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CHAPTER 4 – ENVIRONMENTAL IMPACT ASSESSMENT

4.8 HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Measures	Less-Than-Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☑	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, causing a net deficit in aquifer volume or a lowering of the local groundwater table level? (In other words, would the production rate of pre-existing nearby wells drop to a level that would not support existing land uses or planned uses for which permits have been granted?)	☐	☐	☑	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial on- or off-site erosion or siltation?	☐	☐	☑	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or a substantial increase to the rate or amount of surface runoff in a manner that would result in on- or off-site flooding?	☐	☐	☑	☐
e) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☑	☐
f) Otherwise substantially degrade water quality?	☐	☐	☑	☐

Would the project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Measures	Less-Than-Significant Impact	No Impact
g) 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?	❒	❒	❒	☑
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	❒	❒	❒	☑
i) 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?	❒	❒	❒	☑
j) Inundation by seiche, tsunami, or mudflow?	❒	❒	❒	☑

4.8.0 Introduction

This section describes the existing surface and groundwater hydrology, use, and quality, as well as the potential for erosion and flooding in the San Diego Gas & Electric Company (SDG&E) East County (ECO) Substation Project (Proposed Project) area. It also describes the potential impacts from construction, operation, and maintenance of the Proposed Project to these resources. With the implementation of the Proposed Project's Stormwater Pollution Prevention Plan (SWPPP) and Spill Prevention, Control, and Countermeasure (SPCC) Plan, which are both required by law, and the applicant-proposed measures (APMs) in Section 4.8.4 Applicant-Proposed Measures, the Proposed Project will result in a less-than-significant impact to hydrology and water quality.

4.8.1 Methodology

Water resources and potential impacts to hydrology and water quality resulting from construction and operation of the Proposed Project were analyzed through reconnaissance-level surveys and review of documents listed in Section 4.8.5 References, including aerial photos, topographic maps, and documents from the United States (U.S.) Geological Survey (USGS), California Department of Water Resources (DWR), and the State Water Resources Control Board (SWRCB).

4.8.2 Existing Conditions

Regulatory Background

Federal

Clean Water Act

The Clean Water Act (CWA) (33 U.S.C. § 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 U.S. 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.

CWA Section 402

The National Pollutant Discharge Elimination System (NPDES) program was established in 1972 to control discharges of pollutants from defined point sources (33 U.S.C. § 1342). The program originally focused on industrial-process wastewater and Publically-Owned Treatment Works. In 1987, Section 402 of the CWA was amended to include requirements for five separate categories of stormwater discharges, known as Phase I facilities. Phase I facilities include:

- Facilities already covered by an NPDES permit for storm water
- Facilities that engage in industrial activities
- Large municipal separate storm drain systems that serve more than 250,000 people
- Medium municipal separate storm drain systems that serve between 100,000 and 250,000 people
- Facilities that are considered significant contributors of pollutants to waters of the U.S.

The U.S. Environmental Protection Agency (EPA) issued a final rule for phase II discharges in August 1995. Phase II stormwater discharges include light industrial facilities, small construction sites (less than five acres), and small municipalities (less than 100,000 population).

In California, NPDES permitting authority is delegated to, and administered by, the nine Regional Water Quality Control Boards (RWQCBs). Under Section 402 of the CWA, projects that will disturb one acre or more of soil are required to obtain coverage under the SWRCB's General Permit for Stormwater Discharges Associated with Construction Activity (General Permit). The General Permit requires the implementation of a SWPPP, which must be prepared before construction begins and kept on site throughout the construction process. The SWPPP must include:

- Identification of pollutant sources and non-stormwater discharges associated with construction activity

- Specifications for best management practices (BMPs) that will be implemented during project construction to minimize the potential for accidental releases and runoff from the construction areas, including temporary construction yards, pull sites, and helicopter landing zones

- A plan for training construction crews
- A plan for monitoring and inspecting BMPs and site conditions
- A plan for sampling and analysis of pollutants (as necessary)

CWA Section 404

Section 404 of the CWA authorizes the U.S. Army Corps of Engineers (USACE) to regulate the discharge of dredged or fill material to waters of the U.S., including wetlands (33 U.S.C. § 1344.). The USACE issues individual site-specific or general (Nationwide) permits for such discharges.

CWA Section 401

Under Section 401 of the CWA, any applicant for a federal license or permit to conduct any activity that may result in any discharge into navigable waters must provide the licensing or permitting agency with a certification that the discharge will comply with the applicable CWA provisions (33 U.S.C. § 1341.). If a federal permit is required, such as a USACE permit for dredge and fill discharges, the project proponent must also obtain a Water Quality Certification from the RWQCB.

CWA Sections 303 and 304

Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the U.S. (33 U.S.C. § 1313.) Section 304(a) requires the U.S. EPA to publish water quality criteria that accurately reflect the latest scientific knowledge on the kind of effects and extent of effects that pollutants in water may have on health and welfare (33 U.S.C. § 1314(a).) Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria based on biomonitoring methods may be employed when numerical standards cannot be established or when they are needed to supplement numerical standards.

Section 303(c)(2)(b) of the CWA requires states to adopt numerical water quality standards for toxic pollutants for which the U.S. EPA has published water quality criteria and which could reasonably be expected to interfere with designated uses in a water body.

Under Section 303(d) of the CWA, states, territories, and authorized tribes are required to develop a list of segments with poor water quality. These waters on the list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish priority rankings for water on the lists and develop action plans, called Total Maximum Daily Loads, to improve water quality.

Rivers and Harbors Appropriation Act Section 10

Section 10 of the Rivers and Harbors Appropriation Act of 1899 (33 U.S.C. § 401, *et seq.*) makes it unlawful to obstruct or alter a navigable river or other navigable water of the U.S. Construction, excavation, or deposition of materials in, over, or under such waters, or any work

that would affect the course, location, condition, or capacity of those waters requires a Section 10 permit and approval from the USACE.

National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) is responsible for determining flood elevations and floodplain boundaries based on USACE studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps used in the National Flood Insurance Program (NFIP). These maps identify the locations of special flood hazard areas, including the 100-year floodplain. FEMA allows non-residential development in the floodplain; however, construction activities are restricted within flood hazard areas, depending on the potential for flooding within each area. Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations, enabling FEMA to require municipalities that participate in the NFIP to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains.

State

Fish and Game Code

Section 1602 of the California Fish and Game Code requires an agreement between the Department of Fish and Game (CDFG) and a public agency proposing to substantially divert or obstruct the natural flow or affect changes to the bed, channel, or bank of any river, stream, or lake. The agreement is designed to protect the fish and wildlife values of a river, lake, or stream.

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 Proposed Project area are contained in the Water Quality Control Plan for the Colorado Basin (Basin Plan). The Basin Plan is administered by the Colorado River Basin RWQCB. The Basin Plan is the master policy document that contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the eastern portions of San Diego County. The plan describes beneficial uses of water in the Colorado River watershed, water quality objectives, implementation procedures, and water quality plans and policies.

Local

San Diego County Stormwater and Discharge Control

Chapter 8 of the San Diego County Code of Regulatory Ordinances, Sections 67.801 through 67.814, contains regulations to protect water resources, improve water quality, and reduce the adverse effects of polluted runoff discharges on waters of the state, and to ensure that San Diego County is compliant with applicable state and federal laws. These ordinances state that projects that are required to obtain certain discretionary permits or approvals, such as Major Use Permits, Minor Use Permits, and Landscaping Plans, and/or ministerial permits or approvals, such as building permits and encroachment permits, need to demonstrate how the development project will comply with the requirements of these ordinances.

General Setting

The Colorado River Basin Region covers approximately 20,000 square miles in the southeastern portion of California. It includes all of Imperial County and portions of San Bernardino, Riverside, and San Diego counties. It is bounded for 40 miles on the northeast by the State of Nevada; on the north by the New York, Providence, Granite, Old Dad, Bristol, Rodman, and Ord mountain ranges; on the west by the San Bernardino, San Jacinto, and Laguna mountain ranges; on the south by the Republic of Mexico; and on the east by the Colorado River and the State of Arizona. A significant geographical feature of the region is the Salton Trough, which contains the Salton Sea and the Coachella and Imperial Valleys. The two valleys are separated by the Salton Sea, which covers the lowest area of the depression. The Proposed Project area is situated approximately 43 miles southwest of the Salton Sea, 100 miles west of the Colorado River, and 60 miles east of the City of San Diego.

All of the Proposed Project components are located within the Colorado River Hydrologic Region. Average annual rainfall in the area, as measured in Boulevard, is 12.67 inches per year, with the majority of all precipitation falling between November and May (Western Regional Climate Center, 2003). Rainfall between June and October averages 0.40 inch per month. Precipitation decreases to the east, with average annual rainfall measuring 2.42 inches per year in Coyote Wells, located approximately 16 miles northeast of the Proposed Project area.

The hydrologic conditions are representative of high-elevation, semi-arid, and desert regions, with undulating terrain dominated by dry washes, intermittent drainages, and erosion features. Distantly to the east, the Colorado River remains the most important waterway in the region. The river supplies water for use within the region and elsewhere, and plays an important role in water supply, agriculture, and recreation.

The Proposed Project area is within the Anza Borrego hydrologic unit and the Jacumba hydrologic area of the Colorado River Basin. The Boulevard Substation is located within the McCain hydrologic subarea, while the proposed ECO Substation will be located within the Jacumba Valley hydrologic subarea. The proposed 138 kilovolt (kV) transmission line will be located in both subareas.

Surface Water

In general, the Anza Borrego hydrologic unit flows to the Salton Sea, except for two small areas of internal drainage in the Clark and Borrego valleys in the northwest corner of the watershed. Runoff occurs from winter precipitation, especially in the higher elevations, and from summer thunderstorms. Perennial flow includes reaches of Coyote and San Felipe creeks, located nine miles and 32 miles east of the Proposed Project area, respectively.

Within the ECO Substation limits, numerous erosion gullies, swales, and dry washes transect the site from east to west. During heavy rain events, runoff starts as sheet flow from the east and concentrates along several paths as it flows to the west. Three of the dry washes may be considered waters of the U.S. and thus fall under the jurisdiction of the USACE and regulated by the RWQCB. All three dry washes contain defined bed and bank features, are at least two feet wide, display debris lines, and have connectivity to a tributary of Carrizo Creek. The washes are depicted in Attachment 4.4-E: Vegetation Community Maps. In addition, the 138 kV

transmission line route crosses several USGS blue line drainages, including Carrizo Creek, Carrizo Wash, Boundary Creek, and several unnamed dry drainages. There are no navigable waters within the Proposed Project limits or in the vicinity of proposed ECO Substation. Table 4.8-1: Potentially Jurisdictional Waterbodies and Wetlands lists waterbodies within or in close proximity to the Proposed Project. Figure 4.8-1: Regional Surface Water Hydrology illustrates the Proposed Project's proximity to many of these potentially jurisdictional waters. These water features are also detailed in Attachment 4.4-E: Vegetation Community Maps.

Groundwater

The Proposed Project lies within the Jacumba Valley Groundwater Basin. The basin is bounded by faults on the east and west and by the U.S.-Mexico border on the south. It has a surface area of approximately 10 square miles. Historically, several streams have deposited a thick section of alluvium in the central part of the valley, and several springs, including hot springs, are found in the basin. Geotechnical investigations at the proposed ECO Substation site conducted during the winter months of 2008 did not encounter groundwater during subsurface explorations. A monitoring well was installed to a depth of 50 feet below the ground surface and was dry as of June 2008. However, the Jacumba Valley Groundwater Basin is recharged from Boundary Creek at approximately 982 acre-feet (AF) per year, while groundwater usage is approximately 810 AF per year (Roff and Franzone, 1994). A search conducted by California DWR personnel and a search of the USGS website revealed no known groundwater wells within one mile of the Proposed Project. In order to have written confirmation that no wells occur within one mile of the Proposed Project, the CPUC or an authorized agent of the CPUC must complete a Well Completion Report Release Agreement application and submit it to the California DWR.

The main water-bearing deposits in the basin are alluvium and the Table Mountain Formation. Holocene-age alluvium consists mostly of gravel, sand, and clay. These deposits have been estimated to reach 100 to 150 feet thick and can produce more than 1,000 gallons per minute. Specific yields for this unconfined aquifer have been estimated to range from five to 25 percent (DWR, 2004).

The Table Mountain Formation is comprised of Tertiary-age, medium- to coarse-grained sandstone and conglomerates that rest on crystalline basement. This unit lies below and is separated from the Holocene alluvium by the Jacumba volcanics, creating a semi-confined to confined aquifer. The Table Mountain Formation may reach 600 feet thick and has specific yields ranging from 5 to 10 percent (Swenson, 1980).

Groundwater quality in the basin varies with different concentrations of sodium chloride, sodium sulfate, calcium chloride, and calcium sulfate. Total dissolved solids (TDS) content ranges from 296 milligrams per liter (mg/L) to 6,100 mg/L and degrades northward towards Carrizo Gorge, where spring water has TDS concentrations ranging from 2,000 mg/L to 6,000 mg/L. However, the Jacumba Valley Groundwater Basin is recharged from the Boundary Creek drainage, where TDS concentrations range from 292 mg/L to 422 mg/L (Roff and Franzone, 1994).

Table 4.8-1: Potentially Jurisdictional Waterbodies and Wetlands

Approximate Milepost/ Location	Drainage Number[1]	Drainage Name	Feature	USGS Blue Line Drainage	Flow Direction	Distance from Project Area	Flow Characteristic
East of the ECO Substation Site	1	Boulder Creek	Intermittent Creek	Yes	South to north	Located east and upslope of the ECO Substation site	Ephemeral
North of the ECO Substation Site	2	Unnamed	Dry wash, drains to tributary of Carrizo Creek	No	East to west	Located just north of the ECO Substation site	Ephemeral
Within the ECO Substation Site	3	Unnamed	Dry wash, drains to tributary of Carrizo Creek	No	East to west	Located within the boundaries of the ECO Substation site	Ephemeral
Within the ECO Substation Site	4	Unnamed	Dry wash, drains to tributary of Carrizo Creek	No	East to west	Located within the boundaries of the ECO Substation site	Ephemeral
Within the ECO Substation Site	5	Unnamed	Dry wash, drains to tributary of Carrizo Creek	No	East to west	Located within the boundaries of the ECO Substation site	Ephemeral
0.7	6	Unnamed	Dry wash, drains to Carrizo Creek	Yes	Northeast to southwest	Crosses transmission line right-of-way (ROW)	Ephemeral
0.8	7	Unnamed	Dry wash, drains to Carrizo Creek	Yes	North to south	Crosses transmission line ROW	Ephemeral

[1] The drainage number correlates to the numbers on the maps included in Attachment 4.4-D: Vegetation Community Maps of Section 4.4 Biological Resources.

Approximate Milepost/ Location	Drainage Number[1]	Drainage Name	Feature	USGS Blue Line Drainage	Flow Direction	Distance from Project Area	Flow Characteristic
1.0	8	Unnamed	Dry wash, drains to Carrizo Creek	No	Northeast to southwest	Crosses transmission line ROW	Ephemeral
1.3	9	Unnamed	Dry wash, drains to Carrizo Creek	No	North to south	Crosses transmission line ROW	Ephemeral
1.4	10	Unnamed	Dry wash, drains to Carrizo Creek	No	North to south	Crosses transmission line ROW	Ephemeral
1.5	11	Unnamed	Dry wash, drains to Carrizo Creek	No	North to south	Crosses transmission line ROW	Ephemeral
1.7	12	Unnamed	Dry wash, drains to Carrizo Creek	Yes	North to south	Crosses transmission line ROW	Ephemeral
1.9	13	Unnamed	Dry wash, drains to Carrizo Creek	No	North to south	Crosses transmission line ROW	Ephemeral
2.5, 2.7, and 2.9	14	Carrizo Creek	Intermittent creek	Yes	Generally east to west	Crosses transmission line ROW three times	Ephemeral
3.0	15	Unnamed	Dry wash, drains to Carrizo Creek	No	South to north	Crosses transmission line ROW	Ephemeral
3.4	16	Carrizo Wash	Desert wash with riparian scrub	Yes	North to south	Crosses transmission line ROW	Ephemeral

Approximate Milepost/ Location	Drainage Number[1]	Drainage Name	Feature	USGS Blue Line Drainage	Flow Direction	Distance from Project Area	Flow Characteristic
3.5	17	Unnamed	National Wetland Inventory (NWI) – fresh emergent wetland	NA	NA	Crosses transmission line ROW	NA
5.1	18	Unnamed	Dry wash	Yes	North to south	Crosses transmission line ROW	Ephemeral
5.7	19	Unnamed	Dry wash	No	North to south	Crosses transmission line ROW	Ephemeral
5.8	20	Unnamed	Dry wash	Yes	North to south	Crosses transmission line ROW	Ephemeral
7.1	21	Unnamed	Dry wash	Yes	North to south	Crosses transmission line ROW	Ephemeral
7.3	22	Unnamed	Dry wash	Yes	Northeast to southwest	Crosses transmission line ROW	Ephemeral
7.8	23	Boundary Creek	Intermittent creek	Yes	South to north	Crosses transmission line ROW twice	Ephemeral
8.1	24	Unnamed	Intermittent creek	Yes	Southeast to northwest	Crosses transmission line ROW	Ephemeral
8.7	25	Unnamed	Dry wash	No	Northwest to southeast	Crosses transmission line ROW	Ephemeral

Approximate Milepost/ Location	Drainage Number[1]	Drainage Name	Feature	USGS Blue Line Drainage	Flow Direction	Distance from Project Area	Flow Characteristic
9.0	26	Lake Domingo	Lake	NA	NA	Approximately 400 feet north of transmission line ROW	Perennial
9.0	27	Unnamed	Dry wash, drains to Lake Domingo	Yes	South to north	Crosses transmission line ROW	Ephemeral
9.2	28	Unnamed	Dry wash, drains to Lake Domingo	Yes	West to east	Crosses transmission line ROW	Ephemeral
9.5	29	Unnamed	Dry wash, drains to drainage at Milepost 9	No	West to east	Crosses transmission line ROW	Ephemeral
9.6	30	Unnamed	Dry wash, drains to Lake Domingo	Yes	Northwest to southeast	Crosses transmission line ROW	Ephemeral
10.4	31	Unnamed	Dry wash	No	South to north	Parallel to and crosses transmission line ROW	Ephemeral
10.5	32	Unnamed	Dry wash	No	South to north	Parallel to and crosses transmission line ROW	Ephemeral
10.8	33	Unnamed	Dry wash	No	South to north	Parallel to and crosses transmission line ROW	Ephemeral
11.3	34	Unnamed	NWI – fresh emergent wetland	NA	NA	Crosses transmission line ROW	NA

Approximate Milepost/ Location	Drainage Number[1]	Drainage Name	Feature	USGS Blue Line Drainage	Flow Direction	Distance from Project Area	Flow Characteristic
12.3	35	Unnamed	Dry wash	No	South to north	Parallel to transmission line ROW within approximately 100 feet at closest point	Ephemeral
12.8 and 12.9	36	Unnamed	Dry wash	No	South to north	Parallel to and crosses transmission line ROW	Ephemeral
13.3	37	Unnamed	Dry wash	No	South to north	Parallel to and crosses transmission line ROW	Ephemeral
13.3	38	Unnamed	Dry wash	No	South to north	Parallel to transmission line ROW within approximately 20 feet at closest point	Ephemeral

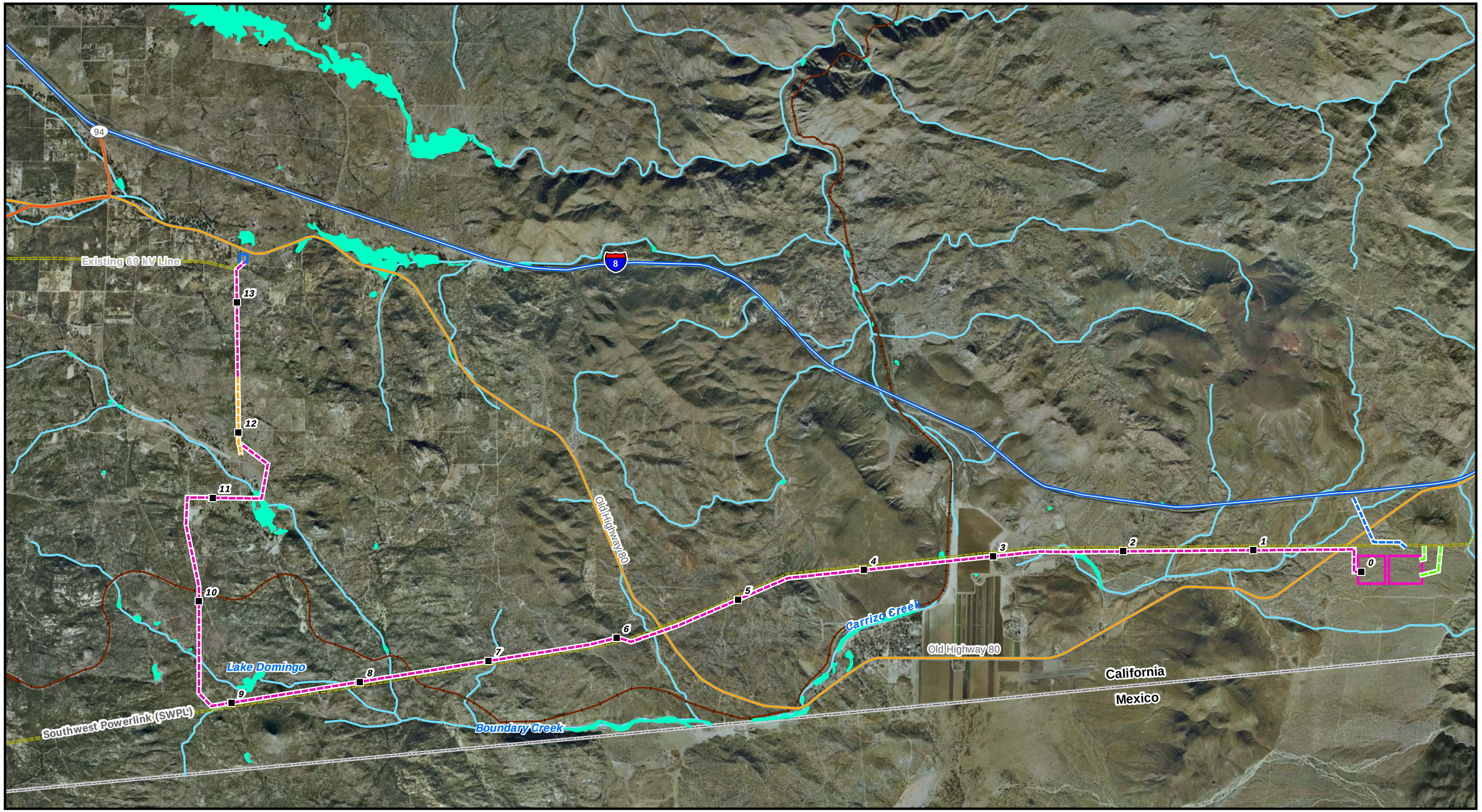

Figure 4.8-1: Surface Waters and Wetlands Map

East County Substation Project

- Proposed SWPL Loop-In
- Proposed 138 kV Line
- Proposed 12 kV Temporary Distribution Tap
- 445 Circuit Collocated with 138 kV Line
- Existing Transmission Line
- Proposed ECO Substation
- Boulevard Substation Rebuild
- National Wetland Inventory (NWI) Feature
- Stream / River
- Proposed 138 kV Line Milepost
- Interstate
- Highway
- Major Road
- Railroad

SDGE A Sempra Energy utility

INSIGNIA ENVIRONMENTAL

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7/7/2009

Surface Water Quality

Historical, beneficial uses of water within the Colorado River Basin have primarily been associated with irrigation for agriculture and mining. More recently, the Colorado River and Salton Sea have come to support millions of dollars worth of recreational-oriented businesses (contact and non-contact uses). In addition, the surface waters in the Colorado River Basin provide habitat for a variety of fish and wildlife. More relevant to the Proposed Project area, dry washes within the vicinity provide beneficial uses for groundwater recharge, non-contact water recreation, and wildlife habitat.

According the Colorado River Basin RWQCB's 2006 CWA, Section 303d List of Water Quality Limited Segments Requiring TMDLs, the Colorado River and Salton Sea are listed for impairments. As previously described, these waterbodies are a considerable distance from the Proposed Project area, but they have been identified as impaired for selenium. The Salton Sea is also listed as impaired for nutrients, salinity, and selenium.

Floodplains

The Proposed Project components are located in an area designated by FEMA as Zone D. Areas with a designation of Zone D contain possible but undetermined flood hazards. However, the potential for severe flooding is expected to be low given the significant distance to any major stream course or associated floodplain and the topographic features and elevation of the Proposed Project component sites.

Although the potential for severe flooding is expected to be low, flash floods are possible in eastern San Diego County, particularly in the mountain regions. Intense thunderstorms can cause washes, streams, and creeks to overflow their banks in a relatively short period of time. Flash flooding occurs when the ground becomes saturated with water that has fallen too quickly to be absorbed and usually occurs within six hours of the beginning of a storm event. The runoff collects in low-lying areas and rapidly flows downhill. Flash floods are more common in areas that are normally dry but receive precipitation prior to a flooding event that would saturate the soils.

Dam Failure Inundation Areas

The State Office of Emergency Services and the DWR have identified areas of potential inundation in the event of dam failures throughout California to assist local jurisdictions in developing evacuation plans for areas below dams. These agencies have also estimated when floodwaters would arrive at downstream locations should failure of a dam occur. There are no dams located upstream of the Proposed Project area.

4.8.3 Impacts

Significance Criteria

According to Appendix G of the California Environmental Quality Act Guidelines, the Proposed Project will have a significant impact to hydrology and water quality if it:

- Violates any water quality standards or waste discharge requirements
- Substantially depletes groundwater supplies or interferes significantly with groundwater recharge to the extent that a net deficit in aquifer volume or a lowering of the local groundwater table level will occur
- Substantially alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that will result in substantial erosion or siltation on or off site
- Substantially alters the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increases the rate or amount of surface runoff in a manner that will result in flooding on or off site
- Creates or contributes to runoff water that will exceed the capacity of existing or planned stormwater drainage systems or provides substantial additional sources of polluted runoff
- Otherwise substantially degrades water quality
- Places housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Maps, or other flood hazard delineation map
- Places structures that will impede or redirect flood flows within a 100-year flood hazard area
- Exposes 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
- Causes inundation by seiche, tsunami, or mudflow

Question 4.8a – Water Quality Standards and Waste Discharge Violations

Construction – Less-than-Significant Impact

Construction of the ECO Substation will permanently fill three small desert swales that may fall under the jurisdiction of the USACE or the RWQCB based on sheet flow connectivity to other jurisdictional drainages, as well as preliminary assessment of sheet flow across international borders. A total of approximately 0.5 acre of potential jurisdictional waters will be permanently filled during construction of the ECO Substation. In addition to USACE and the RWQCB, impacts to these swales may also be regulated by the CDFG. In order to mitigate for any potential impacts to jurisdictional waters, SDG&E will work closely with the USACE, RWQCB, and CDFG to obtain the appropriate permits and to ensure that adequate compensation is

achieved, as described in Section 4.8.4 Applicant-Proposed Measures. With the implementation of APM-HYD-01, impacts to jurisdictional waters resulting from the construction of the ECO Substation will be less than significant.

The 138 kV transmission line will cross several jurisdictional waters; however, all impacts will be avoided to these waters by constructing access roads and pole sites within upland locations. No direct impacts to jurisdictional waters will occur during the construction of the 138 kV transmission line.

Releases of water that will be used for dust control will be monitored and regulated to prevent over-watering and runoff. The Proposed Project will have the potential to impact jurisdictional waters as a result of erosion and sedimentation that can result from grading and excavation activities. These potential impacts are discussed further in the response to Question 4.8c – Drainage Patterns – Erosion/Siltation. Accidental releases of hazardous materials used during construction, such as diesel fuel, hydraulic fluid, oils and grease, and concrete, have the potential to occur. These potential impacts are discussed further in Section 4.7 Hazards and Hazardous Materials. Because discharges will be prevented, no water quality standards or waste water quality will occur. As a result, impacts will be less than significant.

Operation and Maintenance – Less-than-Significant Impact

The Proposed Project ROW, work areas, and substations will be stabilized using BMPs, including reseeding or, in the case of the substation, road-base or gravel, to provide permanent stabilization. Daily operation and maintenance of the Proposed Project will not impact water quality or result in discharges to waters as existing access roads will be used to access Proposed Project components.

The ECO Substation will include 23 oil-filled transformers with a maximum capacity of 569,800 gallons. The Boulevard Substation will include three oil-filled transformers with a maximum capacity of 25,660 gallons. These transformers will have the potential to leak hazardous oil. In order to minimize impacts, the ECO Substation will include a secondary containment spill pond to prevent accidently released oil from entering any nearby waterways. The rebuilt Boulevard Substation will include local containment around the transformers, consisting of concrete slabs and walls configured to contain the total volume of oil in the transformers. These containment facilities are described further in Section 4.7 Hazards and Hazardous Materials. Therefore, an accidental spill will not result in a water quality violation and impacts will be less than significant.

Question 4.8b – Groundwater Depletion or Recharge

Construction – Less-than-Significant Impact

Approximately 30 million gallons of water will be utilized during the Proposed Project construction. The water will likely be obtained by drilling for wells in the vicinity of the ECO Substation. A local well drilling contractor would then be utilized to perform the drilling operation and the drill hole will be logged in accordance with San Diego County requirements (although the CPUC's jurisdiction over this Proposed Project preempts local discretionary authority). When an appropriate aquifer is reached, water quality tests and pump tests for

quantity will be conducted. If the aquifer can supply an adequate amount of clean water, a submersible pump will be placed down the drill hole and the discharge will be connected to a water system to transport the water to the ECO Substation site. The rate of surface recharge to the Jacumba Valley Groundwater Basin from Boundary Creek is currently greater than the rate of usage. Although the aquifer is not currently being depleted, the use of groundwater during construction of the Proposed Project may impact the productivity of wells in the vicinity. However, as previously discussed, no groundwater wells have been identified within one mile of the Proposed Project. With the implementation of APM-HYD-02, which includes monitoring of any wells discovered within 0.5 mile of the Proposed Project, impacts to residential water wells during construction will be less than significant.

If a sufficient amount of water cannot be located on site, water could be purchased from the City of El Centro, the Imperial Irrigation District or other local source. Due to its distance from the Proposed Project, this water source would not affect groundwater availability in the Proposed Project vicinity.

Introduction of new permanent impervious surfaces will be limited to the foundations for the ECO Substation equipment and some of the 138 kV transmission line poles. Because the Proposed Project will involve a small increase in impervious surfaces and will be surrounded by vast areas of permeable ground, impacts to groundwater recharge will be less than significant. Dewatering activities are not anticipated to be performed as part of the Proposed Project construction. Therefore, no impacts to groundwater from below-grade construction will occur.

Operation and Maintenance – Less-than-Significant Impact

A water tank, which will hold approximately 120,000 gallons of water will be maintained on site for use during operation and maintenance of the Proposed Project. The water will primarily be used for temporary landscape irrigation, fire protection, and other standard facility uses. Monthly water use will range from 180 to 750 gallons of water depending on the time of year and weather conditions. The water will be obtained from permitted municipal sources, groundwater sources, or a combination of both. Because the rate of surface recharge to the Jacumba Valley Groundwater Basin exceeds the amount used per year, the small volume of water required for operation and maintenance will not significantly affect the existing groundwater supply should it be obtained from the on-site well. Furthermore, the water will be applied to the soil for landscaping purposes; therefore, some of the water will be absorbed into the ground, replenishing some of the groundwater supply. As a result, impacts will be less than significant.

Question 4.8c – Drainage Patterns – Erosion/Siltation

Construction – Less-than-Significant Impact

East County Substation

Construction of the ECO Substation will require a substantial amount of grading to develop a level substation site. The existing vegetation will be removed during grading activities and soils will be disturbed, making the site more susceptible to wind and water erosion. Vehicles and equipment are prone to tracking soil and/or spoil from work areas to paved roadways, which is another form of erosion.

Construction will occur in several phases, each with different potential impacts to water quality. During the grading phase or below-grade work, soils will be disturbed, moved, and transported within the site. This phase of construction will have the highest potential for wind and water erosion. Erosion and subsequent sedimentation can adversely affect water quality by transporting pollutants to downstream resources. Hazardous materials used during construction, such as diesel fuel, hydraulic fluid, oils and grease, and concrete, can be transported by stormwater runoff and threaten aquatic life. Even sediment can cause turbidity, smother riparian habitat, impair recreational uses, and transport other pollutants. Water trucks, used frequently during this phase of construction to assist with soil compaction and abate fugitive dust, will also have the potential to cause erosion and discharges.

Construction of the ECO Substation will result in changes to the drainage patterns within the substation limits when compared to pre-construction flows. During site grading, natural rills, gullies, and erosion swales will be filled in to make the site flat. As previously discussed, these features are common in desert and semi-desert regions where heavy runoff carves its way through highly erodible soils to the main washes. Runoff will continue to flow from east to west in the vicinity of the substation until it reaches Carrizo Wash. A slight alteration of drainage patterns will occur immediately upslope and down slope of the ECO Substation.

A drainage plan will be developed as part of the final grading drawings to account for flows that are interrupted by the substation on the upslope side, as well as runoff from within the substation limits. Above-grade concrete drainage swales, underground conveyance, and concrete catch basins may be utilized to capture and direct stormwater flow across the site to two retention/detention basins sized to meet San Diego County stormwater quality requirements.

Concrete or asphalt drainage swales will be approximately 12 inches deep and will generally collect stormwater along the tops and toes of slopes, as well as required benches in the slopes. Other swales may be located in the drive lanes within the substation, which may drain to concrete catch basins also located within the drive lanes. If below-grade conveyance pipes are used they will be of adequate size for the flows anticipated and will then connect with the swales outside the substation and direct flow into two retention/detention basins. The retention/detention basins will promote infiltration and control discharge rates and volumes. Implementation of the drainage plan will limit impacts to existing drainage patterns below the substation by ensuring that runoff does not result in alteration of swales and other drainage features outside the substation limits. Thus, runoff will not cause significant erosion when compared to pre-construction conditions. Therefore, impacts will be less than significant.

After the below-grade work has been completed, road-base or gravel will be used to stabilize the surface within the substation limits. During the second phase of substation construction (or the above-grade phase), the site will be relatively flat, promoting infiltration and decreasing runoff volume. The site will be stabilized with road-base or gravel to minimize wind and water erosion and reduce tracking.

Southwest Powerlink Loop-In and 138 kV Transmission Line

Water quality and waste discharge concerns during construction of the 138 kV transmission line and installation of the Southwest Powerlink (SWPL) loop-in will be similar to those discussed

for the ECO Substation, but to a much lesser degree. Grading may be required at some pole or structure sites and for access or spur roads, but the amount of ground disturbance will be relatively small at each pole or structure location. Each pole location will be stabilized according to site-specific conditions per the Proposed Project's SWPPP. Construction of the transmission line is not expected to result in discharges other than stormwater. Because discharges will be managed in accordance with the Proposed Project's SWPPP, the potential for increased erosion or siltation will be less than significant.

Access roads will be constructed in a manner to reduce concentrated flow along the road prism. Waterbars or rolling dips will be installed according to the Proposed Project's SWPPP and SDG&E's road construction standards to divert flow from the access road and reduce the potential for erosion. After the pole or structure has been installed, temporary work areas will be stabilized by allowing revegetation to occur, either naturally or by reseeding. With implementation of the SWPPP, impacts to water quality during construction of the 138 kV transmission line and SWPL loop-in will be less than significant.

The flow direction at each pole location along the 138 kV transmission line may change due to the minor grading required to access the site and install each pole. These potential changes will not result in substantial erosion or siltation. Impacts to drainage patterns from construction of the 138 kV transmission line will, therefore, be less than significant.

Boulevard Substation Rebuild

The existing Boulevard Substation will be rebuilt on an 8.5-acre parcel adjacent to the eastern boundary of the existing substation. The existing Boulevard Substation will be demolished and removed from service once the rebuilt substation is energized. Rebuilding of the substation will not alter the existing drainage patterns in the area. The substation will be stabilized with road base or gravel prior to installing the substation's new equipment. The potential for impacts to water quality are similar to those described for the ECO Substation, but to a lesser degree due to the size and scope of the work to be performed. Implementation of the Proposed Project's SWPPP will ensure measures are taken to prevent significantly altering drainage patterns or increase erosion or siltation.

White Star Communication Facility Rebuild

Installation of microwave communication equipment will result in only minor ground disturbance and minor alteration of existing surface contours. Due to the small amount of ground disturbance expected (approximately 0.04 acre) and with implementation of the Proposed Project's SWPPP, impacts will be less than significant.

Operation and Maintenance – No Impact

Except for a few instances, drainage patterns established during construction will remain during the operation phase. In some cases where grading or ground disturbance is required to establish a temporary work area, the pre-construction contours will be restored following the completion of construction; thus, no long-term impacts will occur. As previously discussed, where drainage patterns are changed, impacts to on- or off-site erosion or siltation will not occur.

Question 4.8d – Drainage Patterns – Runoff/Flooding

Construction – Less-than-Significant Impact

As previously described in the response to Question 4.8c – Drainage Patterns – Erosion/Siltation, the Proposed Project will slightly change drainage patterns in areas that are impacted. However, these changes will not substantially alter on- or off-site flow rates or volumes. Because downstream flow rates and volumes will not change substantially, impacts to drainage patterns that would result in flooding will be less than significant.

Operation and Maintenance – No Impact

The drainage patterns established during the construction phase will remain unchanged during operation and maintenance activities; therefore, the Proposed Project will not result in the potential for increase runoff volumes. Stormwater conveyance systems in the vicinity will not be affected and there will be no impact on water runoff or flooding.

Question 4.8e – Stormwater Runoff

Construction – Less-than-Significant Impact

East County Substation

The fenced area of the ECO Substation will occupy approximately 58 acres. Development of the site will require compaction of soils to meet engineering standards. In general, compaction increases surface runoff when all other factors, such as slope steepness and slope length, remain the same. As site preparation progresses and the final grade is established, runoff from the site is expected to decrease because the site will be nearly flat and provide greater opportunity for infiltration. Once grading has been completed, concrete foundations will be poured for the substation equipment. Although the majority of the site will remain pervious, the foundations will add impervious surfaces. Because the foundations will not be contiguous and will drain within the confines of the substation limits, runoff from the site is not expected to change substantially from pre-construction conditions. Consequently, there will be no impact to existing stormwater conveyance systems.

Construction will introduce new sources of pollutants that can enter stormwater and be transported off site. Sources of pollutants are discussed in detail in response to Question 4.8a – Water Quality Standards and Waste Discharge Violations. They will include hazardous materials, such as diesel fuel, hydraulic fluid, oil and grease, as well as typical construction materials, sediment, and trash. With implementation of the Proposed Project's SWPPP, impacts associated with the introduction of pollutants to stormwater runoff will be less than significant.

Southwest Powerlink Loop-In and 138 kV Transmission Line

Construction of the 138 kV transmission line and SWPL loop-in will cause only negligible changes to surface runoff. Grading to establish access roads, spur roads, and work areas will remove vegetation and can compact soils, which will increase runoff. However, the work areas required to construct this component of the Proposed Project are small and will not generate much runoff. Typically, power line construction contends more with run-on (i.e., runoff from adjacent areas entering the work area) as opposed to generating runoff (refer to the response to Question 4.8a – Water Quality Standards and Waste Discharge Violations for a detailed

discussion on impacts from runoff). Given the limited amount of runoff anticipated from the 138 kV transmission line, there will be no impact to existing stormwater conveyance systems. Conditions for introduction of pollutants to stormwater runoff will be the same as for the ECO Substation and impacts will be less than significant.

Boulevard Substation Rebuild

As previously discussed for the ECO Substation, rebuilding the Boulevard Substation will cause negligible change to surface runoff rates and volume. The rebuild will not impact existing drainage systems nor introduce new pollutants that do not currently exist at the substation. Thus, no impacts will occur.

White Star Communication Facility Rebuild

The new communication monopole at the White Star Communication Facility will be built on SDG&E-owned property adjacent to San Diego County's communication facility on Tierra Del Sol Road. This new equipment will not impact drainage systems nor introduce new pollutants. Thus, no additional impacts will occur.

Operation and Maintenance – Less-than-Significant Impact

Surface runoff, following the completion of construction, is expected to be similar to the existing conditions due to a minimal amount of new impermeable surfaces. No impacts will occur to existing stormwater conveyance systems and no alterations of existing culverts, catch basins, or drains will be required to accommodate the Proposed Project during the operation and maintenance phase. Steel poles, conductor, and substation equipment will be exposed to stormwater; however, these materials are not readily soluble or considered to contribute to water quality degradation.

Maintenance activities, such as routine inspections, pole replacements, and conductor work, can introduce pollutants to the site, similar to those during construction. Any material or equipment needed to make a repair will be brought to the site and then returned to an SDG&E maintenance yard on completion. In addition, SDG&E will implement standard protocols in accordance with state and federal regulations to control, contain, cleanup, and dispose of any pollutants that may occur during maintenance activities in accordance, as described further in Section 4.7 Hazards and Hazardous Materials.

Fertilizers and soil amendments may be used to facilitate plant growth around the perimeter of the site or in accordance with the landscaping plans. Fertilizers or other soil amendments will be used according to the manufacturer's specifications and are not anticipated to reach nearby waterways. As a result, impacts from stormwater runoff will be less than significant.

Question 4.8f – Water Quality Degradation – *Less-than-Significant Impact*

Potential sources of pollutants and activities that can contribute water quality degradation are discussed in detail in response to Question 4.8a – Water Quality Standards and Waste Discharge Violations and Question 4.8e – Stormwater Runoff. No other foreseeable sources of pollution are anticipated to be associated with construction of the Proposed Project. As a result, impacts will be less than significant.

Question 4.8g – Housing in Flood Hazard Areas – *No Impact*

No housing will be constructed as part of the Proposed Project; thus, none will be placed within a 100-year flood hazard area. Therefore, no impact will occur.

Question 4.8h – Structures in Flood Hazard Areas

Construction – No Impact

East County Substation

Flood hazard areas have not been mapped for the Proposed Project area. The ECO Substation will be constructed on an approximate five-percent slope in an area that shows no physical signs of ponding water or severe flooding. The substation will be elevated and designed to accommodate the rare incidence of flooding in the area. Likewise, flood flows around the substation will be directed to the appropriate downstream channels. Thus, no impact will occur.

Southwest Powerlink Loop-In and 138 kV Transmission Line

Although no available data for flood hazard areas in the vicinity of the Proposed Project exist, the 138 kV transmission line will parallel the SWPL, which gives historic insight into flood and scour potential for the proposed route. In addition, numerous distribution poles in the area will provide evidence of flooding or scouring of existing structures. Based on field observations and maintenance data, impacts to structures as a result of flooding are unlikely. The new poles will be designed and installed to withstand typical flooding conditions in the area. Furthermore, the size of the poles will be too small to impede flood flows. Therefore, there will be no impact.

Boulevard Substation Rebuild

No historic evidence of flooding at the Boulevard Substation exists and the rebuilt substation will be at a similar elevation as the existing station. Therefore, no impact will occur.

White Star Communication Facility Rebuild

The microwave communication equipment installed at the White Star Communication Facility will be placed immediately adjacent to existing structures. This area is not located in a flood hazard area and no impact will occur.

Operation and Maintenance – No Impact

Impacts during the operation and maintenance phase will be identical to the construction phase, as previously discussed, as it pertains to locating structures within flood hazard areas. None of the operation and maintenance activities of the Proposed Project components will cause flooding, impede flood flows, or be adversely affected by flooding. Thus, no impact will occur.

Question 4.8i – Flood Exposure – *No Impact*

Proposed Project construction will not expose people or structures to a significant risk of loss, injury, or death due to flooding, as no on- or off-site flood impacts are expected, as described in the response to Question 4.8h – Structures in Flood Hazard Areas. No permanent buildings will be placed in a known 100-year flood hazard area. Thus, no impacts will occur.

Question 4.8j – Seiche, Tsunami, Mudflow – *No Impact*

The Proposed Project area is not located near any large bodies of water that are susceptible to seiche and is too far away from the ocean to be affected by a tsunami. A mudflow is a flow of dirt and debris that occurs after intense rainfall, earthquakes, or severe wildfires. The potential for a mudflow to occur depends on the slope steepness, soil type, and soil moisture content. Although possible, a mudflow is unlikely to occur in the Proposed Project area. Furthermore, if it did occur, it would have little consequence on construction of the Proposed Project. The chance of a mudflow above any of the Proposed Project facilities is extremely low, but if a mudflow did occur and resulted in a damaged facility, repair would be addressed in accordance with SDG&E's emergency repair protocols. Thus, no impact is anticipated.

4.8.4 Applicant-Proposed Measures

In addition to the preparation and implementation of the Proposed Project's SWPPP and SPCC Plan, SDG&E will implement the following APMs to reduce impacts to a less-than-significant level:

- APM-HYD-01: SDG&E will compensate for permanent impacts to any waters of the U.S. and state-only waters at a minimum ratio of one to one or as required by the USACE, CDFG, and RWQCB through their respective permitting processes.

- APM-HYD-02: If groundwater wells at ECO Substation are drilled within 0.5 mile of any local wells used for residential water supply, the water level in existing wells will be monitored and frequent communications will occur with the owner during construction to ensure that water availability is not adversely affected.

4.8.5 References

Bennett, Jim. Land and Water Quality Division, San Diego County. Personal communication with J. Coward, Insignia Environmental. September 5, 2008. (858) 694-3820.

CPUC. Memorandum. Applicants Filing Proponent's Environmental Assessment. November 24, 2008.

California Resources Agency. 2007. Title 14 California Code of Regulations, Chapter 3 Guidelines for Implementation of the California Environmental Quality Act. CEQA Guidelines.

California RWQCB, Colorado Basin Region. 2006 Clean Water Act Section 303d List of Water Quality Limited Segments Requiring Total Maximum Daily Loads. June 28, 2007.

California RWQCB, Colorado Basin Region. *Water Quality Control Plan for the Colorado Basin Region.* August 3, 1994, as amended October 2005.

California RWQCB, San Diego Region. *Water Quality Control Plan for the San Diego Region.* September 8, 1994.

California Watershed Portal. Online. http://cwp.resources.ca.gov/map_tools.html. Site visited April 14, 2008.

County of San Diego. Department of Planning and Land Use. Online. www.sdcounty.ca.gov/dplu. Site visited April 15, 2008.

DWR. California's Groundwater Bulletin 118. Hydrologic Region Colorado River. Jacumba Valley Groundwater Basin. February 27, 2004.

Roff, D.F. and J.G. Franzone. *Proposed Final Report, Hydrogeological Investigation, Proposed Jacumba Valley Ranch Development, Jacumba, San Diego, California*. Leighton and Associates, Inc., 1994. 19 pages.

SanGIS Interactive Map. Online. http://www.sangis.org. Site visited April 11, 2008.

Swenson, G.A. *The Groundwater Hydrology of Jacumba Valley, California and Baja California*. Master's Thesis. San Diego State University. 264 p., 1980. 264 pages.

U.S. Fish and Wildlife Service. National Wetlands Inventory, Wetlands Mapper. Online: http://www.fws.gov/wetlands/Data/Mapper.html. Data downloaded April 2008.

USGS. National Water Information System: Web Interface. Online: http://waterdata.usgs.gov/nwis/inventory?search_criteria=state_cd&search_criteria=search_station_nm&search_criteria=search_site_no&submitted_form=introduction. Site visited July 2009.

Van Raalte, Michael. California DWR. Water Resources Technician. Personal communication with Nicole Markowitz, Insignia Environmental. (818) 500-1645 Extension 233. July 2009.

Western Regional Climate Center. Local Climate Data Summaries for Western U.S. Online. http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca1009. Site visited April 14, 2008.