C.10 Hydrology and Water Quality

Introduction

This section describes the potential effects on hydrology and water quality that would result from construction and operation of the VSSP. The following discussion addresses the existing environmental conditions in the Project area, identifies and analyzes potential environmental impacts of the proposed Project, and recommends measures to reduce or avoid significant impacts anticipated from Project construction, operation, and maintenance. In addition, existing laws and regulations relevant to hydrology and water quality are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with implementation of the proposed Project.

Scoping Issues Addressed

During the scoping period for the EIR (May 5 through June 8, 2015), written comments were received from agencies, organizations, and the public. These comments identified various substantive issues and concerns relevant to the EIR analysis. The following issues related to Hydrology and Water Quality were raised during scoping and are addressed in this section.

- Existing Riverside County Flood Control and Water Conservation District (District) facilities are located within the proposed Project area and any proposed Project work that involves District right-of-way, easements, or facilities would require an encroachment permit.
- Some Project structures would be located within 100-year floodplains and potential direct and indirect impacts to those floodplains should be analyzed in the EIR.
- The EIR should analyze potential impacts to lakes, streams, and riparian resources, and provide adequate avoidance, mitigation, and monitoring and reporting commitments.

C.10.1 Environmental Setting

The proposed Project is located in western Riverside County and crosses portions of the cities of Menifee, Murrieta, and Temecula, as well as unincorporated land in Riverside County. The proposed Project lies entirely within the Peninsular Ranges geomorphic province. This geomorphic province occupies the southwestern corner of California and contains the Elsinore Mountains, the Laguna Mountains, the San Jacinto Mountains, the Santa Ana Mountains, and the Santa Rosa Mountains. The northern portion of the province includes the Los Angeles Basin and is bound on the east by the Colorado Desert (CGS, 2002). Within this province, the proposed Project is located on the Perris Block, a roughly rectangular area between the San Jacinto Fault and the Elsinore Fault that is underlain by granitic and metamorphic rock (SCE, 2014).

The topography of the Project area is characterized primarily by relatively flat alluvial valleys that are punctuated by low-lying bedrock foothills, such as Double Butte. Elevation in the region of the proposed Project ranges from approximately 1,160 to 1,400 feet above mean sea level (SCE, 2014). Due to the relatively flat topography within the proposed Project area, runoff typically forms as sheet flow that is then intercepted by either natural drainages (such as Salt Creek or Warm Springs Creek) or constructed drainage ditches and stormwater conveyance systems in the urban areas (SCE, 2014). Major drainages in the Project area, such as the San Jacinto River and Salt Creek, flow to the southwest and west towards Lake Elsinore and eventually drain to the Pacific Ocean (USGS, 2015).

The proposed Project area is characterized by a typical Mediterranean climate, generally dry in the summer with mild, wet winters. Average summer temperatures in degrees Fahrenheit are in the 70's, with highs in the 90's and lows in the upper 50's. Average winter temperatures are in the low 50's, with highs in the mid to upper 60's and lows in the mid to upper 30's. Most of the rainfall occurs between December and March, with an average annual rainfall in Winchester (located approximately two miles west of the northern portion of the proposed Project) of 11.4 inches. The wettest months of the year are January and February, with an average rainfall of 2.62 and 2.86 inches, respectively (IDcide.com, 2015).

C.10.1.1 Surface Water

Surface watersheds in California are divided into 10 hydrologic regions, as defined by the California Department of Water Resources (DWR). The proposed Project is located within the South Coast Hydrologic Region (HR), a large coastal watershed in southern California (CDF, 2004). The South Coast HR covers nearly seven million acres and is bounded on the west by the Pacific Ocean, on the north by the Transverse Ranges, on the east by the Colorado River HR, and on the south by the international boundary with Mexico (DWR, 2003). Hydrologic Regions are subdivided into Hydrologic Units (HUs), and further into Hydrologic Areas and Hydrologic Subareas (HSAs). Within the South Coast HR, the proposed Project crosses two Hydrologic Units, the San Jacinto Valley HU and the Santa Margarita HU (CDF, 2004).

The two HUs that contain the proposed Project are subject to the jurisdiction of the Santa Ana Regional Water Quality Control Board (SARWQCB) and the San Diego Regional Water Quality Control Board (SDRWQCB), respectively (SARWQCB, 2008; SDRWQCB, 2011). The Project area is divided almost equally between these two jurisdictions. The northern 45 percent of the Project area is located within the jurisdiction of the SARWQCB and southern 55 percent is located within the SDRWQCB jurisdiction (SCE, 2014). Within the San Jacinto Valley HU, the proposed Project is located entirely within the Perris Hydrologic Area, which is divided into the Perris Valley, Winchester, and Menifee HSAs (CDF, 2004). Within the Santa Margarita HU, the proposed Project crosses the Murrieta and Auld Hydrologic Areas. The Murrieta HA is divided into the Lower Domenigoni and French HSAs. The Auld HA is divided into the Bachelor Mountain and Gertrudis HSAs (CDF, 2004).

The proposed Project crosses both undeveloped land with natural drainage features and urban developments with highly altered drainage systems, such as underground stormwater systems (TRC, 2012). The Project alignment crosses multiple unnamed, ephemeral drainages and four named drainages. From north to south, the proposed Project alignment crosses Salt Creek, Warm Springs Creek, Tuculota Creek, and Santa Gertrudis Creek (USGS, 2015). The Project alignment runs parallel to the Inland Feeder, a system of pipelines that conveys State Water Project (SWP) water to the Metropolitan Water District of Southern California. The San Diego Canal, which carries SWP and Colorado River water to Lake Skinner, runs two to three miles east of and roughly parallel to the Project alignment.

Major nearby waterbodies include the San Jacinto River (approximately 3.4 miles northwest of Valley Substation), Canyon Lake (approximately 6.5 miles west of the northern Project alignment), Diamond Valley Lake (approximately 2.8 miles east of the northern Project alignment), Lake Skinner (approximately 2.6 miles east of the southern Project alignment), and Murrieta Creek (approximately 3.2 miles southwest of the southern Project terminus). Salt Creek flows west across the Project alignment and feeds into Canyon Lake (USGS, 2015). Warm Springs Creek, Tuculota Creek, and Santa Gertrudis Creek flow across the Project alignment towards the southwest and are tributaries to Murrieta Creek (USGS, 2015). For a description of jurisdictional features that are crossed by the Project alignment, see Figures C.5-2a to C.5-2g in Section C.5 (Biological Resources).

The San Jacinto River lies approximately 3.4 miles north of the proposed Project and flows towards the southwest. The river is primarily ephemeral within the Project area. The Santa Ana River Watershed Integrated Regional Watershed Management Plan includes water quality goals, objectives, and indicators for the entire Santa Ana River watershed including the San Jacinto River (SAWPA, 2014). Three water supply reservoirs are located in the vicinity of the proposed Project, Canyon Lake, Diamond Valley Lake, and Lake Skinner. Canyon Lake is fed by runoff from the San Jacinto River and Salt Creek (SCE, 2014). Diamond Valley Lake is supplied with SWP water through the Inland Feeder (SCE, 2014). Colorado River water and SWP water are delivered to Lake Skinner through the San Diego Canal (SCE, 2014).

The proposed Project area is governed by two water quality control plans, also known as basin plans. These basin plans identify beneficial uses for surface water and groundwater and establish water quality objectives to attain those beneficial uses. The identified beneficial uses and the water quality objectives to maintain or achieve those uses are together known as water quality standards. The SARWQCB Basin Plan governs water quality for the northern portion of the Project area and identifies beneficial uses for Salt Creek, the San Jacinto River, and Canyon Lake (SARWQCB, 2008). The SDRWQCB Basin Plan governs water quality for the southern portion of the Project area and identifies beneficial uses for Lake Skinner, Diamond Valley Lake, Tucalota Creek, and Santa Gertrudis Creek (SDRWQCB, 2011). The table below presents the beneficial uses for surface waters within the Project area.

Table C.10-1. Basin Plan Beneficial Uses

Basin Plan	Waterbody	Beneficial Uses
SARWQCB Basin Plan	Salt Creek	Contact Water Recreation (REC1)[3], Non-contact Water Recreation (REC2) [3], Warm Freshwater Habitat (WARM)[3], Wildlife Habitat (WILD) [3]
	San Jacinto River Reach [3]	Agricultural Supply (AGR)[3], Ground Water Recharge (GWR) [3], REC1[3], REC2[3], WARM[3], WILD[3]
	Canyon Lake	Municipal and Domestic Supply (MUN), AGR, GWR, REC1, REC2, WARM, WILD
SDRWQCB Basin Plan	Lake Skinner	MUN, AGR, Industrial Service Supply (IND), Industrial Process Supply (PROC), GWR[1], REC1[2], REC2, WARM, WILD
	Diamond Valley Lake	MUN, AGR, IND, PROC, GWR, REC1[2], REC2, WARM, Cold Freshwater Habitat (COLD), WILD, Hydropower Generation (POW)
	Warm Springs Creek	MUN, AGR, IND, PROC, REC1[1], REC2, WARM, WILD
	Tucalota Creek	MUN, AGR, IND, PROC, GWR[1], REC1, REC2, WARM, WILD
	Santa Gertrudis Creek	MUN, AGR, IND, PROC, GWR[1], REC1, REC2, WARM, WILD

Source: SCE, 2014 (PEA Table 4.9-1)
1 Potential Beneficial Use
2 Fishing from shore or boat permitted, but other water contact recreational uses are prohibited
3 Intermittent Beneficial Use

The Clean Water Act (CWA) 303(d) list is a register of impaired and threatened waters which the CWA requires all states to submit for Environmental Protection Agency approval. The list identifies all waters where the required pollution control measures have so far been unsuccessful in reaching or maintaining the required water quality standards. Waters that are listed are known as "impaired." There are several water bodies within the study area that are listed on the CWA Section 303(d) list. Warm Springs Creek, identified above, is listed for the following impairments: chlorpyrifos, E.coli, fecal coliform, iron, manganese, phosphorous, and total nitrogen (SWRCB, 2010). A Total Maximum Daily Load (TMDL) for each of these impairments is required but not has been established yet. Santa Gertrudis Creek is listed as impaired by chlorpyrifos, copper, E. coli, fecal coliform, iron, manganese, and phosphorus (SWRCB, 2010). A TMDL is required for each of these impairments but none have been prepared. Murrieta Creek, to which Warm Springs Creek and Santa Gertrudis Creek are tributary, is listed as impaired by chlorpyrifos, copper, iron, manganese, nitrogen, phosphorus, and toxicity (SWRCB, 2010). TMDLs are required for these impairments but none have been prepared. Canyon Lake, which is fed by Salt Creek, is listed as impaired by nutrients and pathogens (SWRCB, 2010). A TMDL for nutrients was established in 2005. A TMDL for pathogens is required but not yet established.

Areas that are subject to a risk of flooding from a 100-year flood event are identified by the Federal Emergency Management Agency (FEMA) on the National Flood Hazard Layer. Portions of the proposed Project alignment lie within 100-year flood hazard zones associated with the San Jacinto River, Salt Creek, and Santa Gertrudis Creek (FEMA, 2015). The Riverside County Flood Control and Water Conservation District (RCFCWCD) has constructed levees along the San Jacinto River that reduce the area threatened by a 100-year flood event (SCE, 2014).

C.10.1.2 Groundwater

The proposed Project is underlain by two groundwater basins: the San Jacinto Groundwater Basin and the Temecula Valley Groundwater Basin (DWR, 2004; 2006). These groundwater basins lie north and south of where Warm Springs Creek crosses the Project alignment, respectively.

San Jacinto Groundwater Basin

The San Jacinto Groundwater Basin is bordered by the San Jacinto Mountains on the east, the San Timoteo Badlands on the northeast, the Box Mountains on the north, the Santa Rosa Hills and Bell Mountains on the south, and unnamed hills on the west (DWR, 2006). This groundwater basin covers a surface area of 293 square miles (DWR, 2006). The estimated groundwater storage capacity of this basin was last calculated at 3,070,000 acre-feet (af); the most recent estimate of the amount of water in storage was conducted in 1975 and found that the basin held approximately 2,700,000 af of groundwater (DWR, 2006). The most recent available groundwater contours data show that depth to groundwater in the vicinity of the proposed Project varies between 19 feet to 61 feet below the surface (SCE, 2014). Groundwater production in the basin is partially managed under the West San Jacinto Groundwater Management Plan and is estimated to have produced 18,880 af in 2001 and 20,058 af in 2002 (DWR, 2006). Average groundwater extraction for the whole basin from 1984 to 1999 is estimated at approximately 79,000 af, and average infiltration during that same period is estimated at approximately 47,000 af (DWR, 2006).

Historically, the groundwater flow within the basin generally followed the course of the San Jacinto River and then westward out of the basin, but high rates of extraction for various uses have resulted in groundwater depressions and altered the historical flow pattern (DWR, 2006). Groundwater levels have fluctuated historically, rising in response to infiltration of imported water and local runoff and falling in response to high rates of extraction (DWR, 2006). Groundwater level trends are not uniform throughout the basin; during 2001 and 2002, the groundwater levels generally rose in the central part of the basin and declined in the northeastern and southern parts of the basin (DWR, 2006).

The groundwater composition has typically included concentrations of sodium bicarbonate, calcium bicarbonate, or sodium chloride (DWR, 2006). Data gathered from 51 different public water supply wells shows the total dissolved solids (TDS) content in the basin fluctuates between 160 to 1,390 milligrams per liter (mg/L) and averages about 463 mg/L (DWR, 2006). Contaminants in the basin include high levels of boron and fluoride, which have been found in the central and northwest parts of the basin, as well as high nitrate-nitrogen concentrations which have been present in the southeast part of the basin (DWR, 2006). Aggressive pumping of groundwater is causing waters with high TDS content to migrate from the western part of the basin into groundwater of lower TDS content in the central part of the basin (DWR, 2006). Several wells in the basin that were sampled between 1994 and 2000 showed contamination above Maximum Contaminant Levels (MCLs) for inorganics, radioactivity, nitrates, and pesticides (DWR, 2006).

Temecula Valley Groundwater Basin

The Temecula Valley Groundwater Basin lies beneath the southern portion of the Project area and is bordered by the non-water bearing formations of the Peninsular Ranges. The basin is occupied by Quaternary and Holocene alluvium and is mostly unconfined (DWR, 2004).The most recent estimates of the storage capacity, conducted in 1975, placed the total capacity at approximately 253,000 af (DWR, 2004). However, the amount currently in storage is unknown. The most recent groundwater extraction figure is also historic and was estimated at approximately 13,000 af in 1953 (DWR, 2004). Past groundwater level trends have fluctuated substantially in response to the lack or presence of runoff available for infiltration (DWR, 2004). Depth to groundwater in this basin is assumed to be greater than 50 feet below ground surface (SCE, 2014).

Groundwater in the basin is mainly characterized by concentrations of sodium bicarbonate (DWR, 2004). TDS concentrations measured in 50 public supply wells ranged from 240 to 1,500 mg/L, and averaged 476 mg/L (DWR, 2004). High concentrations of nitrate, fluoride, chloride, and sodium in parts of the basin limit the suitability of the groundwater for domestic and irrigation uses (DWR, 2004). Several wells in the basin that were sampled between 1994 and 2000 showed contamination above MCLs for inorganics, radioactivity, nitrates, and volatile and semi-volatile organic compounds (DWR, 2004).

C.10.2 Regulatory Framework

C.10.2.1 Federal

Clean Water Act

The CWA (33 U.S.C. Section 1251 et seq., formerly the Federal Water Pollution Control Act of 1972) was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). NPDES permitting authority is administered by the California State Water Resources Control Board (SWRCB) and its' nine Regional Water Quality Control Boards (RWQCB). The proposed Project is within areas administered by the SARWQCB and SDRWQCB.

The VSSP would be required to obtain NPDES coverage under the California General Permit for Discharges of Storm Water Associated with Construction Activity. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) describing Best Management Practices (BMPs) the discharger would use to prevent and retain stormwater runoff. The SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a waterbody listed on the 303(d) list for sediment.

Section 401 of the CWA requires that any activity, including river or stream crossings during road, pipeline, or transmission line construction, which may result in a discharge into waters of the U.S. be certified by the RWQCB. This certification ensures that the proposed activity does not violate State and/or federal water quality standards. The proposed Project could result in discharges to waters of the U.S., and would likely require Section 401 certification.

Section 404 of the CWA authorizes the U.S. Army Corps of Engineers to regulate the discharge of dredged or fill material to the waters of the U.S. and adjacent wetlands. Discharges to waters of the U.S. must be avoided where possible, and minimized and mitigated where avoidance is not possible. The proposed Project would cross several jurisdictional waters, including three named streams: Salt Creek, Santa Gertrudis Creek, and Tucalota Creek.

Section 303(d) of the CWA requires states to establish TMDL programs for streams, lakes and coastal waters that do not meet certain water quality standards.

National Flood Insurance Act/Flood Disaster Protection Act

The National Flood Insurance Act of 1968 made flood insurance available for the first time. The Flood Disaster Protection Act of 1973 made the purchase of flood insurance mandatory for the protection of property located in Special Flood Hazard Areas. These laws are relevant because they led to mapping of regulatory floodplains and to local management of floodplain areas according to guidelines that include prohibiting or restricting development in flood hazard zones. Any proposed Project structures that would be located in designated flood hazard zones would be subject to review by local floodplain management authorities.

C.10.2.2 State

California Porter Cologne Water Quality Control Act

The Porter Cologne Water Quality Control Act of 1967, Water Code Section 13000 et seq., requires the SWRCB and the nine RWQCBs to adopt water quality criteria to protect State waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. The criteria for the Project area are contained in the Water Quality Control Plan for the Santa Ana River Basin (SARWQCB, 2008) and the Water Quality Control Plan for the San Diego Basin (SDRWQCB, 2011). Constraints in the water quality control plans relative to the proposed Project relate primarily to the avoidance of altering the sediment discharge rate of surface waters, and the avoidance of introducing toxic pollutants to the water resource. A primary focus of water quality control plans is to protect designated beneficial uses of waters. In addition, anyone proposing to discharge waste that could affect the quality of the waters of the State must make a report of the waste discharge to the RWQCB or SWRCB as appropriate, in compliance with Porter-Cologne.

California Streambed Alteration Agreement

Sections 1600–1616 of the California Fish and Game Code requires that any public utility (or other entity) that proposes an activity that would substantially divert or obstruct the natural flow of any river, stream or lake; substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or, deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, must notify the California Department of Fish and Wildlife (CDFW). If the CDFW determines the alteration may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement would be prepared. The Agreement includes conditions necessary to protect those resources. The Agreement applies to any stream including ephemeral streams and desert washes.

C.10.2.3 Local

The CPUC regulates and authorizes the construction of investor-owned public utility facilities, and therefore the CPUC has jurisdiction over the siting and design of the proposed Project. Investor-owned public utility projects, such as the VSSP, are exempt from local land use and zoning regulations and permitting in accordance with General Order No. 131-D. This exemption is applicable to all components of the proposed Project. However, Section XIV.B requires “the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain any non-discretionary local permits.” The General Plans for the County of Riverside and the cities of Menifee, Murrieta, Perris, and Temecula include goals and policies related to hydrology and water quality. These goals and policies generally relate to the protection of water quality, the conservation of water resources, and the prevention and avoidance of flood-related damage.

Local Floodplain Regulations

Most counties and cities have floodplain and drainage regulations that regulate floodplain development. These regulations generally prohibit floodplain development that would result in flooding of the development itself, and prohibit floodplain development that would result in adverse flooding impacts on other property. For instance, floodplain encroachments that raise water levels on other property are generally prohibited, as are diversions and concentrations of flow.

C.10.3 Applicant-Proposed Measures

In its Preliminary Environmental Assessment, SCE has listed a number of Applicant-Proposed Measures (APMs) that are designed to reduce impacts from the proposed Project. None of the APMs are specifically applicable to hydrology or water quality. However, the impact discussion in Section C.10.4 (below) identifies mitigation measures, where appropriate, to reduce significant adverse impacts that could result from construction and operation of the VSSP.

C.10.4 Environmental Impacts and Mitigation Measures

This section describes environmental impacts of the proposed Project relevant to hydrology and water quality. The impact analysis is based on an assessment of baseline conditions relevant to the proposed Project area climate, topography, watersheds and surface waters, groundwater, and floodplains, as described in Section C.10.1. These baseline conditions were evaluated based on their potential to be affected by construction activities as well as operation and maintenance activities related to the proposed Project.

Potential impacts were then identified based on the predicted interaction between construction, operation, and maintenance activities with the affected environment. Impacts are described in terms of location, context, and intensity, and are identified as being either short- or long-term, and direct or indirect in nature. Mitigation measures are developed to avoid or minimize impacts.

C.10.4.1 Criteria for Determining Significance

To satisfy CEQA requirements, conclusions are made regarding the significance of each identified impact that could result from the proposed Project. Appropriate criteria have been identified and utilized to make these significance conclusions based on the CEQA Appendix G Environmental Checklist, and relevance to this analysis based on local conditions and the project description.

Not all of the standard Appendix G criteria are applicable to the proposed Project. The Project does not involve the construction of housing, and is not near the coast or a lake where there could be a tsunami or seiche hazard. In the context of the proposed Project, several of the CEQA criteria overlap, and in this analysis they are combined. For purposes of this analysis, the proposed Project would result in significant impacts to hydrology and water quality if it would:

- Criterion HYD1: Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.
- Criterion HYD2: 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).
- Criterion HYD3: Place within a watercourse or flood hazard area structures which would impede or redirect flood flows, or otherwise 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 erosion, siltation, or mudflow.
- Criterion HYD4: Increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, create or contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems, divert or obstruct flow in a manner that would induce or exacerbate flooding, or otherwise contribute to flood-related damage, on- or off-site.
- Criterion HYD5: 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.

C.10.4.2 Impact Analysis – Direct and Indirect Effects

This section describes the direct and indirect impacts of the proposed Project. Cumulative impacts are discussed separately in Section C.10.4.3.

Impact HYD-1 (Criterion HYD1): Construction, operation, and maintenance of the Project could degrade water quality and violate water quality standards or waste discharge requirements. (Class III)

Construction

Construction of the proposed Project would result in the temporary disturbance of approximately 194 acres and the permanent disturbance of approximately 14 acres. Ground disturbance activities associated with construction of the proposed Project include excavation and drilling for pole removal and installation, trenching for duct bank installation, and grading for staging yards, access roads, and construction work areas. These ground disturbance activities could loosen and destabilize soils. These loose and destabilized soils could be mobilized during a subsequent storm event and could result in increased turbidity and sediment deposition in nearby waterbodies. The potential for eroded soil to result in increased turbidity and sedimentation in a nearby waterbody is relatively low due to the generally flat topography in the Project area, the fairly dry climate outside of the winter months, and the ephemeral or intermittent nature of most streams in the Project area. Following the completion of construction activities, areas of temporary disturbance would be restored as close to pre-construction conditions as feasible, or to the conditions agreed upon between SCE and the landowner. Restoration activities, such as revegetation, soil compaction, or soil stabilization, would reduce the potential for erosion on previously disturbed land. The potential for erosion of loose or destabilized soil would be further reduced through compliance with the General Permit for Discharges of Storm Water Associated with Construction Activity (Order No. 2009-0009-DWQ), which would require development and implementation of a SWPPP. The SWPPP would include BMPs to prevent and control stormwater runoff.

Construction of the proposed Project would involve the use of heavy equipment and machinery. Use of this construction equipment would involve the handling, use, and storage of hazardous materials, such as diesel fuel, gasoline, lubrication oil, cement slurry, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and transformer oil. Accidental releases or spills of hazardous materials used during construction could result in the direct contamination of waterbodies within the Project area or the indirect contamination of nearby waterbodies through subsequent transport by stormwater runoff. The potential for the accidental release or spill of a hazardous material to contaminate surface water or groundwater within or near the Project area would be relatively low due to the generally flat topography in the Project area, the fairly dry climate outside of the winter months, and the ephemeral or intermittent nature of most streams in the Project area. Also, the quantity of hazardous materials that would be handled, used, and stored during construction of the proposed Project would be small enough such that an accidental release or spill could be quickly contained and removed for safe disposal. The potential for the accidental release or spill of a hazardous material to contaminate a nearby waterbody would be further reduced through implementation of the required SWPPP, which would include BMPs to quickly and effectively contain and clean-up hazardous material leaks and spills.

Construction of the proposed Project, including excavation and trenching, may encounter shallow groundwater. In the event that shallow groundwater is encountered, dewatering of the excavation or trenching site may be required. If improperly managed, these dewatering activities could result in the discharge of contaminated groundwater. Groundwater that is pumped from a subsurface construction site would be temporarily stored and tested prior to discharge. Contaminated groundwater would be treated prior to discharge or disposed of at an appropriate disposal facility or wastewater treatment plant. Prior to the discharge of any uncontaminated groundwater, SCE (as stated in the project description) would obtain all required permits (such as a waste discharge requirement or conditional waiver) from the applicable RWQCB.

Compliance with applicable laws and regulations and implementation of BMPs to protect water quality would ensure that construction of the proposed Project would not substantially degrade water quality, or violate water quality standards or waste discharge requirements. This impact during construction would be less than significant and no mitigation is required (Class III).

Operation

Operation and maintenance (O&M) activities would be substantially less intense than construction activities. O&M activities would generally include repairing conductors, poles, or other transmission components, washing insulators, maintaining vegetation clearance, and repairing damaged access roads. Most regular O&M activities would be performed from existing access roads and would not involve any ground disturbance. Some activities, such as repairing or replacing damaged poles or towers, would result in a minor amount of ground disturbance. All of the same impacts to water quality that are described above for construction could also occur during O&M activities, but the intensity and likelihood of these potential impacts would be substantially reduced. Soil disturbance would be sporadic and limited to areas that require repair or maintenance. Access roads would be repaired as needed and the repairs would be designed to prevent and minimize erosion. Most O&M activities would involve the use of light-duty vehicles. Heavy construction equipment would be required for pole or tower replacements or other major repairs. Helicopters may be used for inspection of the transmission line. The use of these vehicles and equipment would require the use of hazardous materials, such as fuel, lubricants, and coolant. These hazardous materials could contaminate waterbodies in the Project area through an accidental release or spill. The use of vehicles and construction equipment during O&M for the proposed Project would be substantially less than during construction, and therefore the risk of contamination of a nearby waterbody from the accidental release or spill of a hazardous material would be proportionally lower. Dewatering activities during O&M are not anticipated. This impact during operations and maintenance would be less than significant and no mitigation is required (Class III).

Impact HYD-2 (Criterion HYD2): Construction of the Project could deplete groundwater supplies or interfere with groundwater recharge. (Class II)

Construction of the proposed Project would use approximately 75 to 110 acre-feet of water for dust control, soil conditioning, and hydro-seeding. Water use during operation would be minimal, and would be limited mainly to the washing of insulators and dust suppression during repair work, if required. SCE would not install any new groundwater wells, and would not extract any groundwater from existing wells. Construction water demand would be met through an agreement with an appropriate water supply agency or district, such as the Rancho California Water District, the Elsinore Valley Municipal Water District, or the Western or Eastern Municipal Water Districts. These water supply districts source water from imported water, groundwater, recycled water, and local surface water. SCE would not extract any groundwater, but construction of the proposed Project could indirectly lead to the extraction of groundwater by a contracted water supply agency or district. Due to the availability of imported water, the relatively short-term period of construction water demand (16 months), and the relatively small amount of water that would be required (up to approximately 110 acre-feet), construction of the proposed Project is not anticipated to result in a net deficit in aquifer volume or a lowering of the local groundwater table level. In order to further reduce potential impacts to groundwater, Mitigation Measure HYD-1 (*Use Non-potable Water*) is recommended. With implementation of this mitigation measure, this impact would be less than significant (Class II).

Dewatering activities, if required, would be minimal and site-specific. Groundwater would be extracted temporarily to clear a subsurface construction of standing water. These minor, local groundwater extractions (if required) would only remove an amount of groundwater sufficient to dewater the subsurface construction site and would not lead to a net deficit in aquifer volume or a lowering of the local groundwater table level beyond the intended dewatering site. Also, if the extracted groundwater is found to be free of contamination, that water may be discharged locally and allowed to infiltrate back into the groundwater basin.

Construction of the proposed Project would introduce new impermeable surfaces, such as duct banks, poles, and tubular steel pole foundations. These new impermeable surfaces would be very small, discontinuous, and spread throughout the Project area. Therefore, the new impermeable surfaces would not substantially interfere with groundwater recharge because a sufficient amount of permeable surface would remain in the Project area to allow for groundwater recharge.

Mitigation Measure for Impact HYD-2

HYD-1 **Use Non-potable Water.** Project water supply for dust control, soil compaction activities, and site restoration/revegetation shall be obtained from non-potable sources, if available, and ensured in a water contract through a local water agency or district. The Applicant shall provide a letter describing the availability of non-potable water and efforts made to obtain it for use during construction to the California Public Utilities Commission a minimum of 60 days prior to the start of construction.

Impact HYD-3 (Criterion HYD3): Construction and operation of the Project could impede or redirect flood flows, or otherwise alter the existing drainage pattern, resulting in erosion, siltation, or mudflow. (Class III)

Construction of the proposed Project would require excavation and grading for new transmission structures and access roads, trenching for underground facilities, and excavation and grading for the removal of existing structures. These activities would alter the existing drainage pattern in the Project area. These alterations would be local (on or near the footprint of the Project components) and dispersed throughout the Project area. Following the completion of construction activities, areas of temporary disturbance would be restored as close to pre-construction conditions as feasible, or to the conditions agreed upon between SCE and the landowner. The restoration of disturbed sites would re-establish the previously existing drainage pattern to the extent feasible. Also, as described above under Impact HYD-1, SCE would develop and implement a SWPPP that would include BMPs to prevent and control erosion. O&M activities would not substantially alter the existing drainage pattern of the Project area.

Transmission structures, pulling and string sites, and new access roads would not be placed within a known stream or watercourse (SCE, 2014). Portions of the proposed Project alignment lie within 100-year flood hazard zones associated with the San Jacinto River, Salt Creek, and Santa Gertrudis Creek (FEMA, 2015). The RCFCWCD has constructed levees along the San Jacinto River that reduce the area threatened by a 100-year flood event (SCE, 2014). Project components, including transmission structures, may be placed within these 100-year flood hazard zones. These structures could impede or redirect flood flows. However, these structures would be designed and engineered to withstand scour and other damage from flood water. Also, they would not substantially impede or redirect flood flows because the cross-section of the transmission structure footprint would be very small compared to the cross-section of the floodplain. Any detention of flood water would be temporary, and flood water would not be blocked or redirected in a manner that would cause the flood flows to exit the existing floodplain. Blocked or redirected flood flows could result in minor changes to local patterns of erosion and siltation, but overall these changes would not substantially increase the amount of erosion or siltation in the Project area. This impact would be less than significant and no mitigation is required (Class III).

Impact HYD-4 (Criterion HYD4): Construction and operation of the Project could increase the rate or amount of surface runoff, or otherwise contribute to flood-related damage, on- or off-site. (Class III)

Construction and operation of the proposed Project could increase the rate or amount of surface runoff through the creation of new impermeable surfaces, the removal of vegetation, or the compaction of soil. New impermeable surfaces and newly compacted soils could result in increased runoff due to the reduced capacity for infiltration. The removal of vegetation could result in an increase in the rate of runoff across the Project site because vegetation generally serves to slow and dissipate stormwater runoff. New impermeable surfaces, areas of newly compacted soil, and areas of vegetation removal would be small, discontinuous, and dispersed throughout the Project area. Although these changes to the ground surface could result in localized flooding on- or off-site, the effect would be minor and would not change the overall flood regime of the area or result in a new flood risk for nearby structures or people. Aside from the ground surface changes described above, the proposed Project would not contribute any additional runoff water to the Project area and would not exceed the capacity of existing or planned stormwater drainage systems.

Structures that are placed within existing floodplains could impede or redirect flood flows, as described above under Impact HYD-3. The temporary detention or minor redirection of flood flows would not expose people or structures to a new risk of flood-related damage or cause floodwater to exit the existing floodplain. Flood-related damage to project structures is possible in the event that lateral erosion of stream banks or vertical scour of the stream bed during a large flood reaches and destabilizes a structure or other underground project feature. Onsite damage related to channel erosion and vertical scour during a flood would be prevented by appropriate structure footing design and burial depth to account for erosion and scour. This impact would be less than significant and no mitigation is required (Class III).

Impact HYD-5 (Criterion HYD5): Construction and operation of the Project could expose people or structures to a significant risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam. (Class III)

The proposed Project is located outside of the area along the San Jacinto River that is protected from the 100-year flood by levees, and therefore construction and operation of the proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving flooding as a result of the failure of a levee (SCE, 2014). However, portions of the proposed Project area are located within dam inundation areas associated with Lake Skinner and Diamond Valley Lake. A failure of either dam that impounds these two waterbodies would expose construction workers and Project structures to a risk of loss, injury, or death involving flooding. However, this risk would not be significant for several reasons. First, the distance between the Project area and these waterbodies (approximately 3 miles) would allow flood waters to dissipate and also would allow construction workers a reasonable amount of time to seek safety on higher ground. Second, both dams are relatively new and the likelihood of a failure is low. Third, Project structures that are located in floodplains (which generally coincide with the dam inundation areas) would be designed to withstand damage from a 100-year flood, and this structure design would also serve to protect against flood damage from a dam failure. Finally, the proposed Project does not include any housing or habitable structures, and during operation no personnel would be located on-site on a continual basis. This impact would be less than significant and no mitigation is required (Class III).

C.10.4.3 Cumulative Impacts

Geographic Extent/Context

The geographic scope for this cumulative analysis includes the water resources that would be affected by the proposed Project, as well as any downstream receiving water and upland contributing area related to those water resources. Surface watersheds in California are divided into 10 hydrologic regions, as defined by the DWR. The proposed Project is located within the South Coast HR, a large coastal watershed in southern California (CDF, 2004). Hydrologic Regions are subdivided into HUs. Within the South Coast HR, the proposed Project crosses two HUs, the San Jacinto Valley HU and the Santa Margarita HU (CDF, 2004). These two HUs define the geographic scope for this cumulative analysis, and are subject to the jurisdiction of the SARWQCB and the SDRWQCB, respectively (SARWQCB, 2008; SDRWQCB, 2011). Although these HUs contain waterbodies that are not crossed or directly affected by the proposed Project, they represent both the hydrologic and administrative units for water quality control and protection of beneficial uses through which the proposed Project would pass. In addition, these surface watersheds are underlain by groundwater basins, as described in Section C.10.1. This geographic scope is appropriate because it includes a watershed-level analysis of potential cumulative adverse effects.

Existing Cumulative Conditions

Construction and operation of numerous past and present projects within the study area have resulted in substantial changes to the physical hydrology and water quality of the region. Although groundwater levels fluctuate over time, due in part to the amount of recharge entering the basin, residential and agricultural water use has generally led to reduced groundwater storage and availability. Land disturbance and earth movement, including grading and excavation, have led to increased erosion and sedimentation. Floodplain functions have been impaired through the placement of structures (such as housing) within floodplains and through the deliberate alteration of floodplain hydrology (including construction of dams, levees, and engineered channels). The creation of vast areas of impervious surface (including parking lots, roadways, and rooftops) has altered the rate and amount of surface water runoff in the study area. Improper handling, storage, and disposal of hazardous materials have led to contamination of surface water and groundwater resources.

Cumulative Impact Analysis

The potential for hydrology and water quality impacts of the proposed Project (described in Section C.10.4.2) to combine with the effects of other proposed, planned, and reasonably foreseeable future projects (as listed in Table C.1-1) that are within the geographic extent of the cumulative analysis are described below for each significance criterion.

Criterion HYD1: Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.

Construction and operation of the proposed Project would result in an adverse but less-than-significant impact to water quality (Impact HYD-1). The current and reasonably foreseeable projects listed in Table C.1-1 would affect water resources in the cumulative analysis study area in a similar manner as past activities. Earth movement and grading (such as that associated with residential development projects) would lead to increased erosion and sedimentation. Many of the cumulative projects would involve the storage or use of hazardous materials, which could contaminate surface water and groundwater. Construction of the proposed Project could overlap with construction of other projects in the study area. However, the proposed Project would not cumulatively contribute to water resources impacts because the Project includes adherence to BMPs and a SWPPP that would quickly contain and clean up any accidental spills during construction. During operation, the proposed Project would include limited maintenance activities and would therefore not significantly contribute to cumulative project impacts. Therefore, cumulative impacts would be less than significant (Class III).

Criterion HYD2: 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).

Construction of the proposed Project would use approximately 75 to 110-acre feet of water for dust control, soil conditioning, and hydro seeding (Impact HYD-2). SCE would not extract any groundwater, but construction of the proposed Project could indirectly lead to the extraction of groundwater by a contracted water supply agency or district. Mitigation Measure HYD-1 (*Use non-potable water*) has been identified to reduce the potential for impacts to water resources from construction of the proposed Project. In combination with other projects, construction and operation of the proposed Project and other cumulative projects could result in a significant cumulative impact to the groundwater supply. However, with implementation of the Mitigation Measure HYD-1, the contribution of the proposed Project to cumulative impacts to the groundwater supply would be less than significant (Class II).

Criterion HYD3: Place within a watercourse or flood hazard area structures which would impede or redirect flood flows, or otherwise 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 erosion, siltation, or mudflow.

Construction and operation of the proposed Project would alter the existing drainage pattern of the Project area (Impact HYD-3). This alteration could result in minor changes to local patterns of erosion and siltation, but overall these changes would not substantially increase the amount of erosion or siltation in the Project area. Construction and operation of the proposed Project could combine with the impacts from construction and operation of other projects to result in significant cumulative impacts to natural drainage patterns, erosion, and siltation. However, the proposed Project would have a less than significant cumulative impact because the Project would have minimal changes to drainage patterns and limited changes that could cause erosion or siltation (Class III).

Criterion HYD4: Increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, create or contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems, divert or obstruct flow in a manner that would induce or exacerbate flooding, or otherwise contribute to flood-related damage, on- or off-site.

The proposed Project would result in minor changes to the ground surface and placement of structures within floodplains would minimally increase the amount of surface runoff or impede/redirect flood flows (Impact HYD-4). The proposed Project along with the cumulative projects could result in a cumulative impact to surface runoff and flooding. However, the proposed Project would result in minimal changes to runoff and would not increase flooding, therefore, the Project's contribution to cumulative impacts would be less than significant (Class III).

Criterion HYD5: Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

The proposed Project would place structures within dam inundation areas, but these structures would not include any housing or habitable structures (Impact HYD-5). As noted in Impact HYD-5, the lakes associated with the inundation areas are approximately 3 miles away, which would allow time for construction workers to seek safety on higher ground. During operation, the proposed Project would include staff in the Project area on a continuous basis. The proposed Project in combination with the cumulative projects could add workers to the project area during construction. However, the proposed Project would not significantly contribute to a cumulative risk of flooding from the failure of a levee or dam because of the distance from these areas and the limited timeframe that workers would be in one location on the Project route during construction. The proposed Project would not significantly contribute to a dam inundation impact (Class III).

C.10.4.4 Impact and Mitigation Summary

This section summarizes the conclusions of the impact analysis and associated mitigation measures presented in Section C.10.4.2 for the proposed Project. Table C.10-2 lists each impact identified for the proposed Project, along with the significance of each impact.

Table C.10-2. Impact and Mitigation Summary – Hydrology and Water Quality

Impact	Significance Conclusion	Reason for Conclusion
HYD-1: Construction, operation, and maintenance of the Project could degrade water quality and violate water quality standards or waste discharge requirements.	Class III	Project construction and operation would result in a minor amount of erosion and a small potential for the accidental release of hazardous materials. Compliance with applicable laws and regulations would ensure that this impact would be minor.
HYD-2: Construction of the Project could deplete groundwater supplies or interfere with groundwater recharge.	Class II	Project construction, with implementation of **Mitigation Measure HYD-1** (*Use Non-potable Water)*, would not result in a net deficit of the underlying aquifer volume or a lowering of the local groundwater table level.
HYD-3: Construction and operation of the Project could impede or redirect flood flows, or otherwise alter the existing drainage pattern, resulting in erosion, siltation, or mudflow.	Class III	Construction and operation of the proposed Project would alter the existing drainage pattern in a manner that would result in erosion and siltation. Post-construction site restoration and compliance with applicable laws and regulations would ensure that this impact would be minor.
HYD-4: Construction and operation of the Project could increase the rate or amount of surface runoff, or otherwise contribute to flood-related damage, on- or off-site.	Class III	Construction and operation of the proposed Project would increase the amount of surface runoff and would place structures in floodplains. However, the resulting increased risk of flooding either on- or off-site would be minor.
HYD-5: Construction and operation of the Project could expose people or structures to a significant risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam.	Class III	The proposed Project would be located within a dam inundation area, but would not include any habitable structures. The risk of loss, injury, or death from flooding as a result of dam failure would be minor.

Class I: **Significant impact; cannot be mitigated to a level that is not significant.** A Class I impact is a significant adverse effect that cannot be mitigated below a level of significance through the application of feasible mitigation measures. Class I impacts are significant and unavoidable.

Class II: **Significant impact; can be mitigated to a level that is not significant.** A Class II impact is a significant adverse effect that can be reduced to a less than significant level through the application of feasible mitigation measures presented in this EIR.

Class III: **Adverse; less than significant.** A Class III impact is a minor change or effect on the environment that does not meet or exceed the criteria established to gauge significance.

Class IV: **Beneficial impact.** A Class IV impact represents a beneficial effect that would result from project implementation.