

## 4. Environmental Impact Assessment

### 4.9 Hydrology and Water Quality

This section describes the groundwater and surface water resources in the Proposed Project area, the affected environment, and the regulatory setting. Potential impacts to hydrology and water quality are also described in this section.

#### 4.9.1 Environmental Setting

The Proposed Project is located within the Indian Wells Valley Groundwater Basin (IWVGB; California Groundwater Basin Number 6-54) and the Searles Valley Groundwater Basin (SVGB; California Groundwater Basin Number 6-52), which are subsets of the California Department of Conservation State Watershed Program South Lahontan Hydrologic Region.

The IWVGB and SVGB are closed, internally-drained basins. The IWVGB is bounded on the west by the Sierra Nevada Range, on the south by the El Paso Mountains, on the north by the Coso Range, and on the east by the Argus Range. The SVGB is bounded by the Argus Range on the west, the Slate Range on the north and east, and the Summit Range and Lava Mountains on the south. The two basins are hydrologically connected by Poison Canyon which drains from Indian Wells Valley to Searles Valley. Three playa lakes (China Lake, Mirror Lake, and Satellite Lake) are the primary surface water and groundwater discharge points for the IWVGB (IWV 2008). Searles Lake is the primary surface water and groundwater discharge point for the SVGB. Perennial streams are present within the IWVGB and SVGB, but not in the vicinity of the Proposed Project where the drainages are ephemeral (temporary). Total surface areas of the IWVGB and SVGB are approximately 597 square miles and 308 square miles, respectively (CDWR 2003).

##### 4.9.1.1 Groundwater

Two main aquifers (one shallow and one deep) are present within the unconsolidated Quaternary deposits of Indian Wells Valley. The deep aquifer is of uncertain thickness, but is known to be at least 1,750 feet thick in the area between Ridgecrest and Inyokern. The deep Quaternary aquifer is the only drinking water supply in Indian Wells Valley. The Indian Wells Valley Cooperative Groundwater Management Group was formed in 1995 to protect groundwater resources and to develop a plan to ensure a safe and reliable water supply for local residents (IWV 2008). The shallow aquifer includes shallow alluvium and lacustrine deposits and is only present in the eastern portion of the Indian Wells Valley. Because groundwater within the shallow aquifer generally contains high concentrations of total dissolved solids, it is not utilized for drinking water (IWV 2008).

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Water well production yields in the deep aquifer are typically greater than 1,000 gallons per minute (gpm) and are often greater than 2,000 gpm. In 2006, approximately 25,000 acre-feet of groundwater was produced for military, commercial, industrial, agricultural, and residential use in the Indian Wells Valley. Groundwater withdrawal has resulted in a regional cone of depression (i.e., lowered water table shaped like an inverted cone) (CDWR 2003) and groundwater levels are currently dropping by an average of approximately 0.50 to 1.50 feet per year across the basin (IWV 2008). Because groundwater is the only source of potable water in the Indian Wells Valley, quality and quantity of producible groundwater are major concerns for residents of the Indian Wells Valley (IWV 2008).

Water quality varies across the IWVGB and with depth, but is generally better in the deep aquifer than in the shallow aquifer; hence, the deep aquifer is used for production of drinking water. Groundwater in the IWVGB portion of the Proposed Project area has been generally categorized as sodium-chloride water (IWV 2004). In general, levels of Total Dissolved Solids (TDS) in groundwater produced in the vicinity of the Proposed Project are less than 300 milligrams per liter (mg/L) – below the California secondary standard of 500 mg/L (IWV 2008).

The SVGB aquifer is composed of Quaternary alluvium, as in the IWVGB. However, groundwater levels in the SVGB are generally shallower. Water levels encountered during drilling of environmental monitoring wells near McGen Substation indicate a static water level of approximately 25 feet bgs (CSWRCB 2010). Depth to water generally decreases towards the center of Searles Lake. Water well production yields within the SVGB average approximately 300 gpm in the SVGB. As in the IWVGB, water levels in the SVGB have declined due to groundwater extraction (CDWR 2003).

Groundwater in the SVGB portion of the Proposed Project area is generally characterized as sodium-chloride water and is considered impaired for essentially all beneficial uses due to elevated concentrations of fluoride, boron, sodium, chloride, sulfate, and TDS (CDWR 2003).

### 4.9.1.2 Surface Water

Surface waters in the Proposed Project area are of good quality. All surface waters in the Proposed Project area are within the U.S. Environmental Protection Agency's (USEPA) Indian Wells-Searles Valleys Watershed (Hydrologic Unit Code 18090205). There are no Clean Water Act Section 303(d), Water Quality Standards and Implementation Plans impaired waters within this watershed, nor are there any USEPA-approved Total Maximum Daily Limits (TMDLs) reported for

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this watershed (USEPA 2006, 2010).<sup>23</sup> No surface waters are present in the immediate vicinity of any Proposed Project components. Natural drainage in the area of the existing Downs Substation is to Mirror Lake to the northeast via ephemeral drainages. Natural drainage in the area of the Searles and McGen Substations is to Searles Lake, and Inyokern Substation drains to the alkali flats west of China Lake Naval Air Weapons Station. Surface water along the Inyokern-McGen-Searles 115 kV subtransmission line routes would drain to the same lakes, depending on location within each basin.

The western half of Inyokern Substation is located within a 100-year floodplain associated with Little Dixie Wash, located approximately one mile to the southeast ([Figure 4.9-1](#)). Flood potential for the eastern half of Inyokern Substation is undetermined by the Federal Emergency Management Agency (FEMA); however, due to flat site topography, it is very likely that the entire Substation is within the 100-year floodplain (FEMA 2008a). The proposed Downs Substation expansion and new 115 kV subtransmission lines are not situated within a floodplain (FEMA 2008b).

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<sup>23</sup> Under CWA Section 303(d) and the Porter-Cologne Water Quality Control Act, the State of California is required to establish beneficial uses of state waters and to adopt water quality standards to protect those beneficial uses. Section 303(d) of the CWA lists streams and other waters of the United States that have "Water Quality Limited Segments," or portions that do not meet water quality standards even after point sources of pollution have installed the minimum required levels of pollution-control technology. Under the CWA, the SWRCB establishes priority rankings for water on the lists and develops total maximum daily load criteria (i.e., the maximum quantity of a particular contaminant that a water body can assimilate without experiencing adverse effects) to improve water quality. On June 28, 2007, the USEPA gave final approval to California's 2006 Section 303(d) List of Water Quality Limited Segments. There are no impaired water bodies in the watershed of the proposed project (USEPA 2006).



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The closest 100-year floodplain to the existing Downs Substation is located approximately 0.5 miles to the west, northeast of the intersection of Ridgecrest Boulevard and Mahan Street. The eastern half of the existing Downs Substation and vacant parcel directly to the south of the Downs Substation are mapped as an area of moderate flood hazard. This area is considered to be between the limits of 100-year and 500-year floods. Floodplain mapping of the parcels adjacent to the existing Downs Substation is incomplete, however, and the area of moderate flood hazard may extend to the parcel southwest of the Downs Substation (FEMA 2008b).

Similarly, the McGen and Searles Substations are located in areas of unassessed flood potential adjacent to 500-year floodplains (FEMA 2008c, 2008d). The Inyokern-McGen-Searles 115 kV subtransmission line routes cross 100- and 500-year floodplains in multiple places (FEMA 2998a, 2008b, 2008c, 2008d).

### 4.9.2 Regulatory Setting

Various Federal, State and local laws regulate groundwater and surface water quality. This section describes the relevance of these statutes to the Proposed Project.

#### 4.9.2.1 Federal

*Clean Water Act*—The Clean Water Act (CWA) is intended to restore and maintain the chemical, physical, and biological integrity of the nation's waters (33 CFR 1251). The regulations implementing the CWA protect waters of the United States or streams and wetlands (33 CFR 328.3). The CWA ensures that water quality within aquatic ecosystems is maintained at a level of integrity that enables biological resources to exist and function properly. The following paragraphs provide details on specific sections of the CWA.

*National Flood Insurance Act*—The National Flood Insurance program was developed following the enactment of the National Flood Insurance Act in 1968. Prior to this program, affordable private flood insurance was generally not available. Under the National Flood Insurance Act, federally subsidized flood insurance is made available to owners of flood-prone property in participating communities. The program is administered by the Federal Insurance Administration of FEMA.

The program requires that participating communities adopt certain minimum floodplain management standards, including restrictions on new development in designated floodways, a requirement that new structures in the 100-year flood zone be elevated to or above the 100-year flood level (known as base flood elevation), and a requirement that subdivisions be designed to minimize exposure to flood hazards (National Oceanic and Atmospheric Administration 2006). To

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facilitate identifying areas with flood potential, FEMA has developed Flood Insurance Rate Maps that can be used for planning purposes, including floodplain management, flood insurance, and enforcement of mandatory flood insurance purchase requirements.

*National Pollutant Discharge Elimination System*—Section 402 of the CWA regulates construction-related storm water discharges to surface waters through the NPDES program, administered by the USEPA with implementation authority delegated to the SWRCB in California. An NPDES permit is required for all projects that disturb more than one acre of land. Therefore, the Proposed Project would require an NPDES permit.

The SWRCB has adopted the National Pollution Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activity, Water Quality Order No. 2009-0009-DWQ, NPDES No. CAS000002 (“2009 Construction General Permit” or “CGP”). As part of the CGP, the applicant must develop a Storm Water Pollution Prevention Plan (SWPPP). Permittees are further required to conduct annual monitoring and reporting in compliance with the CGP.

Two types of nonpoint source discharges (i.e., area discharges) are controlled by the NPDES program: nonpoint source discharge caused by general construction activities, and the general quality of storm water in municipal storm water systems. The 1987 amendments to the CWA directed the federal USEPA to implement the storm water program in two phases. Phase I addressed discharges from large (population 250,000 or above) and medium (population 100,000 to 250,000) municipalities and certain industrial activities. Phase II addresses all other discharges defined by USEPA that are not included in Phase I.

### 4.9.2.2 State

*Porter-Cologne Water Quality Act*—The Porter-Cologne Water Quality Control Act of 1969 requires protection of water quality by appropriate designing, sizing, and construction of erosion and sediment controls. The Porter-Cologne Act established the State Water Resources Control Board (SWRCB) and divided California into nine regions, each overseen by a RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state’s surface and groundwater supplies and has delegated primary implementation authority to the nine RWQCBs. The Porter-Cologne Act assigns responsibility to the SWRCB and the nine RWQCBs for implementing Clean Water Act (CWA) Sections 401 through 402 and 303(d).

The Porter-Cologne Act requires the development and periodic review of water quality control plans (basin plans) that designate beneficial uses of California’s major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters, provide the

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technical basis for determining waste discharge requirements, identify enforcement actions, and evaluate clean water grant proposals. The basin plans are updated every three years. Compliance with basin plans is primarily achieved through implementation of the NPDES, which regulates waste discharges.

The Proposed Project is located within the jurisdiction of the Lahontan RWQCB. The Basin Plan for the Lahontan region defines a variety of water quality objectives that apply to all surface waters in the Lahontan Region, but none specifically for the Indian Wells Hydrologic Unit or the Indian Wells Valley Planning Watershed, and no listed specific beneficial water uses apply to the Proposed Project or immediate vicinity (Lahontan RWQCB 1994).

### 4.9.2.3 Local

Although this Proposed Project is exempt from local land use and zoning regulations, CPUC General Order No. 131-D, Section III. C requires “the utility to communicate with, and obtain the input of, local authorities regarding land use matters and obtain any nondiscretionary local permits.” In addition, SCE has considered local land use plans as part of the current environmental review process. The documents SCE reviewed are listed below:

*City of Ridgecrest Draft General Plan*—Goal OSC-6 of the City of Ridgecrest Draft General Plan Open Space and Conservation Element is “To ensure that a supply of acceptable quality water is available to meet the present and future needs of the City and the Indian Wells Valley.” Policies applicable to the Proposed Project under this goal are as follows:

- *OSC-6.1 Reduce Surface and Runoff.* The City shall require a construction plan prior to the groundbreaking that uses site design and grading techniques to reduce the amount of impervious surface and runoff for all new urban commercial or residential developments proposed projects.
- *OSC-6.2 Solid and Liquid Waste Disposal.* The City shall require the disposition of solid and liquid wastes in a manner consistent with state and federal regulations to prevent contamination of the aquifer.
- *OCC-6.5 City-Wide Water Conservation Practices.* The City shall encourage water conservation on a city-wide basis.
- *OSC-6.9 Water Efficient Landscaping.* The City shall encourage using water efficient landscaping practices for all City landscaping.

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Goal HS-6 of the City of Ridgecrest Draft General Plan Health and Safety Element is to “Protect the City and its residents from injury and damage resulting from natural catastrophes and hazardous conditions including aircraft operations, air quality, flooding, fire, and noise. Policies applicable to the Proposed Project under this goal are as follows:

- *HS-1.3 Contamination Prevention.* The City shall protect soils, surface water, and groundwater from contamination.

### 4.9.3 Significance Criteria

The significance criteria for assessing the impacts to hydrology and water quality come from the CEQA Environmental Checklist. A project causes a potentially significant impact if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;

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- Place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Inundation by seiche (seismic-induced lake waves), tsunami, or mudflow.

### 4.9.4 Impact Assessment

Construction and operation of the Proposed Project would result in less than significant impacts for the following CEQA criteria:

#### Would the Proposed Project violate any water quality standards or waste discharge requirements?

**Less than Significant Impact.** Implementation of the Proposed Project would require ground disturbances that could potentially increase rates of soil erosion and sedimentation in nearby water bodies. However, the generally flat topography throughout the Proposed Project area and proposed construction of runoff control features at the proposed Downs Substation expansion would minimize the potential for erosion and sedimentation and runoff discharge from the Proposed Project. Furthermore, SCE would be required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activity, Water Quality Order No. 2009-0009-DWQ, NPDES No. CAS000002 (“2009 Construction General Permit” or “CGP”). As part of CGP compliance, SCE would prepare a SWPPP and implement best management practices (BMPs) during construction that would avoid and/or minimize the potential for, and effect of, runoff issues during construction. Proposed Project soils do not compact readily (CSRL 2010); therefore construction would not create significant impermeable areas or significant soil compaction. Construction activities would therefore have a minimal impact on infiltration of precipitation and would not significantly increase surface runoff. Negligible off-site transport of sediment or other materials is anticipated during the construction and operational phases of the Proposed Project. All water utilized for construction dust control would come from a City-approved water source (e.g., fire hydrant or approved water well) and will be managed carefully to ensure that dust-control water does not leave the site. The Proposed Project and project construction would comply with water quality standards and waste discharge requirements; no violations would occur, and impacts would be less than significant under this criterion.

#### Would the Proposed Project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop

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to a level which would not support existing land uses or planned uses for which permits have been granted?

**Less than Significant Impact.** Water needs for perimeter landscape irrigation at the proposed Downs Substation expansion during operations would not represent a significant relative increase in City water use and would not place significant demands on City water supplies. No other water uses are planned for the Proposed Project; therefore, depletion of groundwater supplies would be less than significant.

Changes to drainage characteristics at the location of any Proposed Project component are not anticipated to interfere with groundwater recharge or groundwater levels; impacts to groundwater would be less than significant under these criteria. No existing or planned land uses would be impacted by water use of the Proposed Project. Therefore, less than significant impacts would occur under this criterion as a result of the Proposed Project.

Would the Proposed Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

**Less than Significant Impact.** Surface drainage at the proposed Downs Substation expansion location would be somewhat altered from its current and natural state. The existing surface depression would be engineered to function as a basin with a specific water capture quantity. No existing through-flowing water bodies (i.e., rivers, streams, irrigation ditches), ponds, or reservoirs exist within the Proposed Project area, and none would be affected by Proposed Project activities. Because the Downs Substation expansion area would be surfaced with gravel and precipitation would be allowed to infiltrate into fill soil, increased rates of surface runoff and erosion of on- or off-site soils are not anticipated. No other Proposed Project components would alter existing drainage patterns. Changes to drainage patterns and gradients are not anticipated to significantly impact on- or off-site erosion or siltation. Therefore, less than significant impacts would occur under this criterion as a result of the Proposed Project.

Would the Proposed Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

**Less than Significant Impact.** The surface drainage at the Downs Substation expansion area location would not be substantially altered from its current and natural state. The existing surface depression would be engineered to function as a basin with a specific water capture quantity. No existing through-flowing water bodies (i.e., rivers, streams, irrigation ditches), ponds, or reservoirs

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exist within the Proposed Project area, and none would be affected by Proposed Project activities. Because the proposed Downs Substation expansion area would be surfaced with gravel and precipitation would be allowed to infiltrate into fill soil, surface ponding is not anticipated outside of the detention basin. No other Proposed Project components would substantially alter existing drainage patterns. Changes to drainage patterns and gradients are not anticipated to significantly impact on- or off-site erosion, siltation, rates or amounts of surface runoff, or flooding. Therefore, less than significant impacts would occur under this criterion as a result of the Proposed Project.

*Would the Proposed Project create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?*

**Less than Significant Impact.** Infiltration of precipitation into site gravel and implementation of the engineered retention pond at the proposed Downs Substation expansion area is anticipated to maintain site runoff levels at volumes that would not create substantial off-site runoff. No storm water drainage system beyond the existing depression that would be modified into the retention pond currently exists at that location. No other Proposed Project components are anticipated to alter existing drainage characteristics in a manner that would increase runoff water volumes above present levels. As discussed under Section 4.8, implementation of BMPs and an updated SPCC Plan would ensure that potential sources of polluted runoff create less than significant impacts under this criterion.

*Would the Proposed Project otherwise substantially degrade water quality?*

**Less than Significant Impact.** No additional sources of potential water degradation for the Proposed Project have been identified beyond those previously discussed under other Hydrology and Water Quality Significance Criteria. Substantial degradation of water quality is not anticipated; therefore, no impacts would occur under this criterion as a result of the Proposed Project.

*Would the Proposed Project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*

**No Impact.** No housing construction is proposed as part of the Proposed Project. As a result, construction and operation of the project would not place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Map or Federal Flood Insurance Map. Therefore, no impacts would occur under this criterion as a result of the Proposed Project.

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Would the Proposed Project place within a 100 year flood hazard area structures which would impede or redirect flood flows?

**No Impact.** No structures would be constructed within a 100-year flood hazard area as mapped on a Federal Flood Hazard Map or Federal Flood Insurance Map. Although mapping of in the immediate vicinity of the Downs, McGen, and Searles Substations is incomplete, it appears that the highest recurrence of flooding at substations would be between 100 and 500 years. Installation of fiber optic telecommunication cable at Inyokern Substation would occur within a 100-year floodplain, but would not place new above-grade structures within the 100-year floodplain. Because no above-grade project components would be constructed within a 100-year flood hazard area, no structures would significantly impede, alter, or redirect flood flows; therefore no impacts would occur under this criterion.

Would the Proposed Project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

**No Impact.** No dams or levees are present upgradient from the Proposed Project that would expose people or structures to risk of loss, injury, or death. Therefore, no impacts would occur under this criterion.

Would the Proposed Project expose people or structures to a significant risk of loss, injury or death involving inundation by seiche (seismic-induced lake waves), tsunami, or mudflow?

**No Impact.** Because the Proposed Project is not located near an ocean, perennial lake, or river, the Proposed Project is not susceptible to inundation by seiche or tsunamis. Portions of the Proposed Project are located adjacent to steep-sided hills within Poison Canyon and south of Trona that could become unstable during periods of heavy precipitation. However, there are no structures or activities proposed for these areas that would exacerbate the existing risk to people or non-project structures in the area. Therefore, no impacts would occur under this criterion as a result of the Proposed Project.

### 4.9.5 Applicant Proposed Measures

Because the Proposed Project would not result in significant impacts to hydrology or water quality, no Applicant Proposed Measures are offered.

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