect State waters, including identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. | Section 5.17.2 |

Table 5.17-1 LORS Applicable to Water Resources

| LORS | Applicability | Where Discussed in AP |
|--|---|--|
| CWC, Division 7, Chapter 4 §13260 <i>et seq.</i> | Requires filing with the appropriate RWQCB a Report of Waste Discharge (ROWD) for issuance of a Waste Discharge Requirements (WDR) for any discharge that could affect the water quality of the state, unless the requirement is waived pursuant to CWC §13269 (a). | Sections 5.17.2 and 5.17.4 |
| California Code Regulations (CCR), Title 27, Division 2, Chapter 3 | Outlines classification and siting and construction criteria for waste management units (WMUs) and discharges of waste to land. Provides ROWD submittal guidance for the issuance of WDRs for WMUs, also stipulates operational and maintenance procedures to minimize mobility of waste materials. | Sections 5.17.2 and 5.17.4 |
| CWC, Division 7, Chapter 10 §13571 | Requires a well completion report for constructing, altering, or destroying a water well, cathodic protection well, groundwater monitoring well, or geothermal heat exchange well. | Section 5.17.2 |
| The Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) | Prohibits the discharge or release of chemicals known to the State of California to cause cancer or reproductive harm. | Section 5.17.3 (also see 5.6, Hazardous Materials) |
| CWC Division 7, Article 4 §§13271 - 13272; CCR, Title 23 §§2250 - 2260 | Requires reporting of the releases of specified reportable quantities of hazardous substances or sewage and releases of specified quantities of oil or petroleum products when the release is into, or where it will likely discharge into, waters of the State. | Section 5.17.2 |
| CWC Division 1, Chapter 6 § 461; California Constitution, Article 10, §2 | Prohibits the waste or unreasonable use of water, regulates the method of use and method of diversion of water, and requires all water users to conserve and reuse available water supplies to the maximum extent possible. | Sections 5.17.2 and 5.17.4 |
| California Public Resources Code Section 25523(a), 20 CCR §§1752, 1752.5, 2300 – 2309, and Chapter 2 Subchapter 5, Article 1, Appendix B, Part (1) | Provides for the inclusion of requirements in the CEC's decision on an Application for Construction (AFC) to ensure protection of environmental quality and requires submission of information to the CEC concerning proposed water resources and water quality protection. | Sections 5.17.2 5.17.4 and 5.17.6 |
| SWRCB Resolution 75-58 | Prescribes State policy on the use of inland water used for power plant cooling. | Sections 5.17.2 and 5.17.4 |
| Colorado River Basin Regional Water Quality Control Board (CRBRWQCB) Order No. CAG677001, Permit No. 98-300 | General waste discharge requirements for discharge of hydrostatic test water to surface waters. | Section 5.17.2 |

Table 5.17-1 LORS Applicable to Water Resources

| LORS | Applicability | Where Discussed in AP |
|--|--|---|
| Local and Industry Standards: | | |
| County of Imperial Codified Ordinances, Title 9, Division 10, Chapter 12 | Identifies requirements to obtain a permit for private sewage disposal systems in Imperial County. | Section 5.17.2 |
| County of Imperial Codified Ordinances, Title 9, Division 16, Chapters 3 and 4 | Identifies requirements for flood hazard protection in Imperial County; and requires development permit for construction in special flood hazard areas. | Sections 5.17.2, 5.17.4 and 5.17.6; Section 5.7 (Land Use). |
| Imperial County Land Use Code, Title 9, Division 3, Chapter 1 | Requires submittal of a plan for surface drainage disposal prior to issuance of a grading permit. | Section 5.17.2, 5.17.4, and 5.17.6 |
| Imperial County Land Use Code, Title 9, Division 16, Chapters 3 and 4: | Requires projects to comply with Division 16. Division 16 requires special attention during planning and construction to reduce/eliminate safety and property damage hazards associated with flood or erosion. Requires development permit for construction in special flood hazard areas. | Section 5.17.2 and Section 5.7 (Land Use) |

5.17.2.1 Federal LORS

This section describes in detail the Federal LORS potentially applicable to the Amended Project. In general, Federal LORS applicable to water resources for the Amended Project are implemented by the SWRCB and the CRBRWQCB.

Clean Water Act of 1977, as amended, §402, 33 USC §1342; 40 CFR Parts 112, 122 through 131

The primary objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation’s surface waters. Pollutants regulated under the CWA include “priority” pollutants, including various toxic pollutants; “conventional” pollutants, such as biochemical oxygen demand, total suspended solids, oil and grease, and pH; and “nonconventional” pollutants, including any pollutant not identified as either conventional or priority.

The CWA regulates both direct and indirect discharges. The National Pollution Discharge Elimination System (NPDES) program (CWA § 402) regulates direct discharges into waters of the U.S. NPDES permits set discharge limitations based on applicable State or Federal water quality standards and industry-specific, technology-based limitations. In 1987, the CWA was amended to include a program to address storm water discharges from industrial and construction activities. In California, the NPDES program, including storm water permitting, is delegated to the SWRCB and the nine RWQCBs. The Colorado River Basin RWQCB administers both the NPDES and storm water discharge permits in the Amended Project area.

Clean Water Act Section 311

This section prohibits the discharge of oil to the environment in harmful quantities and also establishes requirements of the SPCC program. As required under 40 CFR § 112, facilities with the potential to impact waters of the U.S. with releases of oil are required to develop and implement an SPCC Plan. The Plan must describe both spill prevention and response measures. Secondary containment is required for oil storage containers with a capacity of 55 gallons or more. Secondary containment is also required for oil-filled equipment. The SPCC Plan must be certified by a Professional Engineer.

The Applicant will prepare a SPCC Plan for the Amended Project because the total quantity of oil stored aboveground is expected to exceed 1,320 gallons in the steam turbine lubrication systems, oil-filled transformers, and diesel fuel tanks. Secondary containment for hazardous materials, including oil, is discussed in more detail in Section 5.6, Hazardous Materials.

Clean Water Act Section 401

Under the CWA, U.S. Army Corps of Engineers (USACE) Section 404 permits (see below) are subject to RWQCB Section 401 Water Quality Certification. Section 401 of the CWA requires certification from the RWQCB that the proposed project is in compliance with established water quality standards. Projects that have the potential to discharge pollutants are required to comply with established water quality objectives. Section 401 provides the SWRCB and the RWQCB with the regulatory authority to waive, certify, or deny any proposed federally permitted activity, which could result in a discharge to waters of the State. To waive or certify an activity, these agencies must find that the proposed discharge will comply with state water quality standards. According to the CWA, water quality standards include beneficial uses, water quality objectives, and compliance with the EPA's anti-degradation policy.

Clean Water Act Section 404

Activities resulting in the dredging or filling of jurisdictional waters of the U.S. require authorization under a Section 404 permit issued by the U.S. Army Corps of Engineers (USACE). The USACE may grant authorization under either an individual permit or a nationwide permit (NWP). The Amended Project will require the USACE to issue an authorization under NWP 12 for potential impacts to ephemeral drainages along the transmission line route. Refer to Section 5.3, Biological Resources for a discussion of potential impacts to jurisdictional waters.

5.17.2.2 State LORS

The administering agencies for the State LORS are the CEC, the SWRCB, and the CRBRWQCB. The Project will comply with the applicable State LORS related to water use and quality.

Porter-Cologne Water Quality Control Act; CWC, Division 7, Chapter 4 §13260 et seq.

The Porter-Cologne Water Quality Control Act of 1967, Water Code §13000 *et seq.* requires the SWRCB and the nine RWQCBs to adopt water quality criteria to protect State waters. Those criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. Water quality criteria for the proposed project area are contained in the Water Quality Control Plan for the Colorado River Basin (Basin Plan) which was adopted in 1994 and is in the process of being

amended. This plan sets numerical and/or narrative water quality standards controlling the discharge of wastes to the State's waters and land.

CWC Division 7, Chapter 4 establishes the regulatory authority of the SWRCB and RWQCBs to issue WDRs for any discharge with the potential to impact State water quality. Although a WDR was issued for the original Project, it has expired and RWQCB staff have indicated that the Applicant will be required to submit a separate ROWD for issuance of a new WDR for the Amended Project (Jackson, 2008).

California Storm Water Permitting Program

California Construction Storm Water Program

Construction activities that disturb equal to or greater than one acre are required to obtain coverage under California's General Permit for Discharges of Storm Water Associated with Construction Activity, Water Quality Order 99-08-DWQ (General Construction Permit CAS 000002). Activities subject to permitting include clearing, grading, stockpiling, and excavation.

The General Construction Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP specifies Best Management Practices (BMPs) that will reduce or prevent construction pollutants from leaving the site in storm water runoff and will also minimize erosion associated with the construction project. The SWPPP must contain site map(s) that show the construction site perimeter; existing and proposed structures and roadways; storm water collection and discharge points, general topography both before and after construction; and drainage patterns across the site. Additionally, the SWPPP must describe the monitoring program to be implemented. A notice of intent (NOI) for coverage under the construction general permit will be submitted for the Amended Project.

California Industrial Storm Water Program

Industrial activities with the potential to impact storm water discharges are required to obtain a NPDES permit for those discharges. In California, an Industrial Storm Water General Permit, Order 97-03-DWQ (General Industrial Permit CAS 000001) may be issued to regulate discharges associated with ten broad categories of industrial activities, including electrical power generating facilities. The General Industrial Permit requires the implementation of management measures that will protect water quality. In addition, the discharger must develop and implement a SWPPP and a monitoring plan. Through the SWPPP, sources of pollutants are to be identified and the means to manage the sources to reduce storm water pollution described. The monitoring plan requires sampling of storm water discharges during the wet season and visual inspections during the dry season. A report must be submitted to the RWQCB each year by July 1 documenting the status of the program and monitoring results.

Based on a legal opinion from the State Water Resources Control Board, geothermal power plants are exempt from the requirement for coverage under the General Permit (SWRCB, 1993). The existing geothermal plants owned and operated by affiliates of the Applicant do not currently have SWPPPs. Even if the Amended Project were not exempt as a geothermal power plant, California's General Permit exempts a facility from permit requirements (and the need to develop a SWPPP) if the facility has no potential to discharge storm water to waters of the State (i.e., no offsite discharge). As discussed in Section 2.0, Project Description, the Amended Project plant site will be constructed with a berm surrounding the entire site and a

storm water detention basin designed to contain the storm water from the largest anticipated storm event. Thus, the Project will have no discharge and be exempt from permit.

CCR, Title 27, Division 2, Subdivision 1, Consolidated Regulations for Treatment, Storage, Processing or Disposal of Solid Waste

This subdivision sets forth standards to protect public health and safety and the environment. Chapter 3 of Subdivision 1 identifies siting criteria for waste management units, including surface impoundments. This code establishes that waste management units must comply with applicable SWRCB design requirements and RWQCB WDR. Articles 2040 and 20310 establish specific design requirements, including at least five feet of separation between the base of the waste management unit and the highest anticipated elevation of the underlying water and liner criteria. The administering agency for the above regulation is the RWQCB, Colorado River Basin. The Amended Project will comply with all applicable permitting requirements under Title 27 for the brine ponds and continuously operated mud sumps associated with the well development pads.

CWC, Division 7, Chapter 10 §13571

This section authorizes the California Department of Water Resources (DWR) to regulate the construction of water wells. Requires the submittal of a well completion report to the DWR for any activity involving constructing, altering, or destroying a water well, cathodic protection well, groundwater monitoring well, or geothermal heat exchange well. The Applicant will submit required well completion reports for the construction of groundwater monitoring wells for the Amended Project.

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65), HSC § 25249.5 et seq.; CCR Title 22, Division 2, Part 2, Subdivision 1, Chapter 3 et seq.

Proposition 65 requires persons who emit/release certain chemicals that cause cancer and reproductive toxicity to provide a warning to exposed persons, and to prevent certain chemicals that cause cancer and reproductive toxicity from being discharged into sources of drinking water. Certain exemptions apply for chemicals emitted in low quantities or low concentrations. The administering agency for Proposition 65 is the California Office of Environmental Health Hazard Assessment (OEHHA), although the program has no reporting requirements, and OEHHA has no inspection or direct oversight responsibilities for individual facilities. The Attorney General and private plaintiffs enforce Proposition 65.

The Amended Project will use and/or release several chemical substances that contain Proposition 65-listed chemicals. The brine contains several Proposition 65-listed chemical substances that may be emitted during the course of normal facility operations, either through the cooling tower, steam vents, rock muffler, or air pollution control device. In addition, Proposition 65-listed chemical substances may be emitted as combustion byproducts from the facility from propane combustion in the air pollution control device, or from diesel fuel combustion in the emergency engine. However, the emission levels of Proposition 65-listed chemicals are not expected to exceed Proposition 65 thresholds for which public notification would be required. The facility operator will provide warnings to employees who may be exposed to listed chemicals by posting Proposition 65-compliant warning signs and through safety training pursuant to Cal/OSHA requirements. A Health Risk Assessment for the Amended Project is provided in Section 5.10, Public Health.

CWC, Division 7, Chapter 4, Article 4 §§13271 – 13272 and CCR Title 23 §§ 2250 through 2260

These code sections require reporting of releases of specified reportable quantities of hazardous substances or sewage (§ 13271) and releases of specified quantities of oil or petroleum products (§ 13272), when the release is into, or where it will likely discharge into, waters of the State. For releases into or threatening surface waters, a “hazardous substance” and its reportable quantities are those specified in 40 CFR § 116.5, pursuant to § 311(b)(2) of the Federal CWA, 33 USC § 1321(b)(2). For releases into or threatening ground water, a “hazardous substance” is any material listed as hazardous pursuant to the California Hazardous Waste Control Act, Health & Safety Code §§ 25100 *et seq.*, and the reportable quantities are those specified in 40 CFR Part 302. The administering agencies for the above regulation are the CRBRWQCB, and the California Office of Emergency Services. Although such releases are not anticipated, if necessary, the Project would comply with the reporting requirements. A detailed discussion of reporting and compliance requirements is provided in Sections 5.6, Hazardous Materials, and 5.16, Waste Management.

CWC Division 1, Chapter 6 § 461; California Constitution, Article 10 §2 and Public Resources Code (PRC) §§25300 – 25523(a)

Article 10 §2 of the California Constitution prohibits the waste or unreasonable use of water. The water code regulates the method of use and method of diversion of water, and requires all water users to conserve and reuse available water supplies to the maximum extent possible. CWC §13552.8 states that the use of potable water for power plant cooling is an unreasonable use if suitable reclaimed water is available. The availability of reclaimed water is determined by the SWRCB based on criteria presented in CWC § 13550. Those criteria address whether the quality and quantity of the reclaimed water are suitable for the use, the cost is reasonable, the use is not detrimental to public health, and the use will not impact downstream users or biological resources.

Under PRC §§ 25300-25523(a), the CEC can approve the use of “fresh inland” water for cooling purposes by power plants under certain circumstances. The Amended Project will utilize non-potable agricultural water from IID. The analysis of alternatives for the original SSU6 project demonstrated that the use of reclaimed water or of dry cooling were not reasonably feasible (see Section 4.0, Alternatives). The Amended Project will use the same IID source for water supply given that the conditions for the use of reclaimed water or dry cooling at the Project site have not changed.

California Public Resources Code §25523(a), 20 CCR §§1752, 1752.5, 2300 – 2309, and Chapter 2 Subchapter 5, Article 1, Appendix B, Part (1)

The Public Resources Code provides for the inclusion of requirements in the CEC's decision on an AFC to assure protection of environmental quality and requires submission of information to the CEC concerning proposed water resources and water quality protection. The Amended Project will comply with this regulation by providing information adequate to analyze potential impacts to water resources.

State Water Resources Control Board, Resolution 75-58

On June 19, 1975, the SWRCB adopted the Water Quality Control Policy on the Use and Disposal of Inland Waters used for Power Plant Cooling. The purpose of the policy is to provide consistent State-wide water quality principles and guidance for adoption of discharge requirements, and implementation actions for

power plants that depend on inland waters for cooling. The SWRCB policy uses as criteria whether the quality and quantity of the reclaimed water are suitable for the use, the cost is reasonable, the use is not detrimental to public health, and the use will not impact downstream users or biological resources. Alternative water supplies or cooling technologies must be “economically unsound” or “environmentally undesirable” in order for the use of “fresh inland” water to be used. Alternatives to the use of IID water for a small portion of the Project’s cooling load (95 percent of the cooling water makeup will come from condensate), do not meet the criteria: dry cooling would exact an efficiency penalty that could render the Project economically unviable and there is no available source (wastewater treatment plant) of reclaimed water in the general area that meets tertiary treatment standards.

CRBRWQCB Order No. CAG677001, Permit No. 98-300

This order identifies the requirements for the discharge of hydrostatic test water. Hydrostatic tests may be conducted at the Amended Project on liquid storage and conveyance facilities including pipelines, tanks and secondary containment. Coverage under the General Permit for Discharge of Hydrostatic Test Water to Surface Water is required at least 30 days prior to any discharge. The Amended Project will seek coverage under the general permit prior to conducting any hydrostatic tests.

5.17.2.3 Local LORS

Imperial County is the administering agencies for the local LORS. The Amended Project will comply with the applicable local LORS related to water use and quality.

Imperial County Land Use Code Division 16, Chapter 3

Division 16, Chapter 3 applies to areas of special flood hazards, including land around the Salton Sea and land lying at or below the minus 220 foot elevation contour. It requires that no structure or land be constructed, located, extended, converted, or altered without full compliance with the terms of Division 16 and other applicable regulations. Division 16 requires special attention be paid during planning and construction in order to reduce/eliminate safety and property damage hazards associated with flood or erosion.

Imperial County Land Use Code Division 16, Chapter 4

Division 16, Chapter 4 identifies development permit requirements for special flood hazard areas. Application for a development permit shall be made on forms furnished by the floodplain administrator and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, and drainage facilities, and the location of the foregoing area.

Imperial County Land Use Code, Division 10, Chapter 12

Division 10, Chapter 12 identifies the requirement to obtain a permit for private sewage disposal systems in Imperial County. Permit applications must be accompanied by the following items: 1) Soil Percolation Report; 2) Site Plan; 3) Engineered design if estimated maximum daily flow is greater than 2,500 gallons; and 4) permit fee.

Imperial County Land Use Code Division 17, Chapter 1

Division 17, Chapter 1 establishes regulations to facilitate the beneficial use of geothermal resources; to prevent wasteful or detrimental uses; and to protect people, property, and the environment from adverse impacts of improper use.

Imperial County Land Use Code, Title 9, Division 3, Chapter 1

Division 3, Chapter 1 requires that a plan for disposal of all onsite surface drainage water must be submitted to, and approved by, the Imperial County Department Planning/Building Department and the Imperial County Department of Public Works prior to issuance of a Grading Permit.

Imperial County Land Use Code, Title 9, Division 10, Chapter 10

This is the County's grading ordinance that incorporates regulations pertaining to excavation, grading, and construction. This section of the Code also identified procedures and requirements for applying for a construction permit.

5.17.2.4 Involved Agencies and Agency Contacts

Agencies and agency contacts relative to water resources for the Amended Project are provided in Table 5.17-2.

Table 5.17-2 Agency Contact Information

| Agency Contact | Phone/E-mail | Permit/Issue |
|---|---|--|
| Laurie Monnares USACE 2730 Loker Avenue West Carlsbad, CA | (760) 602-4830 L.monnares@usace.army.mil | Section 404 permit |
| Mr. Herb Jackson Senior Water Resources Engineer Colorado River Basin RWQCB 573-720 Fred Waring Dr, Suite 100 Palm Desert, CA 92260 | (760) 346-7491 hjackson@waterboard.ca.gov | WDR, Industrial Storm Water Permit, Construction Storm Water Permit, Section 401 certification |
| Connie Anderson California DWR 1101 I Street Sacramento, CA 95814 | (916) 341-5800 canderso@water.ca.gov | Well completion reporting |
| Jurg Heuberger, Director Imperial County Planning and Development Services Department 801 Main Street El Centro, CA 92243-2811 | (760) 482-4238 jurgheuberger@co.imperial.ca.us | Development Permit for special flood hazard area; Septic systems |
| Sergio Rubio Senior Building Inspector, Imperial County Building Department 801 Main Street El Centro, CA 92243-2811 | (760) 482-4311 sergiorubio@co.imperial.ca.us | Well permitting |

5.17.2.5 Required Permits and Permit Schedule

Water resources-related permits for the Amended Project include a WDR to be issued by the CRBRWQCB. An ROWD will be required that addresses CCR Title 27 requirements for the surface impoundments used to contain designated waste (e.g., WMUs) (Jackson, 2008). The three brine ponds and the six mud sumps associated with the well pads will be permitted as WMUs. In addition to the WMUs, the WDR will also address monitoring and maintenance requirements for the onsite storm water management facility and the service water pond. General storm water permits will be required for the construction of the facility. The water supply for the Amended Project will be supplied by the IID and no groundwater production wells will be constructed. However, the Amended Project will require the construction of groundwater monitoring and geothermal production and injection wells. Construction of these wells will require well construction permits from the Imperial County Building Department and submittal of a report of well completion to the California DWR. Agricultural wells put out of service by construction of the Amended Project will be abandoned consistent with Imperial County and DWR requirements. Table 5.17-3 lists the water-related permits that are required for the Project. This table also provides the schedule for when applications for these permits are needed.

Table 5.17-3 Permits Required and Permit Schedule

| Permit/Approval | Schedule |
|---|---|
| Waste Discharge Requirements (WDR) | The ROWD application for a WDR will be submitted after Amendment Petition submittal and the permitting process is expected to take six to nine months. |
| Notice of Intent (NOI) for coverage under the California General Storm Water Permit for Construction Activities | The complete NOI must be filed two weeks prior to construction start for coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity. A SWPPP will be prepared and submitted prior to beginning construction. |
| NOI for coverage under the Order No. CAG677001 for coverage under the CRBRWQCB General Permit for Discharge of Hydrostatic Test Water to Surface Waters | Coverage under the General Permit for Discharge of Hydrostatic Test Water to Surface Water is required at least 30 days prior to any discharge. |
| Report of Completion for groundwater monitoring wells and geothermal heat exchange well | File a Well Completion Report with DWR within 60 days of the completion of the work. |
| Grading and Septic System Permits | File with County together with building permit prior to beginning of construction. |
| Monitoring well construction permit | Permit applications must be submitted to County a minimum of 10 days prior to construction of the well. |
| CWA 404 permit | Prior to construction, after 401 certification |
| CWA 401 certification | Prior to construction, after AP approval by CEC |

5.17.3 Affected Environment

The Amended Project is located south of the Salton Sea within a region of the Imperial Valley used primarily for agriculture and geothermal power production. The town of Calipatria is approximately six miles to the southeast, and the town of Niland is approximately 7.5 miles to the northeast. The affected environment for water resources is discussed in this section.

5.17.3.1 Regional Setting

The Amended Project will be located in the lowest portion of a closed continental basin called the Salton Trough, which is a 3,100-square-mile structural depression near the San Andreas Fault system. The trough had previously been open to the ocean but became enclosed behind the Colorado River delta, which is located to the south. Subsequent flooding of this enclosed basin by the Colorado River left a thick sequence of non-marine deposits. Magma emplacement along active rifting through the Salton Trough is the source of the high-temperature geothermal systems including the Salton Sea Known Geothermal Resource (KGRA) that will be used by the Amended Project. Active faulting within the Salton Trough has also created several moderate temperature low-TDS geothermal systems.

5.17.3.2 Climate and Precipitation

The climate is characterized by extreme aridity and high summer temperatures. Precipitation in the Project area averages approximately 3.2 inches per year, with the highest recorded daily rainfall being 2.65 inches on July 6, 1968. While rainfall events generally occur in the winter, during summer months, warm moist tropical air from the Gulf of California and Mexico occasionally brings thunderstorms to the Imperial Valley area. Table 5.17-4 summarizes typical temperature and precipitation for the Amended Project area.

Table 5.17-4 Niland, California Climate and Precipitation – Annual and Monthly Average

| Climate¹ | | | | | | | | | | | | | |
|---|------------|------------|------------|------------|------------|-------------|-------------|------------|-------------|------------|------------|------------|---------------|
| Month | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Annual |
| Ave Max Temp (°F) | 70.4 | 74.7 | 79.5 | 86.1 | 93.8 | 103.3 | 107.0 | 106.2 | 101.7 | 91.4 | 78.9 | 70.3 | 88.6 |
| Ave Min Temp (°F) | 39.2 | 42.7 | 46.9 | 52.1 | 58.7 | 65.9 | 73.7 | 74.8 | 69.0 | 57.6 | 45.2 | 38.7 | 55.4 |
| Precipitation² | | | | | | | | | | | | | |
| Ave. Total Precip (in) | 0.48 | 0.45 | 0.46 | 0.08 | 0.02 | 0.04 | 0.25 | 0.34 | 0.30 | 0.29 | 0.17 | 0.35 | 3.23 |
| Ave = Average Max = Maximum Temp = Temperature °F = degrees Fahrenheit Precip = Precipitation in = inches | | | | | | | | | | | | | |
| ¹ . Source: BRAWLEY 2 SW Weather station, 20.14 miles from Niland, http://www.idcide.com/weather/ca/niland.htm | | | | | | | | | | | | | |
| ² . Source: NILAND Weather station, 2.76 miles from Niland, http://www.idcide.com/weather/ca/niland.htm | | | | | | | | | | | | | |

5.17.3.3 Surface Water Resources

Surface Water Bodies

Surface water features in the vicinity of the Amended Project include the Salton Sea, which is located approximately 0.3 miles to the west, the New River, the Alamo River and two irrigation drains, Vail Drain 4a and Vail Lateral Drain 5 (see Figure 5.17-1). The New River is approximately 2.7 miles east of the facility, while the Alamo River is approximately 4.8 miles to the southwest. Vail Lateral Drain 4a and Vail Lateral Drain 5 are on the east and west sides of the Amended Project site respectively, and are connected to the All American Canal System. All drainage from Project area drains toward the Salton Sea.

The Salton Sea is a closed basin with no outlet for surface water discharge. Inflows to the Salton Sea are limited primarily to surface and groundwater return flows from agricultural irrigation and storm water runoff during the rainy season. Because it has no outlet, water is lost only through evaporation, leaving dissolved salts behind and gradually increasing salinity. The salinity of the Salton Sea is currently approximately 44 parts per thousand, approximately 25 percent higher than ocean water. Other than negligible rainfall, the only source of fresh water to the region for both irrigation and domestic use is water diverted from the Colorado River.

The New and Alamo Rivers are both perennial streams with headwaters starting in Mexico. Both rivers convey predominantly agricultural irrigation drainage and some treated wastewaters. The New River also receives a considerable portion of untreated wastewater flows from Mexicali, Mexico. The source of the irrigation drainage is water is imported from the Colorado River.

The All American Canal System is part of the Federal irrigation system from the Hoover Dam. It is formed at the Imperial Diversion Dam by waters from the Colorado River and delivers water to agricultural areas of Imperial and Coachella Valleys. The canal delivers water to the lateral canal systems, including Vail Lateral Drains 4a and 5, and subsequently to farm turnouts.

Surface Water Quality

The beneficial use designations for surface water bodies in the area of the Amended Project are listed below (WQCP, 2006).

Salton Sea:

- Aquaculture,
- Industrial Service Supply (potential),
- Water-contact Recreation,
- Non-contact Water Recreation,
- Warm Freshwater Habitat,
- Wildlife Habitat, and
- Preservation of Rare, Threatened, or Endangered Species.

All American Canal System:

- Municipal and Domestic Supply,
- Agricultural Supply,
- Aquaculture,
- Freshwater Replenishment,
- Industrial Service Supply,
- Groundwater Recharge,
- Water-contact Recreation,
- Non-contact Water Recreation,
- Warm Freshwater Habitat,
- Wildlife Habitat,
- Hydropower Generation, and
- Preservation of Rare, Threatened, or Endangered Species.

Alamo River, New River, and Imperial Valley Drains including the Vail Drains:

- Freshwater Replenishment,
- Water-contact Recreation (Alamo River only),
- Non-contact Water Recreation (Alamo River only),
- Warm Freshwater Habitat,
- Wildlife Habitat, and
- Preservation of Rare, Threatened, or Endangered Species.

Additionally, the New River has been designated for beneficial use for industrial supply and the Alamo River has a potential beneficial use for hydropower generation. It should be noted that water contact is unauthorized in the Vail Drains, and the New River is unfit for any recreational use because of contamination.

The Salton Sea has a history of water quality issues associated with increasing salinity and nutrient concentrations. The New and Alamo Rivers, which drain from Mexico to the south through agricultural lands, also have histories of poor water quality. The CWA section 303(d) requires the states to list water bodies not meeting water quality under certain CWA conditions. The Salton Sea is listed for nutrients, salinity, and selenium with sources designated as agricultural return flows. The New River is listed for bacteria, nutrients, pesticides, and sedimentation/siltation and the Alamo River is listed for pesticides, sedimentation/siltation, and selenium (SWRCB, 2006). The sources of pollutants are all designated as agricultural runoff.

5.17.3.4 Groundwater Resources

Regional Hydrogeology

The Amended Project site is located within the Imperial Hydrologic Unit (Area Code 723.00) of the Imperial Valley Planning Area. The Imperial Valley Planning Area encompasses approximately 2,500 square miles.

Variable confining clay beds and hydraulic heads lead to inconsistent water levels within the basin. The main source of groundwater recharge to the shallow aquifer system is imported Colorado River water that seeps from canals and is applied as irrigation. Shallow groundwater, ranging in depths from approximately five to 20 feet below the ground surface (bgs), is drained by an extensive network of ditches and drains in agricultural areas as well as into the Alamo and New Rivers that then drain to the Salton Sea (WQCP, 2006).

As a result of surface application of irrigation water and the low permeability of much of the soil, a perched water table exists throughout much of the Imperial Valley. These perched groundwater conditions may occur two to five feet bgs.

The deep aquifer has been estimated to contain anywhere from 1.1 billion to three billion acre-feet of water, and the total recoverable water has been estimated to be approximately 20 percent of the total. The deep aquifer is recharged with about 400,000 acre-feet of water per year (ICPBD, 1993). Water in the upper portion of the deep aquifer, known as the KGRA, is high temperature and high in TDS. The Amended Project uses this aquifer for the brine from which geothermal steam is extracted.

Local Hydrogeology

Previous geotechnical investigations performed at the Amended Project site found that the depth to groundwater is shallow, ranging from approximately three to six feet bgs. The average groundwater gradient has been estimated at approximately 28 feet per mile toward the west near Niland and approximately nine feet per mile toward the northeast near Calipatria. The primary source of groundwater recharge in both areas is suspected to be seepage from the East Highline and Coachella Canals (Westec, 1981). Both the East Highline and Coachella Canals are recipients of waters from the All American Canal System.

Groundwater in the area is hydraulically connected to the Salton Sea and is very saline. The fine-grained deposits that are characteristic of the area have transmissivities of only 1,000 to 10,000 gallons per day per foot to depths of approximately 500 feet. At greater depths, the transmissivities are likely to be even less (Water Conservation and Transfer Project, Final EIR/EIS, 2002). The low transmissivity of these deposits limits the ability of water to percolate downward into deeper aquifers. As a result, depleted groundwater levels would recharge slowly and limit the potential for development of groundwater in the area. Except for withdrawals made for geothermal energy production, the deep aquifer is too saline for irrigation and most other uses.

Groundwater Quality

Groundwater in the Imperial Hydrologic Unit has a designated beneficial use for industrial supply purposes. Additionally, a small portion of the groundwater in this hydrologic unit is also designated as having beneficial

use for municipal purposes (WQCP, 2006). However, based on the Sources of Drinking Water Policy (SWRCB Resolution 88-63), groundwater is exempted from municipal beneficial use designation if TDS exceed 3,000 milligrams per liter (mg/l) and it is not reasonably expected to supply a public water system, or if the aquifer is regulated as a geothermal producing source.

Because low vertical permeabilities inhibit mixing of waters from different depths, the quality of water that comprises the main aquifer beneath the Imperial Valley varies locally from fresh to saline. According to Department of Health Services data from five public supply wells, TDS concentrations range from 662 to 817 mg/l (IVGB, 2004). Historical records indicate relatively shallow groundwater tapped by drains was of a sodium chloride type with high TDS (15,700 mg/l) and salinity ascribed to evaporation of shallow groundwater. Deeper waters were also found to be sodium chloride in nature, but had lower TDS content (1,500 to 1,600 mg/l) and salinity.

5.17.3.5 Floodplains

The Imperial County General Plan indicates that the Amended Project site is within the 100-year floodplain (Figure 5.17-1). According to the Federal Emergency Management Agency (FEMA), the Project site is located within Zone A, within the 100-year floodplain and Zone D, which is considered an undetermined, but possible, flood hazard zone (FEMA, 2008).

5.17.3.6 Water Supply

The primary water demand for the Amended Project is for cooling tower makeup. This water demand will be satisfied largely (about 95 percent on an annual average basis), by condensate from steam extracted from the geothermal brine. After powering the turbines, the steam will be sent to condensers and the resulting condensate will then be routed to the cooling towers. Condensed steam will also be the source of scrubber makeup water and will be the source of seal water for the mechanical pump seals.

Additional water from condensate will be required for the dilution of acid to be added to the injected brine, potable water treatment and quench water for the recuperative thermal oxidizer (RTO) air emissions control equipment. This water will be supplied by the IID. The IID holds rights to take water from the Colorado River and deliver it to farmers, tenants and landholders in the Imperial County. The IID receives an average of 3.1 million acre-feet of water annually from the Colorado River. IID is not a treated water provider. If a new facility is constructed, the IID may provide raw water to that facility. However, the IID does not provide raw water service (including for landscaping and related irrigation purposes) where potable water is available.

IID water will be delivered from a canal adjacent to the plant site via a short (500 feet) new water supply pipeline (Barber, 2008). The water delivery will occur under an existing Water Supply Agreement issued for the original SSU6 project. Construction of the Amended Project plant site will convert approximately 133 acres of agricultural land to industrial use. Historical water delivery data from IID for Gates 459 and 460 that serve the parcel of land on which the plant site is located show that IID supplies approximately five afy per acre to this parcel. It was determined in the 2003 Commission's Decision (CEC 2003) that 759 afy was an appropriate baseline water consumption rate for the parcel.

The connection point for the Project to the IID canal will be the Vail 4A Lateral, Gate 459 and/or 460 at the southeast corner of the power plant site, along Boyle Road. The supply pipeline will be a 500-foot-long, buried, 10-inch pipeline. Water quality data for IID water is shown in Table 5.17-5.

Table 5.17-5 Expected Water Quality – IID Canal

| Constituent | IID Canal Water (ppm) | Constituent | IID Canal Water (ppm) |
|---|-----------------------|------------------|-----------------------|
| Calcium | 88 | Ammonia-Nitrogen | ND |
| Magnesium | 34 | Aluminum | 290 |
| Sodium | 140 | Antimony | ND |
| Potassium | 5.5 | Arsenic | ND |
| Total alkalinity | 150 | Barium | 130 |
| Hydroxide | ND | Beryllium | ND |
| Carbonate | ND | Boron | 190 |
| Bicarbonate | 180 | Cadmium | ND |
| Chloride | 120 | Total Chromium | ND |
| Sulfate | 320 | Copper | 39 |
| Fluoride | 0.6 | Iron | 230 |
| Nitrate | 1.0 | Lead | ND |
| pH | 8.1 | Lithium | ND |
| TDS | 750 | Manganese | 80 |
| Bromide | 0.12 | Mercury | ND |
| CO ₂ | 2.9 | Nickel | ND |
| Sulfide | ND | Selenium | ND |
| Benzene | ND | Total Silica | 10 |
| Ethyl benzene | ND | Silver | ND |
| Toluene | ND | Strontium | 1,400 |
| Xylenes | ND | Zinc | 30 |
| ND = Not Detected | | | |
| Source: E.S. Babcock, Laboratory Reference Number: A8J1807-03 | | | |

5.17.4 Environmental Impacts

The potential impacts to water resources that could result from construction and/or operation of the Amended Project are evaluated in this section.

5.17.4.1 Significance Criteria

Appendix G of the California Environmental Quality Act identifies the following criteria for determining significance:

- Does the project violate water quality standards or waste discharge requirements?
- Does the project substantially deplete groundwater supplies or interfere with groundwater recharge?
- Does the project substantially alter existing drainage patterns, resulting in a substantial increase in erosion or surface runoff and flooding?
- Does the project create or contribute to runoff that exceeds drainage system capacity?
- Does the project otherwise substantially degrade water quality?
- Does the project place housing within a 100-year flood hazard area?
- Does the project expose people or structures to significant risk of loss, injury, or death from flooding?
- Does the project contribute to inundation by seiche, tsunami, or mudflow?

5.17.4.2 Construction Impacts

As Units 1, 2, and 3 of the Amended Project will be constructed approximately ten months apart and each will take approximately 26 to 28 months to construct, construction activities are expected to last over a period of more than four years. This subsection describes potential impacts to water resources related to construction activities for the plant site and well pads.

Water Supply and Use

Water will be required for a variety of construction activities, including:

- Dust suppression,
- Concrete preparation,
- Hydrostatic testing of pipelines, and
- Potable and sanitary use.

Construction-phase water demand will be greatest during site grading (all rough grading), which will occur over the entire 160 acre site. Water demand during grading is expected to be approximately 80,000 gallons per day, supplied by IID. An estimated 151 acre-feet of water will be used for Project dust control and other construction activities over the multi-year construction phase. Utilizing the same factor for water use per agricultural acre as used by the CEC for the original SSU6 project (4.3 afy/acre), baseline water consumption for the Project is 779 afy based on the agricultural use of the site (181 acres). Thus, net water use by the Amended Project during construction will be considerably less than is consumed at the site at present for agriculture and impacts to water supply from construction would be less than significant.

Water demand during construction is provided in the following Table 5.17-6. The basis for the following numbers for water usage during construction is one 10-hour shift and all grading work over the entire (all three units) plant site to be done concurrently. Therefore, average and maximum usages are the same.

Table 5.17-6 Construction Water Use

| Activity | Duration | Annual Usage (afy) | Total Consumption (acre-feet) | Daily Usage (gallons) |
|-------------------------------|-----------------|---------------------------|--------------------------------------|------------------------------|
| Flood Control Berm Compaction | 31 days | 9.2 | 9.2 | 100,000 |
| Site Compaction | 180 days | 52.1 | 52.1 | 95,000 |
| Dust Suppression for Grading | 2.5 years | 89.6 | 224 | 80,000 |
| Hydrostatic Test Water | Intermittent | 17.8 | 17.8 | --- |

The estimated quantity of water shown in Table 5.17-6 needed for compaction of the flood control berm assumes that approximately 63,000 cubic yards of structural fill will need to be imported for construction. However, the amount of structural fill required will depend on several factors including: 1) the type of soil (i.e., coarse-grained or fine-grained), 2) the maximum dry density and optimum moisture content (per Test Method ASTM D1557), and 3), the specified relative compaction, and the *in-situ* moisture content of the imported material. Assuming that the imported material will have a maximum dry density of 125 pounds per cubic foot, an optimum moisture content of 12 percent, and a relative of compaction of 95 percent, approximately 250,000 gallons of water will be required for each one percent increase in moisture content for the 63,000 cubic yards of fill. If the imported material arrives at the site with a moisture content of 10 percent, then approximately 500,000 gallons of water will be required; if the material arrives at eight percent, then 1,000,000 gallons will be needed, etc. For this water estimate, the Applicant assumed that the soil will have five percent moisture content.

No domestic or potable water supply will be required during construction because bottled water will be used for drinking water and portable toilets will be used.

For all the foregoing reasons, no significant impacts associated with water use during the construction activities are expected from the Amended Project.

Potential Impacts to Surface Water

Hydrostatic Testing

Amended Project construction activities will generate periodic discharges of water for hydrostatic testing of pipelines and plant piping. The total quantity of water used for hydrostatic testing and subsequently discharged is estimated to be 17.8 acre-feet, assuming that the piping to each well pad is tested separately, and the hydrotest water is discharged following each test. This water would be discharged in accordance with Board Order No. CAG677001, the General WDR for Discharge of Hydrostatic Test Water to Surface Waters issued by the CRBRWQCB. The discharge will be to the storm water detention basin and will be defused so that the detention basin will not be stained because of the contaminants in the discharge or gouged by the pressure of the water. Based on water availability and compliance with the discharge permit,

no significant adverse impacts to water resources associated with the discharge of hydrotest water are anticipated.

Drainage and Runoff

The Project site is located in an area of very low rainfall. Any storm water discharges occurring during the construction activities will be managed in accordance with the California General Storm Water Construction Permit issued by the SWRCB and implemented by the CRBRWQCB. A SWPPP will be prepared and implemented for the construction phase of the Amended Project. The construction SWPPP will identify the BMPs that will be used to prevent impacts to storm water quality from erosion and/or sedimentation. A Drainage, Erosion, and Sediment Control Plan (DESCP) will also be prepared in accordance with CEC requirements.

Erosion control measures will be used during construction to control sediment-laden runoff and ensure the integrity of the storm water collection system. The SWPPP and DESCP will include control measures, such as grass-covered swales and ditches, stabilized construction entrances, gravel-covered construction lay down area, silt fencing, and seeding of the disturbed area.

Upon completion of construction activities, areas disturbed by construction will be stabilized in accordance with the DESCP and construction sediment control measures will be removed. Accordingly, the Amended Project will not have significant adverse impacts to water resources associated with drainage and runoff from construction activities.

Potential Impacts to Groundwater

Potential Spills and Releases

During production and injection well drilling activities, oil and chemicals may be stored on the well pad, within secondary containment. Management practices employed to prevent spills or releases of oil and chemicals used in well development or plant construction are discussed in Section 5.6, Hazardous Materials. Drilling fluids will be used to lubricate and cool the drilling equipment and promote borehole stability. Even though the target zone for these wells is much deeper than the shallow aquifer, the potential exists for the drilling fluids to impact the shallow groundwater. The wells will be drilled in accordance with California Division of Oil, Gas, and Geothermal Resources (CDOGGR) requirements and will include engineering controls, including casing shallow portions of both the production and injection wells to protect groundwater. Additional details regarding the management practices employed to prevent spills or releases of drilling fluids used in well development from impacting the environment are discussed in more detail in Section 5.5, Geologic Hazards. There would be no significant adverse impacts to water resources due to a release of oil, chemicals or drilling fluids during Project construction.

Drilling Waste

There will be three types of wells constructed to support the Amended Project. Production wells will supply geothermal brine from which steam will be flashed to drive the plant turbines. Injection wells will be used to inject the brine subsequent to taking the initial flash of steam. Plant wells will be used primarily to manage aerated brine and cooling tower blowdown from the plant operations. However, during the construction of the well field, these plant injection wells will also be used to inject fluids separated from the drilling wastes as

described below. Therefore, from a construction sequence standpoint, one or more of these plant wells will be constructed first.

The construction of the production, injection and plant wells associated with the Amended Project will result in several waste streams with the potential to impact water quality. These are expected to include:

- Spent drilling fluids and drilling cuttings;
- Well construction wastes;
- Fluids from performing “flowbacks” on the completed wells; and
- Wastes from well-production testing.

Drilling waste removed during construction of production and injection wells will be held in dedicated mud sumps for drying prior to removal to landfills. This waste is expected to be partially liquid. The Applicant intends to construct a dedicated mud sump for each production and injection well pad location for a total six mud sumps. In addition to the six mud sumps, the three brine ponds slated for construction on the plant site initially will be employed to manage drilling wastes. The mud sumps are temporary containment ponds that will be decommissioned and removed subsequent to completion of the well construction activities. These are lined impoundments employing polyester fabric/fluoropolymer-coated geosynthetic liner rated for a minimum temperature of 200 degrees Fahrenheit. The liner will be covered with approximately 12 inches of compacted clay to hydraulically isolate the mud sump from the underlying groundwater table. The mud sumps will be approximately 726 feet long by 11 feet wide by five feet deep, with two feet of freeboard. A mud-sump work plan and site assessment will be submitted to the RWQCB as part of the ROWD prior to construction of the mud sumps.

Depending on the period of operation, the continuously operated mud sumps may be subject to the site assessment requirements of Title 27 and will be permitted as such under the WDR. Prior to construction of the mud sumps, a site assessment incorporating baseline groundwater monitoring will be performed as is expected to be required under the WDR issued by the RWQCB for the Amended Project mud sumps. During operation of the mud sumps, groundwater monitoring wells requirements will be identified and sampling conducted under the WDR to ensure protection of subsurface water quality.

The Amended Project will avoid significant adverse impact to water quality by complying with the requirements of Title 27 and the WDR issued by the CRBRWQCB. Accordingly, no significant adverse impacts from the development of injection and recovery wells and the management of drilling wastes are expected.

5.17.4.3 Operation Impacts

The potential environmental impacts to water resources related to the ongoing operation of the Amended Project are addressed in this section.

Water Supply and Use

A water balance diagram showing the projected water supply to the Project, water use by the Project, and wastewater discharge from the Project is shown as Figures 2.12a and 2.12b in Section 2.0, Project

Description. An estimated 95 percent of the Amended Project's water supply needs will be provided by condensate. The remaining five percent of water needed for the Project will be provided by IID.

An outside water supply is required for the Amended Project for dilution of acid added to spent brine prior to reinjection, water treatment for potable use, and RTO-quench water. As was the case for the original SSU6 project, an increase in the percentage TDS of the spent brine will require an increase in water usage to maintain the required injection water quality. At a 23.5 percent TDS, 'typical case' water usage for the original project was estimated to be 293 afy. As a result of changes to plant processes, the 'typical case' water usage requirements for the Amended Project have increased to 483 afy. The original project estimated a 'conservative case' water usage at a 25 percent TDS of 987 afy. The Amended Project 'conservative case' water usage applicable to minimum brine flow, summertime conditions is projected to be only 953 afy. It should be noted that the estimate of 953 afy is based on applying unlikely summertime conditions over the course of an entire year to calculate the most conservative maximum potential water usage. Because the extreme high temperatures of summer time do not literally occur throughout the entire year, actual water usage very likely will be lower than 953 afy.

The Amended Project will incorporate a minimum water supply storage capacity for six days of operation to accommodate IID canal water outages (Barber, 2008). This storage will be provided by an onsite raw water pond with an estimated capacity of ~1,100,000 gallons. The raw water pond will have an estimated evaporative loss of approximately 20 afy and a maximum loss of approximately 30 afy due to high temperatures and low humidity in the region. To mitigate this loss, IID will charge the Applicant a higher conservation rate for an additional 30 afy rather than the industrial rate that would otherwise be charged for that water. These funds would also be used to fund IID water conservation projects.

There are no drinking water wells in the area of the Amended Project. IID water will be routed through a reverse osmosis (RO) system with treatment to supply potable water and service water systems including shower, eyewash equipment, wash basin water, toilets in crew change quarters, and sink water in the sample laboratory. RO separation technology is used to remove dissolved impurities from water through the use of a semi-permeable membrane. Pressure is used as the driving force for the separation. As shown in the water balance diagram (see Figures 2.12a and 2.12b), 13 gallons per minute (gpm) of IID canal water processed in the RO system yields 10 gpm of potable water and three gpm of wastewater (known as "reject") that will be used as make-up water in the cooling towers. The RO system will have a pre-filter to remove sediment from the feedwater and will have a clean-in-place system that uses detergents and mild acids to periodically clean the RO membrane. The IID canal water will also be used for fire water, cement slab wash down, and for various non-potable applications in the control building and elsewhere in the facilities.

Under typical conditions, the Amended Project will use considerably less water than is currently used for agriculture in areas that will be taken out of agricultural production by Project construction (483 afy for the Project and 779 afy for agricultural uses). Even with the conservative case assumptions of summertime water use during the entire year, the Project's water consumption would be a moderate increase (174 afy) over current agricultural use of the same acreage. As water demand very likely will be less than the conservative case assumptions, the Amended Project impacts on water supply would be less than significant.

Alternative Water Supplies

It is longstanding State policy to discourage the use of “fresh inland waters” for power plant cooling where suitable alternatives exist. SWRCB Resolution 75-58 stated that: “use of fresh inland waters for power plant cooling will be approved by the Board only when it is demonstrated that the use of other water supply sources or other methods of cooling would be environmentally undesirable or economically unsound.” The CEC siting regulations state that if a power plant project wants to use fresh water, it must demonstrate why alternative water supplies (and alternative cooling technologies) are “environmentally undesirable” or “economically unsound.”

The original SSU6 project analyzed the use of recycled water from the community of Westmorland’s wastewater treatment plant. Although the supply would have been adequate, the use of Westmorland water would have required an 8.5-mile pipeline and additional treatment facilities. Further, the Westmorland facility did not have tertiary treatment capabilities; tertiary treatment is legally required for treated wastewater to be usable for power plant cooling. Westmorland plant personnel indicate that the facility does not have tertiary treatment at present and there are no plans for facility expansion (Agatep, 2008). The original project also investigated the use of groundwater. However, the CEC determined that using groundwater was infeasible due to an inadequate supply, the risk of reducing recharge to the Salton Sea, and concentrations of TDS well above acceptable limits for use by the power plant. As a result, the CEC concluded that the use of fresh water was necessary: (1) to dilute the brine for injection and (2) to make up for the fact that recycled water from the local wastewater treatment plant was not sufficient to meet the plant’s demands during high demand periods.

Although the estimated need for an outside water supply has increased for the Amended Project from 290 afy to 483 afy (based on the typical-case water demand), the background facts associated with alternative water sources has not changed since the original SSU6 decision. Neither reclaimed water nor groundwater is available or suitable for use by the Amended Project. Moreover, as proposed, the net Project water use is expected to be less than is currently used for agriculture on the acreage that will be occupied by Project facilities.

Wastewater Discharge

The Amended Project will dispose of most liquid wastewater streams through injection to dedicated plant injection wells.

Spent Brine

Under normal operating conditions, the primary discharge from the Amended Project will consist of spent brine that is injected directly into the injection wells. Under these circumstances, brine is considered a geologic resource, not a hazardous waste or wastewater, pursuant to California Health and Safety Code Section 25143.1, although the direct injection is subject to regulation by CDOGGR and the Brine Ponds are regulated by the RWQCB. During normal operations, brine will be injected in the injection wells immediately following the high-pressure (HP) separator. During startup and shutdown, some brine may be directed to the brine ponds and subsequently injected into the aerated brine injection wells on the plant site. Process brine waste characteristics are summarized in Section 2.0, Project Description.

During plant-upset conditions, during well flow testing, or during startup, produced brines will be discharged to the brine ponds. Prior to injection, process wastewater flows will be routed and stored in a brine pond. There are three brine ponds planned for the Amended Project, one for each power block. Figures 2-13a and 2-13b (see Section 2.0, Project Description) depicts the plan, section, and detail of each of the three brine ponds within the plant site. The brine ponds each will be approximately 636 feet by 58 feet by 7.5 feet deep. Each brine pond will contain a surrounding 20-foot area for cleanout vehicle access with an entry ramp. The brine ponds will be designed in accordance with Title 27 Division 2 of the CCR – Special Requirements for Surface Impoundments.

The brine ponds are of earthen construction, lined with the following layered liner materials, and include a built-in leak detection system:

- Geosynthetic clay liner – Bent fix Thermal Lock GCL;
- GSE HD – HDPE Remembrance 80 mil;
- GSE Hyper Net – HDPE Genet 200 mil;
- GSE HD White Texture single side – HDPE Remembrance 80 mil;
- 6-inch Compacted Soil; and
- 6-inch Fiber-Reinforced Concrete.

Monitoring wells will be provided adjacent to the brine ponds to comply with RWQCB groundwater protection regulations. Several groundwater monitoring wells and one background well will be drilled and constructed around each brine pond.

Prior to Amended Project operation, a site assessment work plan will be completed and groundwater compliance wells identified. The ponds will be designed in accordance with Title 27 requirements for surface impoundments and WMUs will be permitted under a WDR issued by the CRBRWQCB. A release from these ponds or their associated systems has the potential to impact both surface and groundwater water quality. However, because the ponds will be constructed with geosynthetic liner and clay liner and concrete and managed (including monitoring wells) per CRBRWQCB specifications, significant impacts to water quality from the operation of the ponds are not expected.

The brine ponds are also used for the collection of miscellaneous wastewater streams prior to injection into the formation. Process streams discharged to the brine pond for injection include the following:

- Aerated brine (Well lifting/warm up; flow back; production test);
- Scrubber blowdown;
- Fluid from drilling waste; and
- Aqueous laboratory wastes.

Following are brief summaries of the plant's waste and wastewater streams. More detailed summaries are provided in Section 2.0, Project Description.

Cooling Tower Blowdown

To prevent scaling in the cooling tower, the TDS levels in the circulating water are managed by periodic blowdown. The blowdown rate is managed by an automated controller. The average blowdown rate is approximately 67 gpm. Cooling tower blowdown will be injected in the condensate injection wells in accordance with CDOGGR regulations.

HP Steam Scrubber

The steam conditioning section of the Resource Production Facility has an HP steam scrubber used to remove chloride contamination from the steam to prevent damage to the steam turbine and other downstream equipment. The HP steam scrubber uses a scrubbing liquor consisting of sodium hydroxide in aqueous solution. The sodium hydroxide reacts with the chlorides to form a sodium chloride in aqueous solution. The scrubbing solution is periodically discharged to the brine ponds to prevent sodium chloride buildup in the scrubber; the scrubber blowdown rate is approximately 82 gpm.

Emergency Relief Tanks

Blowdown from the emergency relief tanks will be discharged to a brine pond and subsequently injected into one of two dedicated injection wells in accordance with CDOGGR regulations.

Chemical Feed Area Drainage

Chemical feed area drainage consists of spillage, tank overflows, maintenance operations, storm water accumulation and area washdowns. The chemical feed area drainage would be routed to one of the brine ponds and then to a dedicated injection well in accordance with CDOGGR regulations.

General Plant Drainage

General plant drainage consists of wastewater collected by sample drains, equipment drains, equipment leakage, laboratory waste streams, and area washdowns. Wastewater collected in the general plant drainage system would be routed to one of the three brine ponds.

Impacts to Surface Water

Drainage and Runoff

The Amended Project has been designed such that there will be no discharges from the plant site. Site grading will convey any runoff to the northwest corner of the site to a ~493,000-cubic-foot (~3,680,000-gallon) earthen storm water detention basin. The detention basin will be designed to contain a storm event of three inches in a 24-hour period (100-year storm conditions). Runoff will be conveyed via ditches, swales and culverts. As noted above, chemical storage areas will have secondary containment to prevent chemical spills from contaminating storm water. Containment areas will be inspected to verify that any rainwater accumulation in the containment area is free of contamination before the containment area is drained to the storm water conveyances. If contamination is identified, the containment area will be pumped out by vacuum truck and disposed off site at an appropriate waste management facility (see Section 5.16, Waste Management). The Project site will also be enclosed by a perimeter berm. Therefore, significant adverse impacts from project drainage and runoff would not occur.

Sanitary Waste

Sanitary waste will be directed to a septic tank constructed to Imperial County specifications. Sludge from the septic system will be periodically removed and trucked offsite for disposal. Operation of the septic system will require a WDR from the Colorado River RWQCB. For these reasons, no significant impacts to water quality would occur as a result of the septic system.

Potential Spills and Releases

Oils and other hazardous materials will be stored on site within secondary containment to minimize the potential impacts to groundwater and surface water, as described in detail in Section 5.6, Hazardous Materials. Significant adverse impacts to water resources from spills and releases would not occur.

The geothermal brine will be transported in the production well pipelines and injection well pipelines. The composition of the brine is shown in Table 2.4 (see Section 2.0, Project Description). A release of brine from these pipelines could have the potential to impact shallow groundwater or nearby surface waters. Mitigation measures include a protective pipeline design, a detailed inspection routine, preparation of a release response plan, and expeditious cleanup of released liquids. These mitigation measures would reduce potential impacts to water resources from the operation of the pipelines to less than significant.

Impacts to Groundwater

Geothermal fluids will be produced from a depth of approximately 7,400 feet and delivered to the surface through overlying material that includes shallow aquifers. After treatment and power production, brines would be injected at depths in excess of 8,000 feet. Without proper controls, there would be the potential for significant impacts to the shallower aquifers through which the production and injection wells penetrate. However, engineering controls, including casing shallow portions of the production and injection wells, will ensure that there will be no significant impacts to groundwater as a result of Amended Project well operations.

Project wells will be cased to depths of approximately 2,500 feet with titanium well bore casing. Also, the wells will be operated in accordance with CDOGGR requirements which also will ensure the avoidance of significant groundwater impacts. Production and injection well construction and operation are addressed in more detail in Section 5.5, Geologic Hazards. Application of CDOGGR requirements and proper operation and maintenance of production and injection wells will ensure that the Project's potential impacts to groundwater are less than significant.

Flooding Impacts

The Project is located within the 100-year flood zone, and thus could be impacted by a 100-year storm event. The entire site will be enclosed by a berm with a top height of 220 feet below sea level and constructed with two-to-one (horizontal to vertical) sloping sides to protect the plant from flooding. Therefore, potentially significant flood-related impacts are not anticipated.

5.17.5 Cumulative Impacts

The Amended Project is expected to have less than significant cumulative impacts on water resources. The volume of water expected to be supplied by IID (483 afy) for Project operations under typical conditions is less than the volume of water currently supplied by IID for agricultural irrigation at the Project site (779 afy). Even if conservative case summertime water consumptions occurred year round, an unlikely scenario, water consumption (953 afy) would be less than 200 afy more than current agricultural use. Since the difference between average monthly water consumption in the conservative case and the typical case would be approximately 40 acre-feet per month (80 acre-feet per month, for the conservative case and 40 acre-feet per month for the typical case), a year of five typical case months and seven summertime conservative case months would result in approximately the same water use as the present agricultural use. In short, the Amended Project is unlikely to lead to anything but a small increase in water use and may well lead to no increase in water use at all. Even in a time of continuing water shortages, the Amended Project would not contribute significantly to cumulative impacts to water supplies.

Because the Project will be designed such that no runoff leaves the site, there is no potential for cumulative erosion and sedimentation impacts. The facility's brine ponds and mud sumps will be designed, constructed, and operated in compliance with LORS that make releases from these impoundments unlikely.

5.17.6 Mitigation Measures

Water resources mitigation measures are embodied in the CEC's Conditions of Certification (COC) for the original project. These COC have been adopted and modified by the Applicant to make them appropriate for the Amended Project in the following section.

5.17.7 Conditions of Certification

The Conditions of Certification (COC) applicable to the original SSU6 project are generally applicable to the Amended Project. Please note that separate Soils COC are provided in Section 5.12, Soils. Recommended changes to the COC below are indicated using *italics* for additional/revised text and ~~strikethrough~~ for deleted text.

The Applicant proposes specific changes to better reflect the specific circumstances of the Amended Project. Specifically, the Applicant proposes to delete Soil & Water-4 and Soil & Water-5 in their entirety because the underlying project element, the widening of McKendry Road, is not part of the Amended Project. The road widening had been associated with offsite production wells on Obsidian Butte. Since the production wells have been relocated onto the main plant site, McKendry Road will not be widened. In addition, Soil & Water-2 should be deleted because geothermal power plants are exempt from the requirement for coverage under the storm water General Permit, based on a 1993 memorandum by State Water Resources Control Board legal staff (SWRCB, 1993).

SOIL & WATER-1 The project owner shall comply with all of the requirements of the General NPDES Permit for Discharges of Storm Water Associated with Construction Activity. The project owner shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for the construction of the ~~entire~~ project. Prior to beginning any site mobilization associated with any project element, the project owner shall submit to the Compliance Project Manager (CPM) a copy of the Notice of Intent for Construction accepted

by the Colorado River Basin RWQCB and obtain Energy Commission CPM approval of the construction activity SWPPP for Amended Project.

Verification: No later than 60 days prior to the start of site mobilization for any project element, the project owner shall submit a copy of the SWPPP required under the General NPDES Permit for Discharges of Storm Water Associated with Construction Activity to Imperial County for review and comment, and to the CPM for review and approval. The SWPPP will include copies of the Notice of Intent for Construction accepted by the RWQCB and any permits for Amended Project that specify requirements for the protection of storm water or water quality. Approval of the SWPPP by the CPM must be obtained prior to site mobilization for any project element.

~~**SOIL & WATER-2**—The project owner shall comply with all of the requirements of the General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity. The project owner shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for the operation of Amended Project. The project owner shall submit to the CPM a copy of the Notice of Intent for Operation accepted by the Colorado River Basin RWQCB and obtain approval of the General Industrial Activities SWPPP from the Energy Commission CPM prior to commercial operation of the Amended Project.~~

~~**Verification:** No later than 60 days prior to the start of commercial operation, the project owner shall submit to the CPM a copy of the SWPPP required under the General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity to Imperial County for review and comment, and to the CPM for review and approval. The operational SWPPP shall include copies of the Notice of Intent for Operation accepted by the RWQCB and any permits for Amended Project that specify requirements for the protection of storm water or water quality. Approval of the operational SWPPP by the CPM must be obtained prior to start of commercial operation.~~

SOIL & WATER-3 Prior to beginning any site mobilization activities for any project element, the project owner shall obtain CPM approval for a site-specific Drainage, Erosion and Sedimentation Control Plan that addresses all project elements. The plan shall address revegetation and be consistent with the grading and drainage plan as required by Condition of Certification CIVIL-1.

Verification: No later than 60 days prior to the start of any site mobilization for any project element, the project owner shall submit the Drainage, Erosion and Sedimentation Control Plan to the CPM for review and approval. No later than 60 days prior to start of any site mobilization, the project owner shall submit a copy of the plan to Imperial County for review and with a requesting that any comments be provided to the CPM within 30 days. The plan must be approved by the CPM prior to start of any site mobilization activities.

~~**SOIL & WATER-4:** Prior to the start of site mobilization activities associated with any project element, including linear and off-site facilities, the project owner shall obtain a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (USACE) for the road widening and pipeline installation between the west end of McKendry Road and Obsidian Butte, and also for the construction of the Bannister switchyard if deemed necessary by USACE.~~

~~**Verification:** No later than thirty (30) days prior to the start of site mobilization activities associated with any project element, including linear and off-site facilities, the project owner shall submit to the CPM a copy of the Clean Water Act Section 404 permit from USACE for the project.~~

~~**SOIL & WATER-5:** Prior to the start of site mobilization activities associated with any project element, including linear and off-site facilities, the project owner shall obtain a Section 401 Certification from the Colorado River Basin RWQCB for the road widening and pipeline installation between the west end of McKendry Road and Obsidian Butte, and also for the construction of the Bannister switchyard if a Section 404 permit is deemed necessary for these activities by USACE.~~

~~**Verification:** No later than thirty (30) days prior to the start of site mobilization activities associated with any project element, including linear and off-site facilities, the project owner shall submit to the CPM a copy of the Section 401 Certification from the Colorado River Basin RWQCB for the project.~~

SOIL & WATER-6 The project's use of service ponds will create an average loss of up to 30 AFY of fresh water through evaporation. To offset the loss of fresh water, the project owner shall pay the elevated conservation rate for 30 AFY fresh water supply to IID on an annual basis to account for the loss of such supply.

Verification: No later than thirty (30) days prior to power plant operation, the project owner shall provide verification that the project and IID have agreed upon the payment of the conservation rate for 30 AFY on an annual basis. Verification should be in the form of a written contract that demonstrates this pay schedule is valid. Verification must be received prior to power plant operation and shall be provided on an annual basis, reported in the Annual Compliance Report for the life of the project.

SOIL & WATER-7 The project owner shall provide a copy of the Underground Injection Control (UIC) permit issued by the California Department of Oil, Gas, and Geothermal Resources (DOGGR) for the construction and operation of the brine and wastewater disposal injection wells. The project shall not construct or discharge to these wells without the final permit in place or without emergency/temporary authorization from DOGGR or U.S. EPA Region IX. The project shall provide on a continuing basis, copies of all monitoring or other reports, as well as any changes made to the permit by DOGGR related to the operation of these wells. The project shall not operate without a valid UIC permit.

Verification: No later than fifteen (15) days prior to the construction of the injection wells, the project owner shall submit copies of the final UIC permit to the CPM. All copies of permit changes and monitoring or other reports must be received within thirty (30) days of their submittal to DOGGR.

SOIL & WATER-8 The project owner shall obtain Waste Discharge Requirements (WDRs) issued by the Colorado River Basin RWQCB for the operation of the project's brine ponds.

Verification: No later than sixty (60) days prior to any *initial wastewater or brine* discharge to the brine ponds, the project owner shall obtain and provide a copy of the WDRs issued by the Colorado River Basin RWQCB for the project's discharge to the brine ponds to the CPM. Any change to the design, construction, or operation of the ponds permitted by the WDRs will be noticed in writing to both the CPM and the Colorado River Basin RWQCB during both construction and/or operation. The project owner will notify the Energy Commission in writing of any changes to the WDRs that are instituted by either the project owner or the Colorado River Basin RWQCB, including WDRs permit renewal. The project owner will provide the CPM with the annual monitoring report summary required by the WDRs, and will fully explain any violations, exceedances, enforcement actions, or corrective actions.

SOIL & WATER-9 The project owner shall obtain Waste Discharge Requirements (WDRs) issued by the Colorado River Basin RWQCB for the project's mud sumps.

Verification: No later than thirty (30) days prior to the use of mud sumps associated with drilling activities, the project owner shall obtain and provide a copy of final WDRs issued by the Colorado River Basin RWQCB for the project's mud sumps to the CPM. Any change to the design, construction, or operation of the mud sumps permitted by the WDRs will be noticed in writing to both the CPM and the Colorado River Basin RWQCB during their use. The project owner will notify the Energy Commission in writing of any changes to the WDRs that are instituted by either the project owner or the Colorado River Basin RWQCB. The project owner will provide the CPM with any reporting or monitoring required by the WDRs, and will fully explain any violations, exceedances, enforcement actions, or corrective actions.

SOIL & WATER-10 Prior to production of brines from the geothermal aquifer, the project owner shall receive approval for an Emergency Response Plan in consultation with appropriate agencies to ensure proper notification and mitigate any potential impacts resulting from an accidental brine release.

Verification: No later than thirty days (30) days prior to production of brines from the geothermal aquifer, the project owner shall consult with appropriate agencies and submit an Emergency Response Plan to the CPM for approval. Approval of the final plan by the Energy Commission CPM must be obtained prior to the production of brines from the geothermal aquifer.

SOIL & WATER-11 The on-site septic system shall be designed according to the applicable county standards. The project owner shall submit the final designs for the septic system to the CPM for review and approval, and to the Imperial County Environmental Health Services, County Health Department for comment.

Verification: No later than thirty (30) days prior to commencement of septic system construction activities, the project owner shall submit the final designs for the septic system to the CPM for review and approval, and to the Imperial County Environmental Health Services, County Health Department for comment. The project owner shall obtain CPM approval of the final plans prior to commencement of septic system construction activities.

SOIL & WATER-12 The project shall not use any fresh water supplies in addition to water supplied by IID as proposed during these proceedings.

Verification: After operation has begun, the project owner shall provide to the CPM in the annual compliance report a record of the monthly IID fresh water deliveries to the project. The project owner shall file an amendment with the CPM should another source of fresh water be deemed necessary, or should the project require more than the 1000 afy of IID fresh water as described in the will-serve letter provided during these proceedings.

SOIL & WATER-13 The project owner shall provide certification by a California registered civil engineer or architect that the floodproofing methods for the project meet the floodproofing criteria in Section 74301(c)(2) of the Imperial County Flood Damage Prevention Regulations.

Verification: No later than thirty (30) days prior to start of commercial operation, the project owner shall provide certification by a registered civil engineer or architect that the floodproofing methods for the project

meet the floodproofing criteria in Section 74301(c)(2) of the Imperial County Flood Damage Prevention Regulations to the CPM for review and approval and to Imperial County for review. This verification must be provided prior to the start of commercial operation.

SOIL & WATER-14 The project owner shall participate in regional subsidence monitoring conducted by Imperial County and the California Division of Oil, Gas and Geothermal Resources (DOGGR).

Verification: No later than thirty (30) days prior to start of commercial operation, the project owner shall reach an agreement with Imperial County and DOGGR that incorporates the Amended Project into current subsidence monitoring efforts. Verification of this agreement shall be provided in writing and shall be submitted to the CPM for review and approval prior to commercial operation. The project's participation shall be reported and summarized in the Annual Compliance Report for the life of the project.

5.17.8 References

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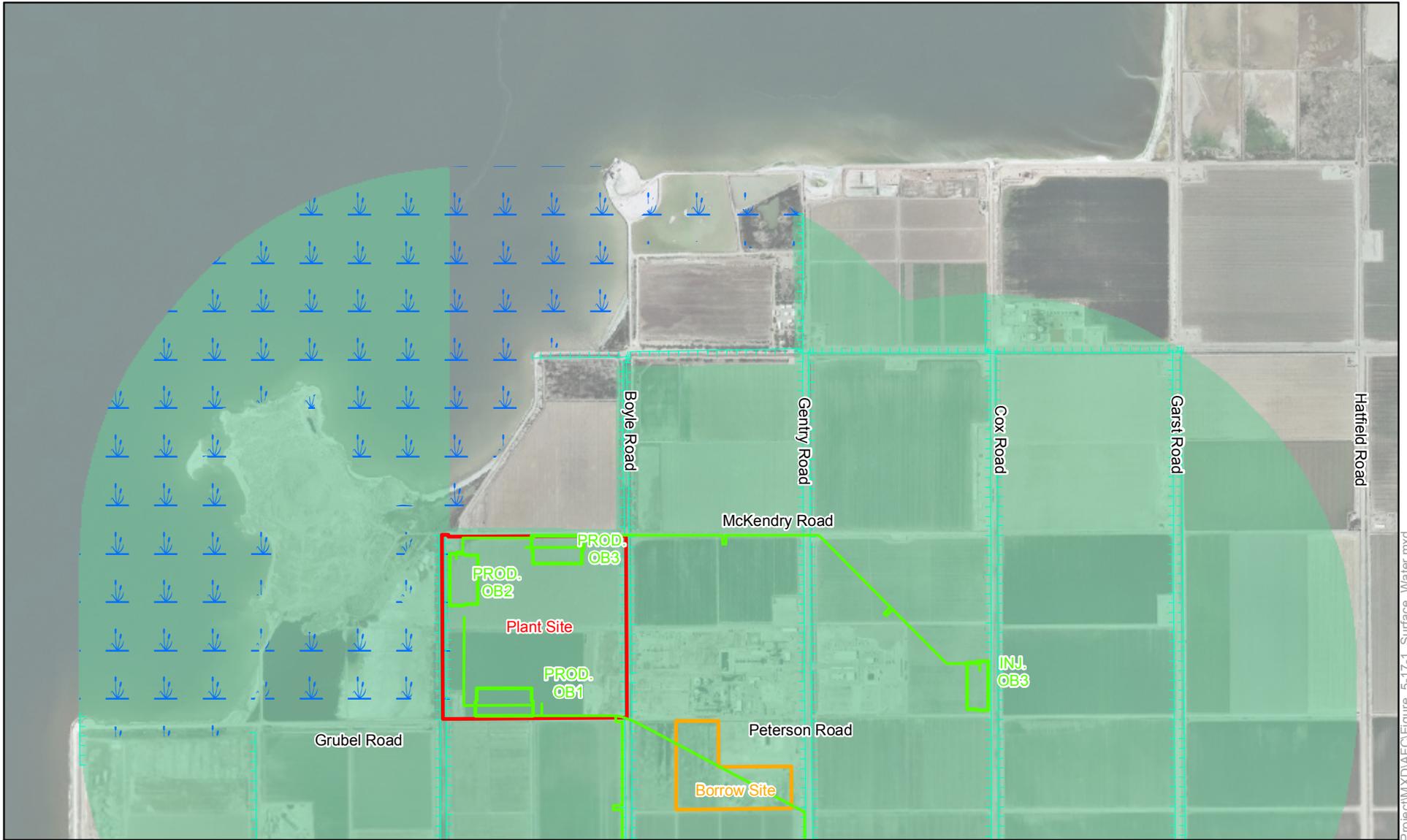
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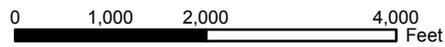
See Mapsheet 2 of 2

Legend

- Plant Site
- Proposed Well Pad
- ArtificialPath
- ↓ National Wetland Inventory Area
- Borrow Site
- Proposed Pipeline
- CanalDitch
- FEMA Special Flood Hazard Area
- StreamRiver

Data: ESRI, FEMA 2008

1 inch = 2,000 feet



Amended SSU6 Project

**Figure 5.17-1
Surface Water**

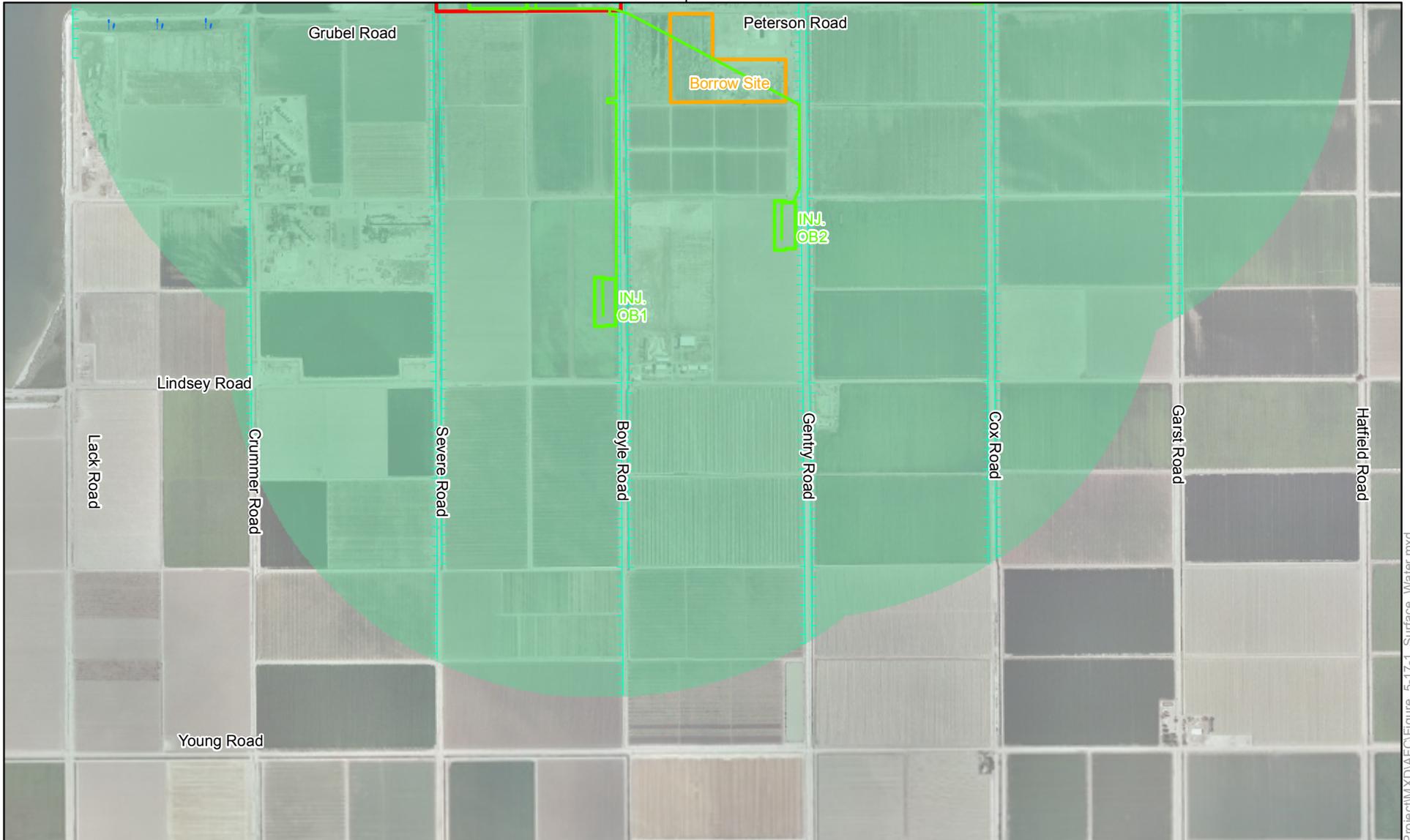
Mapsheet 1 of 2



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Project: 12676-001
Date: February 2009

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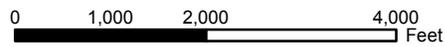


Legend

- Plant Site
- Proposed Well Pad
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- National Wetland Inventory Area
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- Proposed Pipeline
- Canal/Ditch
- FEMA Special Flood Hazard Area
- Stream/River

Data: ESRI, FEMA 2008

1 inch = 2,000 feet



Amended SSU6 Project

**Figure 5.17-1
Surface Water**

Mapsheet 2 of 2



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Project: 12676-001
Date: February 2009