# Chapter 11
# HYDROLOGY, WATER QUALITY (FRESH WATER), AND PUBLIC HEALTH

## 11.1 Introduction

This chapter describes existing environmental and regulatory settings for hydrologic, water quality (fresh water), and public health conditions; analyzes the potential impacts on hydrology, water quality, and public health that would result from the implementation of the program and project elements; and determines the significance of those impacts.

The focus of this chapter is on fresh water hydrology and water quality of rivers, streams, creeks, and drains that are connected to the Rio Hondo and San Gabriel Coastal Spreading Grounds and waterways that eventually reach the San Gabriel River Estuary and the Pacific Ocean. Impacts associated with the marine environment of the Pacific Ocean are discussed in Chapter 13 with the exception of tsunamis, which are included in this chapter.

As discussed in Section 3.6.1, a Preliminary Screening Analysis (Appendix 1-A) was performed to determine impacts associated with the construction and operation of program and project elements by resource area. During preliminary screening, each element was determined to have no impact, a less than significant impact, or a potentially significant impact. Those elements determined to be potentially significant were further analyzed in this environmental impact report/environmental impact statement (EIR/EIS). This EIR/EIS analysis discloses the final impact determination for those elements deemed potentially significant in the Preliminary Screening Analysis. The location of the hydrology and water quality impact analysis for each program element is summarized by alternative in Table 11-1.

**Table 11-1. Impact Analysis Location of Program Elements by Alternative**

| | Alternative | | | | | | Analysis Location | |
|---|---|---|---|---|---|---|---|---|
| **Program Element** | **1** | **2** | **3** | **4** | **5[a]** | **6[b]** | **PSA** | **EIR/EIS** |
| **Conveyance System** | | | | | | | | |
| Conveyance Improvements | X | X | X | X | X | N/A | C,O | C |
| **SJCWRP** | | | | | | | | |
| Plant Expansion | X | X | X | X | X | N/A | C,O | C |
| Process Optimization | X | X | X | X | N/A | N/A | C,O | C |
| WRP Effluent Management | X | X | X | X | X | N/A | O | O |
| **POWRP** | | | | | | | | |
| Process Optimization | X | X | X | X | N/A | N/A | C,O | C,O |
| WRP Effluent Management | X | X | X | X | X | N/A | O | O |
| **LCWRP** | | | | | | | | |
| Process Optimization | X | X | X | X | N/A | N/A | C,O | C |
| WRP Effluent Management | X | X | X | X | X | N/A | O | O |

**Table 11-1 (Continued)**

| Program Element | Alternative 1 | 2 | 3 | 4 | 5[a] | 6[b] | Analysis Location PSA | EIR/EIS |
|---|---|---|---|---|---|---|---|---|
| **LBWRP** | | | | | | | | |
| Process Optimization | X | X | X | X | N/A | N/A | C,O | C |
| WRP Effluent Management | X | X | X | X | X | N/A | O | O |
| **WNWRP** | | | | | | | | |
| WRP Effluent Management | X | X | X | X | X | N/A | O | O |
| **JWPCP** | | | | | | | | |
| Solids Processing | X | X | X | X | X | N/A | C,O | C |
| Biosolids Management | X | X | X | X | X | N/A | O | - |
| JWPCP Effluent Management | X | X | X | X | N/A | N/A | Evaluated at the project level. See Table 11-2. | |

WRP effluent management and biosolids management do not include construction.
[a] See Section 11.4.7 for a discussion of the No-Project Alternative.
[b] See Section 11.4.8 for a discussion of the No-Federal-Action Alternative.
PSA = Preliminary Screening Analysis
C = construction
O = operation
N/A = not applicable

As discussed in Section 3.2.2, Joint Water Pollution Control Plant (JWPCP) effluent management was the one program element carried forward as a project. The location of the hydrology and water quality impact analysis for each project element is summarized by alternative in Table 11-2.

**Table 11-2. Impact Analysis Location of Project Elements by Alternative**

| Project Element | Alternative 1 | 2 | 3 | 4 | 5[a] | 6[b] | Analysis Location PSA | EIR/EIS |
|---|---|---|---|---|---|---|---|---|
| **Tunnel Alignment** | | | | | | | | |
| Wilmington to SP Shelf (onshore) | X | | | | N/A | N/A | C,O | C |
| Wilmington to SP Shelf (offshore) | X | | | | N/A | N/A | C,O | - |
| Wilmington to PV Shelf (onshore) | | X | | | N/A | N/A | C,O | C |
| Wilmington to PV Shelf (offshore) | | X | | | N/A | N/A | C,O | - |
| Figueroa/Gaffey to PV Shelf (onshore) | | | X | | N/A | N/A | C,O | C |
| Figueroa/Gaffey to PV Shelf (offshore) | | | X | | N/A | N/A | C,O | - |
| Figueroa/Western to Royal Palms (onshore) | | | | X | N/A | N/A | C,O | C |
| **Shaft Sites** | | | | | | | | |
| JWPCP East | X | X | | | N/A | N/A | C,O | C,O |
| JWPCP West | | | X | X | N/A | N/A | C,O | C,O |
| TraPac | X | X | | | N/A | N/A | C,O | C,O |
| LAXT | X | X | | | N/A | N/A | C,O | C,O |
| Southwest Marine | X | X | | | N/A | N/A | C,O | C,O |
| Angels Gate | | | X | | N/A | N/A | C,O | C,O |
| Royal Palms | | | | X | N/A | N/A | C,O | C,O |

**Table 11-2 (Continued)**

| Project Element | Alternative | | | | | | Analysis Location | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5[a] | 6[b] | PSA | EIR/EIS |
| **Riser/Diffuser Areas** | | | | | | | | |
| SP Shelf | X | | | | N/A | N/A | C,O | C |
| PV Shelf | | X | X | | N/A | N/A | C,O | C |
| Existing Ocean Outfalls | X | X | X | X | N/A | N/A | C,O | C |

[a] See Section 11.4.7 for a discussion of the No-Project Alternative.
[b] See Section 11.4.8 for a discussion of the No-Federal-Action Alternative.
PSA = Preliminary Screening Analysis
C = construction
O = operation
N/A = not applicable

# 11.2 Environmental Setting

## 11.2.1 Regional Setting

The Joint Outfall System (JOS) service area is located in multiple groundwater basins and watersheds. The surface waters that extend through the service area are supplied by activities in the watershed and feed the groundwater system. The hydrology within the service area is primarily governed by engineered relationships between the groundwater basins, the surface waters, and dischargers into the surface waters, such as the Sanitation Districts of Los Angeles County (Sanitation Districts). This section provides a description of these hydraulic and hydrogeologic features and the hydraulic connections among these features as they relate to the program and project elements.

### 11.2.1.1 Groundwater Basins

As shown on Figure 11-1, the principal groundwater basins in the JOS service area are the San Gabriel Valley Groundwater Basin (commonly referred to as the “Main San Gabriel Basin”) and the Coastal Plain of Los Angeles Groundwater Basin. These groundwater basins are recharged by various surface spreading and injection sites in the basins. The two principal spreading grounds in the JOS service area are the Rio Hondo Spreading Grounds, located along the Rio Hondo in the city of Montebello, and the San Gabriel Coastal Spreading Grounds, located on the San Gabriel River in the city of Pico Rivera. Both of these spreading grounds use Sanitation Districts’ tertiary-treated effluent, referred to as recycled water, water imported from the State Water Project and Colorado River, and rainwater runoff to recharge the groundwater basin through percolation.

For this EIR/EIS analysis, the applicable basins and subbasins and the JOS facility located over each basin are identified in Table 11-3.

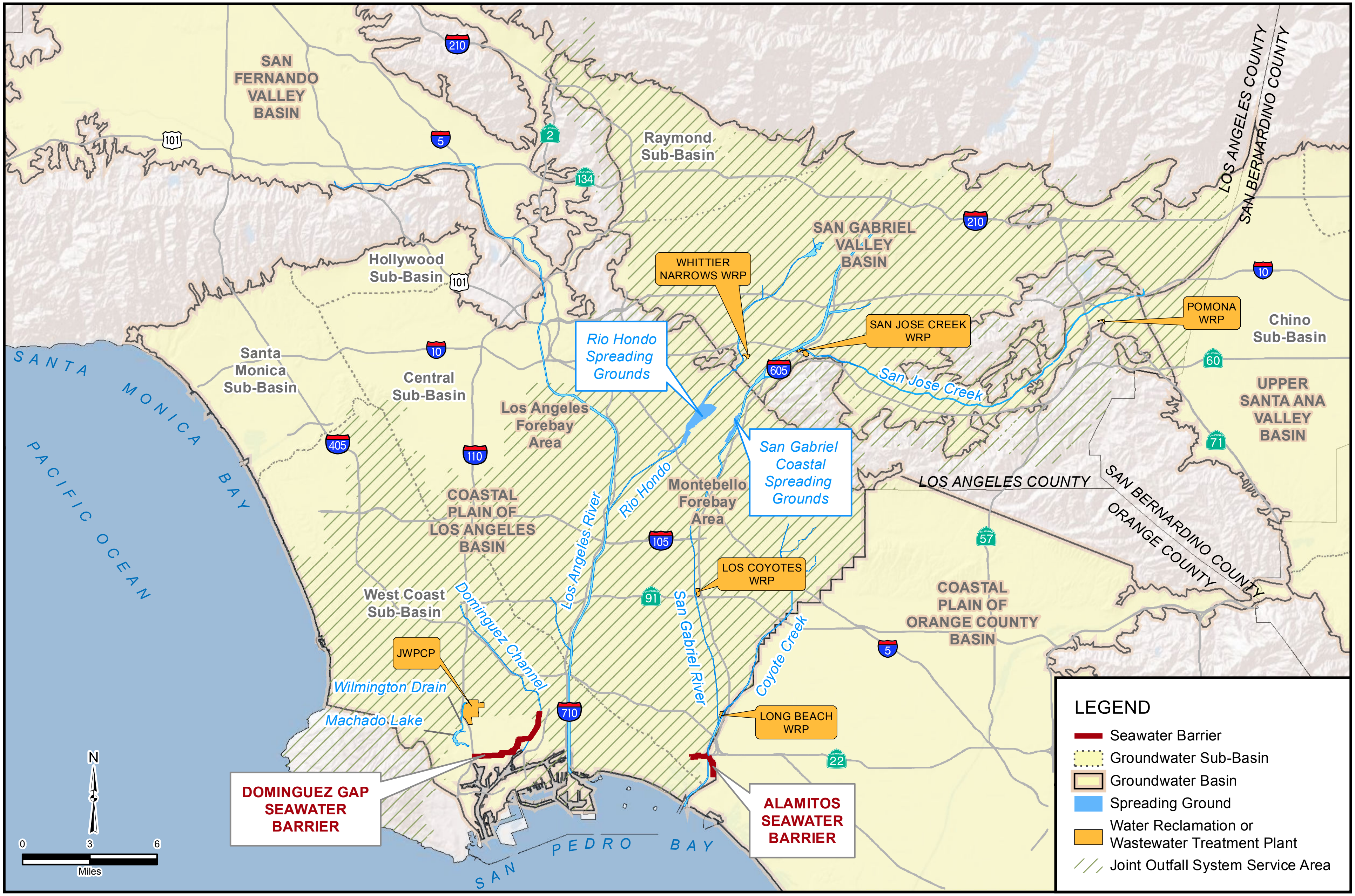


**FIGURE 11-1**

## Regional Groundwater Basins

Source: Sanitation Districts of Los Angeles County 2011, Cal-Atlas 2011 (Teale Ground Water Basins 2007), LA County DPW 2011, ESRI 2011

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**Table 11-3. Groundwater Basins and Program Elements**

| Groundwater Basin | Subbasin | Facility |
|---|---|---|
| San Gabriel Valley[a] | None | Conveyance System, WNWRP, SJCWRP, and POWRP |
| Coastal Plain of Los Angeles[b] | West Coast Basin[c] | Conveyance System and JWPCP |
| | Central Basin[d] | Conveyance System, LCWRP, and LBWRP |

[a] Identified as Basin 4-13 in the California Department of Water Resources (DWR) Bulletin 118.
[b] Identified as Basin 4-11 in DWR Bulletin 118.
[c] Identified as Basin 4-11.03 in DWR Bulletin 118.
[d] Identified as Basin 4-11.04 in DWR Bulletin 118.
Source: LARWQCB 1994:1-10

## San Gabriel Valley Groundwater Basin

This basin is located in eastern Los Angeles County and includes the water-bearing sediments underlying most of the San Gabriel Valley and a portion of the upper Santa Ana Valley that lies in Los Angeles County. Annual precipitation in the basin ranges from 15 to 31 inches, and averages 19 inches. The Raymond Fault and contact between Quaternary sediments and consolidated basement rocks of the San Gabriel Mountains form the northern boundary, the Chino Fault and San Jose Fault form the eastern boundary, and the exposed consolidated rocks of the Repetto, Merced, and Puente Hills bound the basin on the south and west. The headwaters of both the Rio Hondo and San Gabriel River are located in the San Gabriel Mountains. Surface water flows southwest across the San Gabriel Valley and exits through Whittier Narrows, a gap between the Merced and Puente Hills (DWR 2004a).

The water-bearing sediments in this basin are dominated by unconsolidated to semi-consolidated alluvium that was deposited by streams flowing out of the San Gabriel Mountains (DWR 2004a). Recharge occurs primarily through direct percolation of precipitation and percolation of stream flow. Stream flow includes local mountain runoff, imported water, and treated effluent. Subsurface flows enter from the Raymond Basin, Chino Basin, and fracture systems along the San Gabriel Mountain front (DWR 2004a).

The groundwater surface generally follows the topographic slope, with groundwater flowing from the edges of the basin toward the center of the basin, then southwestward to exit through Whittier Narrows, which is a structural and topographical low point.

## Coastal Plain of Los Angeles Groundwater Basin

The Coastal Plain of Los Angeles Groundwater Basin includes numerous subbasins. Subbasins in the JOS service area are described in detail in this section and shown on Figure 11-1. In 2008[1], 55,791 acre-feet of stormwater runoff, 1,510 acre-feet of imported water, and 39,767 acre-feet of recycled water (LACDPW 2008a:59) were replenished to groundwater in the coastal plain.

## Central Basin (Central Subbasin)

The Central Basin (also known as the Central Subbasin) encompasses a large portion of the southeastern part of the Coastal Plain of Los Angeles Groundwater Basin and was adjudicated in 1965. The Los Angeles and San Gabriel Rivers flow over the Central Basin on their way to the Pacific Ocean. There are three agencies that oversee the management of the Central Basin:

[1] LACDPW uses an annual water year for keeping records and in 2008 the water year extended from October 1, 2007 to September 30, 2008.

- The Water Replenishment District of Southern California (Water Replenishment District) is responsible for obtaining supplies of water (such as imported water, storm water, and recycled water) for the purposes of replenishing the groundwater basins.
- The Los Angeles County Department of Public Works (LACDPW) operates the spreading grounds and seawater intrusion barriers.
- The Central Basin Municipal Water District is the wholesaler of imported water for the basin.

The Central Basin is bound to the north by the La Brea high surface divide; on the northeast and east by the less permeable tertiary rocks of the Elysian, Repetto, Merced, and Puente Hills; and to the southwest by the Newport-Inglewood Fault zone. To the southeast, Coyote Creek roughly follows the regional drainage province boundary between the Central Basin and the Coastal Plain of Orange County Groundwater Basin (DWR 2004b).

Groundwater enters the Central Basin through surface and subsurface flow and by direct percolation of precipitation, stream flow, and applied water (including imported and recycled) replenishing the aquifers in areas where permeable sediments are exposed at the ground surface. Natural replenishment of the groundwater supply is from surface inflow through Whittier Narrows, with some underflow from the San Gabriel Valley. Groundwater occurs throughout the basin in Holocene and Pleistocene Age sediments at relatively shallow depths. The Central Basin pressure area contains many aquifers of permeable sands and gravels separated by semi-permeable to impermeable sandy clay to clay that extend to approximately 2,200 feet below ground surface (bgs). Throughout much of the basin, the aquifers are confined by barriers called aquicludes, but areas with semipermeable aquicludes allow some interaction between the aquifers. In much of the basin, local semi-perched groundwater conditions are created by the near surface Bellflower aquiclude that restricts vertical percolation into the Gaspur and other underlying aquifers (DWR 2004b).

The Central Basin is traditionally divided between pressure areas and forebays, where forebays have unconfined groundwater conditions and relatively interconnected aquifers that extend up to 1,600 feet deep to provide a direct connection to surface water recharge areas of the basin. There are two forebays in the Central Basin, the Los Angeles Forebay and the Montebello Forebay, as shown on Figure 11-1 (DWR 2004b). The Montebello Forebay extends southward from the Whittier Narrows where the San Gabriel River encounters the Central Basin, and is the most important area of recharge in the subbasin.

### Spreading Grounds

There are three areas within the Montebello Forebay where water is collected and recharged into the groundwater basin. These are the Rio Hondo Spreading Grounds, the San Gabriel Coastal Spreading Grounds, and the lower San Gabriel River, where water is allowed to percolate through the unlined river bottom. Current operations of these recharge facilities conserve an annual average of 150,000 acre-feet of local, imported, and recycled water (LACDPW 2010b). Imported water, rain water runoff, and treated effluent from the Pomona Water Reclamation Plant (POWRP), San Jose Creek Water Reclamation Plant (SJCWRP), and Whittier Narrows Water Reclamation Plant (WNWRP) are used to recharge the Montebello Forebay at the Rio Hondo and San Gabriel Coastal Spreading Grounds (DWR 2004c).

The Rio Hondo Spreading Grounds include 570 acres where water is diverted from the Rio Hondo channel into 20 basins, each 6 to 10 feet deep (LACDPW 2010b). The San Gabriel Coastal Spreading Grounds cover 128 acres and include 3 basins. An inflatable dam is operated at the headworks of the San Gabriel Coastal Spreading Grounds to divert flows into the spreading grounds or regulate river flow (LACDPW 2010b). The lower San Gabriel River in this area is unlined, allowing percolation. Several inflatable rubber dams are installed to increase spreading capacity along the river (LACDPW 2010b). See

Section 11.3.3.3 for a description of the permit governing the type and volume of recharge to the Montebello Forebay.

The purpose of the various spreading grounds is to recharge the groundwater basin so purveyors can extract the groundwater as a potable water source. Therefore, there are numerous production wells within the Central Basin and several adjacent to the spreading grounds.

#### Seawater Barriers

Seawater intrusion occurs in some aquifers that are exposed to ocean waters. To limit seawater intrusion, gap barriers have been installed where fresh water is pumped into the ground to limit the incursion of seawater into the basin. The Alamitos Seawater Barrier (see Figure 11-1) is located in the Central Basin and was created through the use of injection wells placed in the city of Long Beach to protect the groundwater from seawater intrusion. A portion of the recycled water produced by the Sanitation Districts' Long Beach Water Reclamation Plant (LBWRP) is treated with microfiltration, reverse osmosis, and ultraviolet light by the Water Replenishment District and blended with imported water for injection into this barrier.

### West Coast Basin (West Coast Subbasin)

The West Coast Basin (also known as the West Coast Subbasin) encompasses a large portion of the southwestern part of the Coastal Plain of Los Angeles Groundwater Basin. Groundwater levels in the basin have risen approximately 30 feet (DWR 2004d) since it was adjudicated in 1961. There are three agencies that oversee the management of the West Coast Basin:

- The Water Replenishment District is responsible for obtaining sources to recharge the groundwater basins.
- LACDPW operates the seawater intrusion barriers.
- The West Basin Municipal Water District is the wholesaler of imported water for the basin.

The subbasin is bound by the Ballona Escarpment to the north; the Newport-Inglewood Fault zone to the east; and the Pacific Ocean and consolidated rocks of the Palos Verdes Hills to the south and west. Average annual precipitation in the basin is 12 to 14 inches. The surface is crossed in the south by the Los Angeles River through the Dominguez Gap, and the San Gabriel River through the Alamitos Gap, both of which flow into San Pedro Bay. The general groundwater flow pattern is southward and westward from the Central Basin toward the ocean (DWR 2004d).

#### Seawater Barriers

Seawater intrusion occurs in some aquifers that are exposed to ocean waters. To limit seawater intrusion, gap barriers have been installed where fresh water is pumped into the ground to limit the incursion of seawater into the basin. The gap barrier closest to the JWPCP is the Dominguez Gap Barrier Project (see Figure 11-1). This barrier is created through the use of injection wells placed near the community of Wilmington to protect the Gaspur zone from seawater intrusion (DWR 2004d).

## 11.2.1.2 Watersheds

As shown on Figure 11-2, the JOS service area is located in the watersheds of the Dominguez Channel, Los Angeles River, and San Gabriel River (LARWQCB 1994). These urbanized watersheds are highly modified and primarily consist of urban stormwater drainage systems. They include tributaries to, or rivers, creeks, and other water bodies near, major streams. The main rivers and creeks are the Dominguez Channel, Los Angeles River, the San Gabriel River, the Rio Hondo, Coyote Creek, and San Jose Creek.

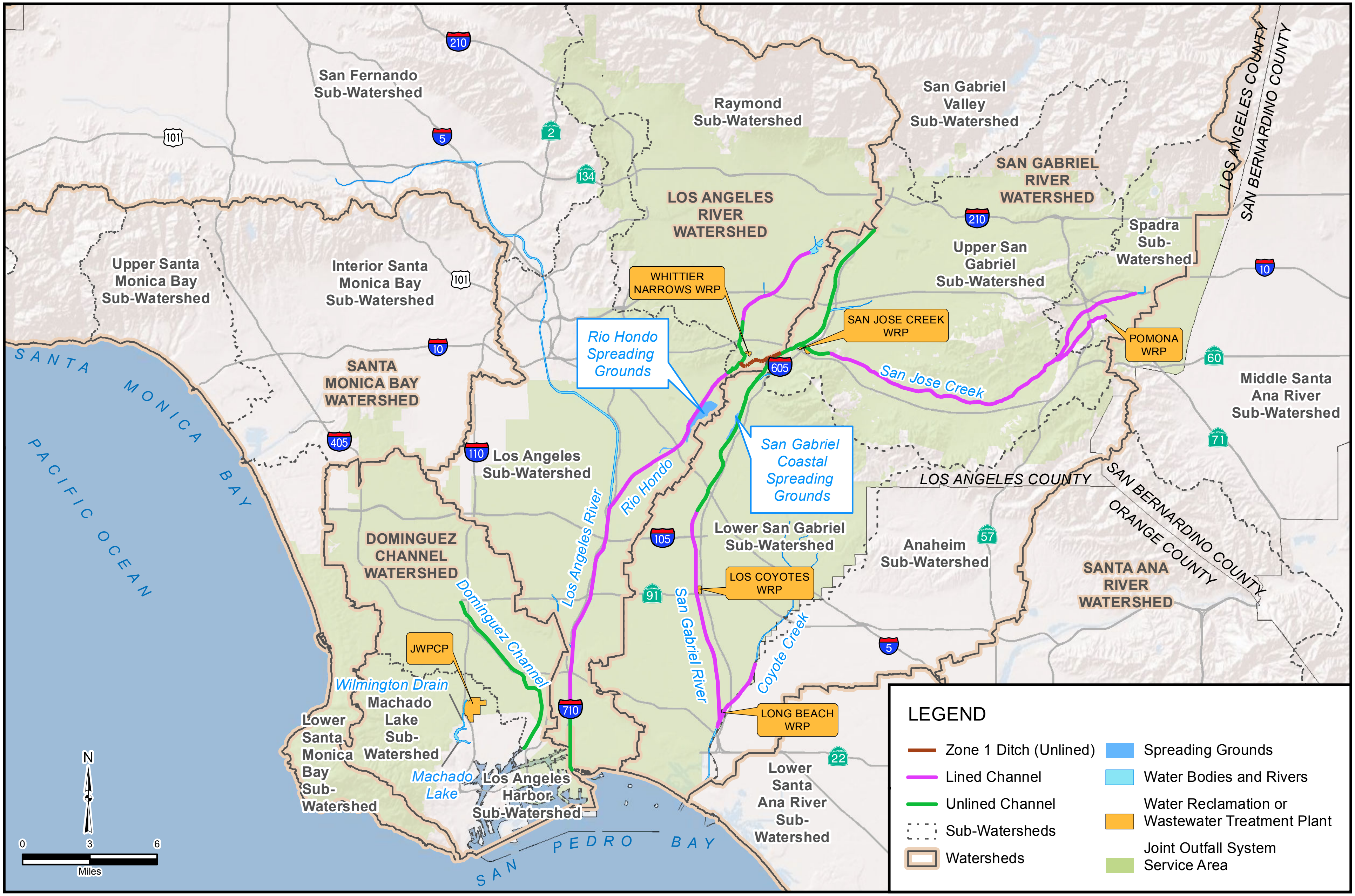


**FIGURE 11-2**

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## Regional Watersheds and River Systems

Source: Sanitation Districts of Los Angeles County 2011, Cal-Atlas (California Interagency Watershed Map of 1999 ) 2011, Thomas Bros. 2011, ESRI 2011

The JOS facilities are located in the watersheds and subwatersheds shown in Table 11-4.

**Table 11-4. Watersheds and Subwatersheds of the JOS Facilities**

| Watershed | Subwatershed | Facilities |
|---|---|---|
| Los Angeles River | Raymond | Conveyance system |
| | Rio Hondo | Conveyance system and WNWRP |
| | San Fernando | Conveyance system only |
| | Los Angeles | Conveyance system only |
| San Gabriel River | Lower San Gabriel | Conveyance system and LBWRP and LCWRP |
| | Upper San Gabriel | Conveyance system and SJCWRP |
| | San Jose Creek | Conveyance system and POWRP |
| | San Gabriel Valley | Conveyance system only |
| | Anaheim | Conveyance system only |
| Dominguez Channel | Machado Lake | Conveyance system and JWPCP |
| | Los Angeles Harbor | Conveyance system |

Source: LARWQCB 1994:1-10

## Los Angeles River Watershed

The Los Angeles River Watershed covers approximately 848 square miles and includes seven main tributaries, one of which is the Rio Hondo. There are 22 lakes and several spreading grounds in the watershed (City of Los Angeles 2011a). The watershed is hydraulically connected to the San Gabriel River through the Whittier Narrows Dam and the Zone 1 Ditch (LACDPW 2010a). Additionally, the Rio Hondo and San Gabriel Coastal Spreading Grounds are connected via pipe to maximize groundwater infiltration potential by allowing water to be transported to the available spreading ground as necessary (Matsumoto 2007).

## San Gabriel River Watershed

The San Gabriel River Watershed is located in eastern Los Angeles County, and covers approximately 640 square miles including portions of 37 cities. The San Gabriel River flows 58 miles from its headwaters in the San Gabriel Mountains to its confluence with the Pacific Ocean. Major tributaries include Walnut Creek, San Jose Creek, Coyote Creek, and stormdrains from the 19 cities through which the San Gabriel River flows (LACDPW 2010c). The San Gabriel River has two distinct flow conditions. During wet-weather periods, flow is generated primarily by stormwater runoff. However, during dry-weather periods, flows are less variable and lower, and are mainly derived from water reclamation plant (WRP) discharges, urban runoff, and groundwater-derived base flow. Above the Whittier Narrows Dam, water from the San Gabriel River and its tributaries can be diverted to the Rio Hondo via the Zone 1 Ditch through Whittier Narrows. Channel flow below Whittier Narrows Dam can be impounded by a series of seven rubber dams in the main channel to allow for diversion into the San Gabriel Coastal Spreading Grounds and to maximize infiltration to the channel (LACDPW 2008a:500). Approximately 3.5 miles downstream of the spreading grounds, the channel is lined with concrete for about 10 miles to its mouth, where it flows into the San Gabriel River Estuary. As previously noted, the Rio Hondo and San Gabriel Coastal Spreading Grounds are connected via pipe to maximize groundwater infiltration potential by allowing water to be transported to the available spreading ground as necessary (Matsumoto 2007).

## Dominguez Channel Watershed

The Dominguez Channel Watershed covers approximately 133 square miles in southwestern Los Angeles County and encompasses 19 cities or portions thereof, and a portion of unincorporated Los Angeles County (Dominguez Watershed Advisory Council 2004:1-3). Waterbodies within the watershed include the Dominguez Channel, Wilmington Drain, Torrance/Carson Channel (Torrance Lateral), Machado Lake, Los Angeles and Long Beach Harbors, and Cabrillo Beach.

Approximately 93 percent of the land in the watershed is developed. It is estimated that 62 percent of the land is covered with impervious surface, which is the highest percentage for any watershed in Los Angeles County (Dominguez Watershed Advisory Council 2004:1-3). This watershed includes two hydrologic subunits that drain primarily through a network of underground stormdrains. The northern unit drains into the Dominguez Channel and the southern drains directly into the Los Angeles and Long Beach Harbors (Los Angeles County 2005:6-4).

#### Machado Lake Subwatershed

The Machado Lake Subwatershed covers approximately 19.5 square miles in the Dominguez Channel Watershed that includes Lomita and portions of Rolling Hills, Rolling Hills Estates, Torrance, and the city of Los Angeles. The outflow channel for the watershed is the Wilmington Drain (see Figure 11-2). Upstream (northeast) of Interstate (I-) 110, the Wilmington Drain is a concrete-lined channel with vertical sides, but downstream (southwest) of the freeway near Lomita Boulevard, it transitions to an unlined channel and appears relatively natural with extensive vegetation along the banks. At Pacific Coast Highway, the channel is adverse grade; during low flows, it occasionally requires pumping to move water into Machado Lake (MEC 2004:2-100). The city of Los Angeles is preparing to improve the unlined channel (City of Los Angeles 2011b).

#### Los Angeles Harbor Subwatershed

The Los Angeles Harbor Subwatershed drains approximately 36.7 square miles of the lower portion of the Dominguez Watershed to the Los Angeles and Long Beach Harbors. It includes portions of the cities of Los Angeles, Long Beach, Rancho Palos Verdes, and Rolling Hills. Elevations in this watershed range from near sea level at the Ports of Los Angeles and Long Beach to 1,500 feet in the Rolling Hills area (MEC 2004:2-100). The main open channel drain is the Gaffey Street Drain, which runs parallel to Gaffey Street south of Machado Lake.

## 11.2.2 Program Setting

### Conveyance System

The conveyance system is located throughout Los Angeles County. Improvements to the conveyance system would generally occur in the Los Angeles River, San Gabriel River, and Dominguez Channel Watersheds. These improvements would be located over the West Coast, Central, Raymond, and San Gabriel Valley Groundwater Basins.

### Water Reclamation Plants

The Sanitation Districts' WRPs produce recycled water for beneficial reuse (e.g., landscape and agricultural irrigation, industrial purposes, and groundwater recharge) and are permitted to discharge recycled water into the rivers, creeks, and spreading grounds. The locations of the WRPs are shown on Figure 11-1. This section provides a discussion of effluent management at the WRPs and hydrology of the receiving waters, beneficial uses, impaired receiving waters, and onsite soils.

#### WRP Effluent Management and Hydrology of Receiving Waters

Each WRP has a National Pollution Discharge Elimination System (NPDES) permit that allows the discharge of recycled water into receiving waters. The NPDES permit defines the monthly average dry-weather flow rate that cannot be exceeded. Effluent flow rates for each WRP are monitored to ensure that the permitted discharge rate of the WRP is not exceeded. Recycled water has a variety of uses including irrigation, industrial use, agriculture, and groundwater recharge, and can be discharged into receiving waters. Daily discharges into receiving waters from the WRPs vary with flows into the WRPs and recycled water demands. Inputs of domestic and industrial wastewater into the WRPs vary over time and are dependent on sources outside of the Sanitation Districts' control. The demand for recycled water for industrial and landscaping purposes varies as well, and is not under the Sanitation Districts' control. Therefore, the recycled water discharge into receiving waters varies in response to factors that are not under the Sanitation Districts' control. Due to the variability of these inputs and outputs, baseline recycled water discharge from each WRP is represented by the annual average daily discharge (i.e., total daily discharges divided by 366[2]) and an annual range represented by the driest and wettest months. These discharges are listed in Table 11-5. Discharge locations and the associated receiving water reach are mapped on Figure 11-3 (SWRCB 2011).

**Table 11-5. WRP Effluent Discharges in 2008**

| | | | 2008 Average Daily Discharge (MGD) | | |
|---|---|---|---|---|---|
| **WRP** | **Effluent Discharge Point** | **Use** | **Driest Month** | **Wettest Month** | **Annual** |
| SJCWRP[a] | SJC001A, SJC002, SJC003 | Groundwater Recharge:<br>San Jose Creek (unlined)<br>San Gabriel River (unlined)<br>Zone 1 Ditch (unlined) | 16.3 | 35.4 | 24 |
| POWRP | PO001 | Groundwater Recharge:<br>San Jose Creek (unlined) | 2.2 | 7.0 | 4 |
| WNWRP[b] | WN001, WN002, WN004 | Groundwater Recharge:<br>San Gabriel River (unlined)<br>Zone 1 Ditch (unlined)<br>Rio Hondo (unlined) | 0.4 | 7.9 | 5 |
| SJCWRP | SJC001 | Discharge:<br>San Gabriel River (lined) | 32.6 | 55.6 | 41 |
| LCWRP | LC001 | Discharge:<br>San Gabriel River (lined) | 19.3 | 28.6 | 25 |
| LBWRP | LB001 | Discharge:<br>Coyote Creek (lined) | 8.2 | 17.3 | 12 |

[a] SJC001B is not included in this table, because it has not been constructed.
[b] WN003 is not included in this table, because it currently is not in service.
MGD = million gallons per day
Unlined = discharge is to a receiving water that has a natural material bed where discharges can infiltrate to groundwater
Lined = discharge is to a receiving water with a concrete bed and banks that prevent infiltration to groundwater
Sources: Sanitation Districts 2009a; 2009b; 2009c; 2009d; 2009e

Some recycled water is not discharged from the WRPs into receiving waters, but instead piped into a recycled water distribution system (e.g., purple pipes) and conveyed to various users. All Southern California water providers in their urban water management plans and integrated resource plans identify recycled water as an important source of water for the region. The more recycled water that is used by the region, the less dependent water providers are on importing water from sources outside of the region (e.g., the Colorado River and the State Water Project). Uses for recycled water not discharged into receiving waters are listed in Table 11-6.

[2] 2008 was a leap year.


**FIGURE 11-3**

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**Water Reclamation Plants and Discharge Points**

Source: Sanitation Districts of Los Angeles County 2011, LA County DPW 2011, Thomas Bros. 2011, ESRI 2011

**Table 11-6. Uses for Recycled Water Not Discharged Into Receiving Waters (2008)**

| WRP | Description of Uses |
|---|---|
| SJCWRP | ▪ Agricultural irrigation<br>▪ Landscape irrigation (including schools, golf courses, parks, and greenbelts)<br>▪ Industrial (including dust control and cooling towers) |
| POWRP | ▪ Agricultural irrigation<br>▪ Landscape irrigation (including schools, golf courses, parks, nurseries, and greenbelts)<br>▪ Industrial (including dust control and cooling towers) |
| LCWRP | ▪ Agricultural irrigation<br>▪ Landscape irrigation (including schools, golf courses, parks, nurseries, and greenbelts)<br>▪ Industrial (including dust control, cooling towers, carpet dying, metal finishing, and concrete mixing) |
| LBWRP | ▪ Landscape irrigation (including schools, golf courses, parks, nurseries, greenbelts, and oil-zone repressurization)<br>▪ Industrial (including street sweeping and oil zone repressurization)<br>▪ Industrial (including vehicle washing)<br>▪ Influent to Leo Vander Lans Advanced Water Treatment Facility and injection into the Alamitos Seawater Barrier |
| WNWRP | ▪ Landscape irrigation (including schools, golf courses, parks, and nurseries) |

Sources: Sanitation Districts 2009a; 2009b; 2009c; 2009d; 2009e

As discussed in Chapter 6 under Impact Bio-1, recycled water discharges from the WRPs can represent a large part of the overall flow in different receiving waters depending on the season and the operation of the WRPs. For less than 1 month per year (cumulative time), flow in the receiving water is dominated by runoff from storm events. At these times, the fraction of flow contributed by WRP discharges varies widely from a fraction of a percent to approximately half. For the remainder of the year, flow is dominated by recycled water discharges from the WRPs, with important secondary contributions from urban runoff, groundwater upwelling, and releases from upstream reservoirs. For the May-to-October dry season, recycled water discharges from the WRPs usually constitute the principal source of flow in the Rio Hondo and Zone 1 Ditch, and the most important sources of flow for San Jose Creek below the POWRP and the San Gabriel River flow downstream of the Santa Fe Dam. It follows that for nearly the entire year, the volume of flow in these waters is predominately influenced by recycled water discharges from the WRPs. Summaries of recycled water discharges from each WRP are provided in the following sections.

### San Jose Creek Water Reclamation Plant

#### *Effluent Discharge Locations*

Discharge from SJC002 enters the unlined reach of San Jose Creek (San Jose Creek Reach 1, Figure 11-3). During certain periods of the year, discharges from SJC002 account for about one-half of the total flow in San Jose Creek. Because SJC002 is only about 0.5 mile upstream of the confluence with the San Gabriel River, this discharge also has a substantial effect on flows in the river. Therefore, dry-season flow in the San Gabriel River below San Jose Creek consists of WRP discharges and the natural flow contribution from San Jose Creek plus any urban runoff. Discharge from SJC003 enters the unlined channel of the San Gabriel River (San Gabriel River Reach 3, Figure 11-3). Discharge from SJC001A enters the unlined reach of San Gabriel River (San Gabriel River Reach 2, Figure 11-3). Effluent can also be directly discharged to the San Gabriel Coastal Spreading Grounds. Recycled water not contained within the spreading grounds or behind the rubber dams flows downstream primarily in the San Gabriel River to the San Gabriel River Estuary. It should be noted that this would only occur during extremely heavy rainfall events in which the Rio Hondo Spreading Grounds could no longer take in river flow. Otherwise, all recycled water discharged into the Rio Hondo is spread for recharge. Recycled water can also be diverted from the San Gabriel River into the Zone 1 Ditch; from there, into the Rio Hondo; and then to the Los Angeles River and the Los Angeles River Estuary. Discharges at SJC001 enter the lined channel of the San Gabriel River (San Gabriel River Reach 1, Figure 11-3) and are the major dry-season source of flow in the San Gabriel River just upstream of the Los Coyotes Water Reclamation Plant (LCWRP), and are the predominant source of flow the remainder of the year except during relatively brief periods following major precipitation events. This is because the discharge at SJC001 is located 3.5 miles downstream from the San Gabriel Coastal Spreading Grounds. If flows are fully retained and infiltrate into the ground water at the spreading grounds, then this discharge likely accounts for the majority of the dry-season flow of the San Gabriel River at this point, as there are no significant tributaries downstream until Coyote Creek at the LBWRP.

### *Effluent Water Quality*

This section presents a summary of the physical, chemical, and biological characteristics of the effluent from the SJCWRP. The NPDES permit for the SJCWRP contains limits that are consistent with specific receiving water quality objectives of the Water Quality Control Plan for the Los Angeles Region (Basin Plan) and the State Implementation Policy (SIP) (SWRCB 2005). In addition to the NPDES permit, the SJCWRP has water-recycling requirements and is regulated under the Montebello Forebay Groundwater Recharge Permit. The water-recycling requirements for the WRPs contain limits consistent with specific water quality objectives for hydrologic subareas in the Basin Plan. The Basin Plan is discussed in Section 11.3.3.1.

The SJCWRP NPDES permit includes approximately 27,500 numeric limitations that must be met each year based on quantitative results of final effluent and receiving water sampling and analysis. The permit also states that pollutants must not be present in wastes discharged at concentrations that pose a threat to groundwater quality. Additionally, the permit contains limits for total coliform bacteria, turbidity, radioactivity, and toxicity. A summary of some of the effluent characteristics monitored at the SJCWRP for 2008 is presented in Table 11-7, along with the NPDES effluent limits applicable during that year. The water quality constituents are ordered in the table according to: (1) physical parameters, (2) chemical parameters, and (3) emerging parameters of interest.

**Table 11-7. SJCWRP Effluent Water Quality for 2008**

| | | | 2008 Effluent Monitoring Data | | |
|---|---|---|---|---|---|
| **Constituent** | **Units** | **NPDES Permit Limit**[a] | **Mean** | **Max** | **Min** |
| pH | | 6.5 (min); 8.5 (max) | 7.5 | 7.7 | 7.3 |
| Turbidity | NTU | 2 (24-hr composite) | 0.9 | 1.0 | 0.6 |
| Total Coliform | No./100 mL | 2.2 (median of last 7 samples) | < 1 | < 1 | < 1 |
| Temperature | $^{o}F$ | 86 (max) | 79 | 84 | 73 |
| Suspended Solids | mg/L | 45 (daily max); (40 weekly ave); 15 (monthly ave) | < 3.0 | < 2.6 | < 2.5 |
| Settleable Solids | mL/L | 0.3 (daily max); 0.1 (monthly ave) | < 0.1 | < 0.1 | < 0.1 |
| Total Dissolved Solids | mg/L | 750 (monthly ave) | 601 | 650 | 499 |
| Biochemical Oxygen Demand | mg/L | 20 (monthly ave) | < 3 | < 3 | < 3 |
| Ammonia Nitrogen | mg/L | Depends on temp and pH | 1.15 | 1.36 | 1.01 |
| Total Nitrogen | mg/L | N/A | 6.57 | 9.04 | 4.88 |
| Fluoride | mg/L | 1.6 (monthly ave) | 0.46 | 0.65 | 0.38 |
| Boron | mg/L | 1.0 (monthly ave) | 0.40 | 0.50 | 0.309 |
| Chloride | mg/L | 180 (monthly ave) | 155 | 160 | 122 |

**Table 11-7 (Continued)**

| Constituent | Units | NPDES Permit Limit[a] | 2008 Effluent Monitoring Data | | |
|---|---|---|---|---|---|
| | | | Mean | Max | Min |
| Sulfate | mg/L | 300 (monthly ave) | 126 | 131 | 85 |
| Total Hardness | mg/L | N/A | 241 | 275 | 203 |
| Arsenic | µg/L | N/A | ND | DNQ 0.99 | DNQ 0.71 |
| Cadmium | µg/L | N/A | 0.08 | 0.3 | DNQ 0.04 |
| Total Chromium | µg/L | N/A | 0.62 | 0.68 | 0.53 |
| Copper | µg/L | 31 (monthly ave) | 4.0 | 5.8 | 2.1 |
| Lead | µg/L | 20 (monthly ave) | 0.082 | 0.274 | DNQ 0.169 |
| Mercury | µg/L | 1.2 (monthly ave) | 0.0032 | 0.0074 | 0.0011 |
| Selenium | µg/L | 9 (monthly ave) | ND | DNQ 0.5 | DNQ 0.35 |
| Zinc | µg/L | N/A | 49 | 52.4 | 44.2 |
| N-Nitrosodimethylamine | µg/L | 20 (monthly ave) | 0.158 | 0.331 | ND |

[a] Board Order No. R4-2004-0097. This permit was in effect in 2008; however, a new NPDES permit was adopted in 2009. Therefore, current permit limits may have changed.

Mean = mean of all monthly means in 2008
Max = mean of all measurements in the month with the highest mean value
Min = mean of all measurements in the month with the lowest mean value
mg/L = milligrams per liter
mL/L = milliliters per liter
µg/L = micrograms per liter
°F = degrees Fahrenheit
NTU = nephelometric turbidity unit
ND = non-detect
DNQ = detected but not quantified
N/A = not applicable

Source: Sanitation Districts 2009a:Table 4-4, Table 4-9

## Pomona Water Reclamation Plant

### *Effluent Discharge Location*

Discharge from the POWRP (PO001) is released into a predominately lined tributary to San Jose Creek (tributary to San Jose Creek Reach 2, Figure 11-3). It then flows approximately 12 miles through the tributary and San Jose Creek Reach 2 to the unlined portion of San Jose Creek channel (San Jose Creek Reach 1, Figure 11-3), which includes the last 6,000 feet of San Jose Creek before the confluence with the San Gabriel River near the SJCWRP. Below this point, POWRP discharges are commingled with discharges from SJCWRP through SJC002 and SJC003, as previously described. POWRP discharges are, therefore, a component of dry-season flows in the lower San Jose Creek.

### *Effluent Water Quality*

This section presents a summary of the physical, chemical, and biological characteristics of the effluent from the POWRP. The NPDES permit for the POWRP contains limits that are consistent with specific receiving water quality objectives of the Basin Plan and the SIP (SWRCB 2005). In addition to the NPDES permit, the POWRP has water-recycling requirements, and is regulated under the Montebello Forebay Groundwater Recharge Permit. The water-recycling requirements for the WRPs contain limits consistent with specific water quality objectives for hydrologic subareas in the Basin Plan. The Basin Plan is discussed in Section 11.3.3.1.

The POWRP NPDES permit includes approximately 7,800 numeric limitations that must be met each year based on quantitative results of final effluent and receiving water sampling and analysis. The permit also states that pollutants must not be present in wastes discharged at concentrations that pose a threat to groundwater quality. Additionally, the permit contains limits for total coliform bacteria, turbidity, radioactivity, and toxicity. A summary of some of the effluent characteristics monitored at the POWRP for 2008 is presented in Table 11-8, along with the NPDES effluent limits applicable during that year. The water quality constituents are ordered in the table according to: (1) physical parameters, (2) chemical parameters and (3) emerging parameters of interest.

**Table 11-8. POWRP Effluent Water Quality for 2008**

| | | | 2008 Effluent Monitoring Data | | |
|---|---|---|---|---|---|
| **Constituent** | **Units** | **NPDES Permit Limit[a]** | **Mean** | **Max** | **Min** |
| pH | | 6.5 (min); 8.5 (max) | 7.0 | 7.1 | 7.0 |
| Turbidity | NTU | 2 (24-hr composite) | 0.9 | 1.1 | 0.7 |
| Total Coliform | No./100 mL | 2.2 (median of last 7 samples) | | < 1 | < 1 |
| Temperature | °F | 86 (max) | 78 | 85 | 69 |
| Suspended Solids | mg/L | 45 (daily max); 40 (weekly ave); 15 (monthly ave) | < 2.5 | < 2.7 | < 2.5 |
| Settleable Solids | mL/L | 0.3 (daily max); 0.1 (monthly ave) | < 0.1 | < 0.1 | < 0.1 |
| Total Dissolved Solids | mg/L | 750 (monthly ave) | 576 | 652 | 488 |
| Biochemical Oxygen Demand | mg/L | 45 (daily max); (30 weekly ave); 20 (monthly ave) | < 3 | < 5 | < 3 |
| Ammonia Nitrogen | mg/L | Depends on temp and pH | 1.17 | 1.77 | 0.61 |
| Total Nitrogen | mg/L | N/A | 8.18 | 10.25 | 6.65 |
| Fluoride | mg/L | 1.6 (monthly ave) | 0.30 | 0.37 | 0.24 |
| Boron | mg/L | 1.0 (monthly ave) | 0.364 | 0.63 | 0.296 |
| Chloride | mg/L | 180 (monthly ave) | 130 | 147 | 118 |
| Sulfate | mg/L | 300 (monthly ave) | 76.0 | 87.0 | 66.9 |
| Total Hardness | mg/L | N/A | 225 | 259 | 201 |
| Arsenic | µg/L | N/A | 1.25 | 1.68 | DNQ 0.87 |
| Cadmium | µg/L | 5 (monthly ave) | ND | DNQ 0.18 | DNQ 0.04 |
| Total Chromium | µg/L | N/A | 0.82 | 1.12 | 0.63 |
| Copper | µg/L | N/A | 5.32 | 7.07 | 4.26 |
| Lead | µg/L | 10 (monthly ave) | 0.60 | 0.87 | 0.40 |
| Mercury | µg/L | 0.1 (monthly ave) | 0.00423 | 0.0166 | 0.0015 |
| Selenium | µg/L | N/A | ND | DNQ 0.69 | DNQ 0.43 |
| Zinc | µg/L | N/A | 62.7 | 76.6 | 53 |
| N-Nitrosodimethylamine | µg/L | 16 (daily max); 8.1 (monthly ave) | 0.0074 | 0.300 | ND |

[a] Board Order No. R4-2004-0099. This permit was in effect in 2008; however, a new NPDES permit was adopted in 2009. Therefore, current permit limits may have changed.

Mean = mean of all monthly means in 2008
Max = mean of all measurements in the month with the highest mean value
Min = mean of all measurements in the month with the lowest mean value
mg/L = milligrams per liter
mL/L = milliliters per liter
µg/L = micrograms per liter

°F = degrees Fahrenheit
NTU = nephelometric turbidity unit
ND = non-detect
DNQ = detected but not quantified
N/A = not applicable

Source: Sanitation Districts 2009b:Table 4-2, Table 4-3

## Los Coyotes Water Reclamation Plant

### *Effluent Discharge Location*

Discharge from the LCWRP (LC001) is released to a lined reach of the San Gabriel River (San Gabriel River Reach 1, Figure 11-3) and flows several miles to the San Gabriel River Estuary near the river's confluence with Coyote Creek. LCWRP discharges vary, but are generally between 25 percent and

50 percent less than SJC001 discharges. The combined annual discharge of SJCWRP and LCWRP comprise approximately half of the dry weather flows in the San Gabriel River downstream of the LCWRP. This reach can run dry or have low flow from urban runoff depending on the operation of the WRPs and the infiltration at the spreading grounds upstream.

### *Effluent Water Quality*

This section presents a summary of the physical, chemical, and biological characteristics of the effluent from the LCWRP. The NPDES permit for the LCWRP contains limits that are consistent with specific receiving water quality objectives of the Basin Plan and the SIP (SWRCB 2005). In addition to the NPDES permit, the LCWRP has water-recycling requirements. The water-recycling requirements for the WRPs contain limits consistent with specific water quality objectives for hydrologic subareas in the Basin Plan. The Basin Plan is discussed in Section 11.3.3.1.

The LCWRP NPDES permit includes approximately 7,800 numeric limitations that must be met each year based on quantitative results of final effluent and receiving water sampling and analysis. The permit also states that pollutants must not be present in wastes discharged at concentrations that pose a threat to groundwater quality. Additionally, the permit contains limits for total coliform bacteria, turbidity, radioactivity, and toxicity. A summary of some of the effluent characteristics monitored at the LCWRP for 2008 is presented in Table 11-9, along with the NPDES effluent limits applicable during that year. The water quality constituents are ordered in the table according to: (1) physical parameters, (2) chemical parameters and (3) emerging parameters of interest.

**Table 11-9. LCWRP Effluent Water Quality for 2008**

| | | | 2008 Effluent Monitoring Data | | |
|---|---|---|---|---|---|
| **Constituent** | **Units** | **NPDES Permit Limit[a]** | **Mean** | **Max** | **Min** |
| pH | | 6.5 (min); 8.5 (max) | 7.3 | 7.4 | 7.2 |
| Turbidity | NTU | 2 (24-hr composite) | 0.7 | 0.8 | 0.6 |
| Total Coliform | No./100 mL | 2.2 (median of last 7 samples) | | < 1 | < 1 |
| Temperature | °F | 86 (max) | 80 | 85 | 74 |
| Suspended Solids | mg/L | 45 (daily max); 40 (weekly ave); 15 (monthly ave) | < 2.5 | < 2.5 | < 2.5 |
| Settleable Solids | mL/L | 0.3 (daily max); 0.1 (monthly ave) | < 0.1 | < 0.1 | < 0.1 |
| Total Dissolved Solids | mg/L | N/A | 837 | 980 | 756 |
| Biochemical Oxygen Demand | mg/L | 45 (daily max); 30 (weekly ave); 20 (monthly ave) | < 4 | < 6 | < 3 |
| Ammonia Nitrogen | mg/L | 4.9 (daily max); 2.1 (monthly ave) | 1.3 | 1.86 | 0.82 |
| Total Nitrogen | mg/L | N/A | 9.21 | 10.45 | 6.7 |
| Fluoride | mg/L | N/A | 0.55 | 0.89 | 0.42 |
| Boron | mg/L | N/A | 0.456 | 0.54 | 0.392 |
| Chloride | mg/L | N/A | 196 | 232 | 170 |
| Sulfate | mg/L | N/A | 185 | 240 | 145 |
| Total Hardness | mg/L | N/A | 293 | 335 | 256 |
| Arsenic | µg/L | N/A | 0.28 | 1.13 | DNQ 0.61 |
| Cadmium | µg/L | N/A | ND | ND | DNQ 0.05 |
| Total Chromium | µg/L | N/A | 0.69 | 0.83 | 0.49 |
| Copper | µg/L | 28 (daily max); 15 (monthly ave) | 2.01 | 3.28 | 1.3 |
| Lead | µg/L | N/A | 0.59 | 0.68 | 0.42 |

**Table 11-9 (Continued)**

| Constituent | Units | NPDES Permit Limit[a] | 2008 Effluent Monitoring Data | | |
|---|---|---|---|---|---|
| | | | Mean | Max | Min |
| Mercury | µg/L | N/A | 0.00376 | 0.008 | 0.0013 |
| Selenium | µg/L | N/A | 0.26 | 1.04 | DNQ 0.54 |
| Zinc | µg/L | N/A | 41.8 | 47.7 | 36.9 |
| N-Nitrosodimethylamine | µg/L | N/A | ND | ND | ND |

[a] Board Order No. R4-2007-0048

Mean = mean of all monthly means in 2008
Max = mean of all measurements in the month with the highest mean value
Min = mean of all measurements in the month with the lowest mean value
mg/L = milligrams per liter
mL/L = milliliters per liter
µg/L = micrograms per liter
°F = degrees Fahrenheit
NTU = nephelometric turbidity unit
ND = non-detect
DNQ = detected but not quantified
N/A = not applicable

Source: Sanitation Districts 2009c:Table 4-2, Table 4-4

## Long Beach Water Reclamation Plant

### *Effluent Discharge Location*

The LBWRP discharges (LB001) to Coyote Creek immediately upstream of its confluence with the San Gabriel River (tributary to San Gabriel River Reach 1, Figure 11-3). Both the Coyote Creek and San Gabriel River channels are fully lined for many miles both up and downstream of the LBWRP discharge point. During the May to October 2008 dry season, the LBWRP contributed between 7 and 91 percent of the Coyote Creek flow, with a median contribution of about 43 percent.

### *Effluent Water Quality*

This section presents a summary of the physical, chemical, and biological characteristics of the effluent from the LBWRP. The NPDES permit for the LBWRP contains limits that are consistent with specific receiving water quality objectives of the Basin Plan and the SIP (SWRCB 2005). In addition to the NPDES permit, the LBWRP has water-recycling requirements. The water-recycling requirements for the WRPs contain limits consistent with specific water quality objectives for hydrologic subareas in the Basin Plan. The Basin Plan is discussed in Section 11.3.3.1.

The LBWRP NPDES permit includes approximately 7,400 numeric limitations that must be met each year based on quantitative results of final effluent and receiving water sampling and analysis. The permit also states that pollutants must not be present in wastes discharged at concentrations that pose a threat to groundwater quality. Additionally, the permit contains limits for total coliform bacteria, turbidity, radioactivity, and toxicity. A summary of some of the effluent characteristics monitored at the LBWRP for 2008 is presented in Table 11-10, along with the NPDES effluent limits applicable during that year. The water quality constituents are ordered in the table according to: (1) physical parameters, (2) chemical parameters and (3) emerging parameters of interest.

**Table 11-10. LBWRP Effluent Quality for 2008**

| | | | 2008 Effluent Monitoring Data | | |
|---|---|---|---|---|---|
| **Constituent** | **Units** | **NPDES Permit Limit[a]** | **Mean** | **Max** | **Min** |
| pH | | 6.5 (min); 8.5 (max) | 7.6 | 7.7 | 7.5 |
| Turbidity | NTU | 2 (24-hr composite) | 0.8 | 0.9 | 0.7 |
| Total Coliform | No./100 mL | 2.2 (median of last 7 samples) | | < 1 | < 1 |
| Temperature | °F | 86 (max) | 77 | 83 | 72 |
| Suspended Solids | mg/L | 45 (daily max); 40 (weekly ave); 15 (monthly ave) | < 4 | < 5 | < 3 |
| Settleable Solids | mL/L | 0.3 (daily max); 0.1 (monthly ave) | < 0.1 | < 0.1 | < 0.1 |
| Total Dissolved Solids | mg/L | N/A | 613 | 740 | 558 |
| Biochemical Oxygen Demand | mg/L | 45 (daily max); 30 (weekly ave) [a]; 20 (monthly ave) | < 4 | < 5 | < 3 |
| Ammonia Nitrogen | mg/L | 4.2 (daily max); 1.8 (monthly ave) | 1.21 | 1.82 | 0.85 |
| Total Nitrogen | mg/L | N/A | 8.15 | 10.51 | 5.27 |
| Fluoride | mg/L | N/A | 0.67 | 0.78 | 0.57 |
| Boron | mg/L | N/A | 0.42 | 0.59 | 0.341 |
| Chloride | mg/L | N/A | 120 | 134 | 110 |
| Sulfate | mg/L | N/A | 106 | 147 | 84.6 |
| Total Hardness | mg/L | N/A | 183 | 245 | 156 |
| Arsenic | µg/L | N/A | 3.09 | 3.66 | 2.79 |
| Cadmium | µg/L | N/A | 0.35 | 1.39 | ND |
| Total Chromium | µg/L | N/A | ND | DNQ 0.30 | DNQ 0.23 |
| Copper | µg/L | 20 (daily max); 18 (monthly ave) | 2.1 | 3.3 | 1.1 |
| Lead | µg/L | 106 (daily max) | 0.021 | 0.256 | DNQ 0.13 |
| Mercury | µg/L | N/A | 0.0031 | 0.0098 | 0.0010 |
| Selenium | µg/L | N/A | ND | DNQ 0.83 | DNQ 0.34 |
| Zinc | µg/L | 156 (daily max) | 43.5 | 49.1 | 31 |
| N-Nitrosodimethylamine | µg/L | N/A | 0.77 | 1.4 | 0.24 |

[a] Board Order No. R4-2007-0047

Mean = mean of all monthly means in 2008
Max = mean of all measurements in the month with the highest mean value
Min = mean of all measurements in the month with the lowest mean value
mg/L = milligrams per liter
mL/L = milliliters per liter
µg/L = micrograms per liter
°F = degrees Fahrenheit
NTU = nephelometric turbidity unit
ND = non-detect
DNQ = detected but not quantified
N/A = not applicable

Source: Sanitation Districts 2009d:Table 4-2, Table 4-4

## Whittier Narrows Water Reclamation Plant

### *Effluent Discharge Location*

The WNWRP discharges at different locations and into different receiving waters. WN001 discharges to an unlined reach of the San Gabriel River (San Gabriel River Reach 3, Figure 11-3) and contributes to the WRP-derived flows in that receiving water, while WN002 and WN004 contribute to flows in the Zone 1 Ditch (tributary to Rio Hondo Reach 2, Figure 11-3) and the Rio Hondo (Rio Hondo Reach 2, Figure 11-3), respectively. Only one of these discharges from the WNWRP is used at any given time, usually for a period of several weeks to several months, and then discharge shifts to one of the other points. When the WNWRP is discharging to the Rio Hondo, it represents the predominant source of flow in the river. A fourth discharge, WN003, discharged to Test Basin 1 for a study on using recycled water for groundwater recharge. There has been no discharge through this point since July 31, 1981, and there is no plan to utilize this point in the foreseeable future.

Discharges from the WNWRP are greatly dependent upon flood control maintenance and other activities outside of the Sanitation Districts' control. Because of these types of constraints, the Sanitation Districts cannot ensure that flow will be discharged at any particular discharge point at a given time, and flows to any particular discharge point may be interrupted for an extended period of time.

#### *Effluent Water Quality*

This section presents a summary of the physical, chemical, and biological characteristics of the effluent from the WNWRP. The NPDES permit for the WNWRP contains limits that are consistent with specific receiving water quality objectives of the Basin Plan and the SIP (SWRCB 2005). In addition to the NPDES permit the WNWRP has water-recycling requirements and is regulated under the Montebello Forebay Groundwater Recharge Permit. The water-recycling requirements for the WRPs contain limits consistent with specific water quality objectives for hydrologic subareas in the Basin Plan. The Basin Plan is discussed in Section 11.3.3.1.

The WNWRP NPDES permit includes approximately 9,200 numeric limitations that must be met each year based on quantitative results of final effluent and receiving water sampling and analysis. The permit also states that pollutants must not be present in wastes discharged at concentrations that pose a threat to groundwater quality. Additionally, the permit contains limits for total coliform bacteria, turbidity, radioactivity, and toxicity. A summary of some of the effluent characteristics monitored at the WNWRP for 2008 is presented in Table 11-11, along with the NPDES effluent limits applicable during that year. The water quality constituents are ordered in the table according to: (1) physical parameters, (2) chemical parameters, and (3) emerging parameters of interest.

**Table 11-11. WNWRP Effluent Quality for 2008**

| | | | 2008 Effluent Monitoring Data | | |
|---|---|---|---|---|---|
| **Constituent** | **Units** | **NPDES Permit Limit[a]** | **Mean** | **Max** | **Min** |
| pH | | 6.5 (min); 8.5 (max) | 7.4 | 7.5 | 7.2 |
| Turbidity | NTU | 2 (24-hr composite) | 0.7 | 0.9 | 0.5 |
| Total Coliform | No./100 mL | 2.2 (median of last 7 samples) | | < 1 | < 1 |
| Temperature | $^{o}$F | 100 (max) | 77 | 83 | 72 |
| Suspended Solids | mg/L | 45 (daily max); 40 (weekly ave); 15 (mthly ave) | < 2.5 | < 2.5 | < 2.5 |
| Settleable Solids | mL/L | 0.3 (daily max); 0.1 (monthly ave) | < 0.1 | < 0.1 | < 0.1 |
| Total Dissolved Solids | mg/L | 750 (daily max) | 564 | 642 | 506 |
| Biochemical Oxygen Demand | mg/L | 45 (daily max); 30 (weekly ave); 20 (monthly ave) | < 4 | < 5 | < 3 |
| Ammonia Nitrogen | mg/L | Depends on temp and pH | 1.2 | 1.52 | 0.89 |
| Total Nitrogen | mg/L | N/A | 1.4 | 2.1 | 0.93 |
| Fluoride | mg/L | 1.6 (monthly ave) | 1.0 | 3.23 | 0.63 |
| Boron | mg/L | 1.0 (monthly ave) | 0.33 | 0.42 | 0.267 |
| Chloride | mg/L | 180 (monthly ave) | 112 | 117 | 102 |
| Sulfate | mg/L | 300 (monthly ave) | 104 | 129 | 93 |
| Total Hardness | mg/L | N/A | 203 | 213 | 189 |
| Arsenic | µg/L | 50 (monthly ave) | 1.31 | 1.61 | 1.07 |
| Cadmium | µg/L | 5 (monthly ave) | 0.19 | 0.99 | DNQ 0.08 |

**Table 11-11 (Continued)**

| Constituent | Units | NPDES Permit Limit[a] | 2008 Effluent Monitoring Data | | |
|---|---|---|---|---|---|
| | | | Mean | Max | Min |
| Total Chromium | µg/L | N/A | 0.97 | 1.84 | 0.81 |
| Copper | µg/L | N/A | 4.59 | 5.22 | 4.08 |
| Lead | µg/L | 50 (monthly ave) | 0.45 | 0.61 | 0.36 |
| Mercury | µg/L | 0.10 (daily max); 0.051(monthly ave) | 0.0030 | 0.0062 | ND |
| Selenium | µg/L | 10 (monthly ave) | ND | DNQ 0.53 | DNQ 0.41 |
| Zinc | µg/L | 5000 (monthly ave) | 60 | 73.1 | 52 |
| N-Nitrosodimethylamine | µg/L | N/A | 0.085 | 0.360 | ND |

[a] Board Order No. R4-2002-0142. This permit was in effect in 2008; however, a new NPDES permit was adopted in 2009. Therefore, current permit limits may have changed.

Mean = mean of all monthly means in 2008
Max = mean of all measurements in the month with the highest mean value
Min = mean of all measurements in the month with the lowest mean value
mg/L = milligrams per liter
mL/L = milliliters per liter
µg/L = micrograms per liter
°F = degrees Fahrenheit
NTU = nephelometric turbidity unit
ND = non-detect
DNQ = detected but not quantified
N/A = not applicable

Source: Sanitation Districts 2009e:Table 4-2, Table 4-4

## Receiving Waters

### *Beneficial Uses*

Beneficial uses are designated by the Regional Water Quality Control Board (RWQCB), and together with water quality objectives, form water quality standards. These water quality standards are used to protect water quality necessary for the survival or well-being of humans, plants, and wildlife. Beneficial uses in the Los Angeles Basin include potential, intermittent, and existing beneficial uses for both surface water and groundwater bodies. Beneficial uses are established by state regulations and are discussed in detail in Section 11.3.2; however, because they are established for specific physical surface waters and groundwater basins (collectively known as receiving waters), beneficial uses also describe certain desired environmental conditions. Beneficial uses are established to identify whether a receiving water is impaired and to assist with management of regulated discharges to receiving waters through the NPDES, administered under the Clean Water Act (CWA) (described in detail in Sections 11.3.1 and 11.3.2). To prevent downstream degradation of beneficial uses, tributaries without specified beneficial uses assume the beneficial uses of the downstream water. Beneficial uses for receiving waters of WRP effluent discharges are summarized in Table 11-12. Discharge points are mapped on Figure 11-3.

## Table 11-12. Beneficial Uses at WRP Discharge Points

| | | Receiving Water | | Beneficial Uses (Grey background indicates groundwater) | | |
|---|---|---|---|---|---|---|
| WRP | Discharge Point | Discharge Reach | Downstream Reach | Existing[a,d] | Intermittent[b,d] | Potential[c,d] |
| SJCWRP[e] | SJC002 | San Jose Creek Reach 1 (Hydro Unit 405.41) | | WILD | GWR, REC-2, WARM | MUN[j], REC-1[k] |
| | SJC003 | San Gabriel River Reach 3 (Hydro Unit 405.41) | | WILD | GWR, REC-1[k], REC-2, WARM | MUN[j] |
| | | | Whittier Narrows Flood Control Basin (Zone 1 Ditch) (Hydro Unit 405.41) | GWR, REC-1, REC-2, WARM, WILD | None | MUN[j], RARE |
| | SJC001A | San Gabriel River Reach 2 (Hydro Unit 405.15) | | RARE, REC-1[k], REC-2, WILD | GWR, WARM | IND, MUN[j], PROC |
| | SJC001 | San Gabriel River Reach 1 (Hydro Unit 405.15) | | REC-1[k], REC-2 | None | MUN[j], WARM, WILD |
| | | | San Gabriel River Estuary (Hydro Unit 405.15) | COMM, EST, IND, MAR, MIGR, NAV, RARE, REC-1, REC-2, SPWN, WILD | None | SHELL |
| | SJC001 SJC001A | Central Basin (DWR-Basin 4-11) | | AGR, IND, MUN, PROC | N/A | N/A |
| | SJC002 SJC003 | San Gabriel Basin (DWR Basin 4-3) | | AGR, IND, MUN, PROC | N/A | N/A |
| POWRP[e,i] | PO001 | San Jose Creek Reach 2 (Hydro Unit 405.51) | | WILD | GWR, REC-2, WARM | MUN[j], REC-1[k] |
| | | | San Jose Creek Reach 1 (Hydro Unit 405.41) | WILD | GWR, REC-2, WARM | MUN[j] REC-1[k] |
| | | | San Gabriel River Reach 3 (Hydro Unit 405.41) | WILD | GWR, REC-1[k], REC-2, WARM | MUN[j] |
| | | | San Gabriel River Reach 2 (Hydro Unit 405.15) | RARE, REC-1[k], REC-2, WILD | GWR, WARM | IND, MUN[j], PROC |
| LCWRP | LC001 | San Gabriel River Reach 1 (Hydro Unit 405.15) | | REC-1[k], REC-2 | None | MUN[j], WARM, WILD |
| | | | San Gabriel River Estuary (Hydro Unit 405.15) | COMM, EST, IND, MAR, MIGR, NAV, RARE, REC-1, REC-2, SPWN, WILD | None | SHELL |

**Table 11-12 (Continued)**

| | | Receiving Water | | Beneficial Uses (Grey background indicates groundwater) | | |
|---|---|---|---|---|---|---|
| **WRP** | **Discharge Point** | **Discharge Reach** | **Downstream Reach** | **Existing[a,d]** | **Intermittent[b,d]** | **Potential[c,d]** |
| LBWRP | LB001 | Coyote Creek (Hydro Unit 405.15) | | RARE | REC-2 | IND, MUN[j], PROC, REC-1[k], WARM, WILD |
| | | | San Gabriel River Estuary (Hydro Unit 405.15) | COMM, EST, IND, MAR, MIGR, NAV, RARE, REC-1, REC-2, SPWN, WILD | None | SHELL |
| WNWRP[g, h] | WN001 | San Gabriel River Reach 3 (Hydro Unit 405.41) | | WILD | GWR, REC-1[k], REC-2, WARM | MUN[j] |
| | | | San Gabriel River Reach 2 (Hydro Unit 405.15) | RARE, REC-1[k], REC-2, WILD | GWR, WARM | IND, MUN[j], PROC |
| | WN002 | Whittier Narrows Flood Control Basin (Zone 1 Ditch) (Hydro Unit 405.41) | | GWR, REC-1, REC-2, WARM, WILD | None | MUN[j], RARE |
| | WN004 | Whittier Narrows Flood Control Basin (Hydro Unit 405.41) | | GWR, REC-1, REC-2, WARM, WILD | None | MUN[j], RARE |
| | WN002 WN004 | | Rio Hondo to Spreading Grounds (Hydro Unit 405.15) | REC-2 | GWR, REC-1[k], WILD | MUN[j], WARM |
| | | | Rio Hondo Below Spreading Grounds (Hydro Unit 405.15) | REC-2 | GWR, WILD | MUN, REC-1[k], WARM |
| | WN001 WN002 WN004 | Central Basin (DWR-Basin 4-11) | | AGR, IND, MUN, PROC | N/A | N/A |

Beneficial uses can be designated for a waterbody in a number of ways. The definitions of Existing, Intermediate, and Potential Beneficial Uses defined in the LARWQCB Basin Plan (1994) are described below.

[a] Existing Beneficial Use: Those beneficial uses that have been attained for a waterbody on, or after, November 28, 1975, must be designated as "existing" in the basin plans.

[b] Intermittent Beneficial Use: Beneficial uses of streams that have intermittent flows, as is typical of many streams in Southern California, are designated as intermittent. During dry periods, however, shallow groundwater or small pools of water can support some beneficial uses associated with intermittent streams; accordingly, such beneficial uses (e.g., wildlife habitat) must be protected throughout the year and are designated "existing."

[c] Potential Beneficial Use: beneficial uses can be designated as "potential" for several reasons, including: implementation of the State Board's policy entitled "Sources of Drinking Water Policy" (Chapter 5 of State Board Resolution No. 88-63); plans to put the water to such use in the future; potential to put the water to such use in the future; designation of a use by the Regional Board as a regional water quality goal; or, public desire to put the water to such use in the future.

[d] Beneficial uses are coded as follows:

AGR = agricultural supply
COMM = commercial and sport fishing
EST = estuarine habitat
GWR = groundwater recharge
IND = industrial service supply
MAR = marine habitat
MIGR = migration of aquatic organisms
MUN = municipal and domestic supply
NAV = navigation
PROC = industrial process supply
RARE = rare, threatened, or endangered species
REC-1 = water contact recreation
REC-2 = non-contact water recreation
SHELL = shellfish harvesting
SPWN = spawning, reproduction, and/or early development
WARM = warm fresh water habitat
WET = wetland habitat
WILD = wildlife habitat

N/A = not applicable

[e] During peak flow events, a portion of San Gabriel River flow can be diverted to the Rio Hondo via the Zone 1 Ditch. At these

**Table 11-12 (Continued)**

| | | Receiving Water | | Beneficial Uses (Grey background indicates groundwater) | | |
|---|---|---|---|---|---|---|
| WRP | Discharge Point | Discharge Reach | Downstream Reach | Existing[a,d] | Intermittent[b,d] | Potential[c,d] |

times, a portion of the diverted flow may contain effluent discharged from the POWRP or the SJCWRP and thus that effluent may enter the Los Angeles River basin via the Rio Hondo. However, such effluent represents an immeasurably small portion of the total flood flow and thus has no potential to affect beneficial uses in the Rio Hondo, Los Angeles River, or Los Angeles River Estuary.

[f] SJC001B is not included in this table because it has not been constructed.

[g] WNWRP effluent discharge is normally fully infiltrated at the San Gabriel Coastal or Rio Hondo Spreading Grounds. Effluent only enters the lower San Gabriel River, Los Angeles River, or their estuaries during flood events, at which times it represents an immeasurably small fraction of total streamflow and thus has no potential to affect beneficial uses.

[h] WN003 is not included in this table because it currently is not in service.

[i] POWRP discharges are normally fully infiltrated in unlined reaches of San Jose Creek, the San Gabriel River and at the San Gabriel Coastal Spreading Grounds. They are conveyed downstream to Reach 1 of the San Gabriel River and the estuary only during flood flows, at which times they represent an immeasurably small portion of streamflow and thus have no potential to affect beneficial uses.

[j] The potential municipal and domestic supply beneficial uses for the waterbody is consistent with the State Water Resources Control Board Order No. 88-63 and RWQCB Resolution No. 89-003; however, the RWQCB has only conditionally designated the MUN beneficial use and at this time cannot establish effluent limitations designed to protect the conditional designation.

For a complete list of beneficial uses for the basin, see the update to Chapter 2 of the LARWQCB Basin Plan (LARWQCB 2011).

[k] Access to lined reaches prohibited by Los Angeles County regulations.

### *Impaired Receiving Waters*

The JOS service area includes several impaired receiving waters. These receiving waters are impaired due to a variety of pollutants and stressors generated by multiple sources. As described under the CWA in Section 11.3.1.1, a 303(d) list is developed by the RWQCB and approved by the United States (U.S.) Environmental Protection Agency (EPA) to identify impairments and potential sources. Once a waterbody is placed on the 303(d) List of Water Quality Limited Segments, it remains on the list until a Total Maximum Daily Load (TMDL) is adopted, and the water quality standards are attained or there are sufficient data to demonstrate that water quality standards have been met and delisting should take place. A TMDL is an allowable discharge target to reduce pollutant loading into receiving waters. A TMDL is supposed to be developed for each impairment listed on the 303(d) list in order for each receiving water to improve water quality; receiving waters may be removed from the 303(d) list once a TMDL has been developed.

Twelve waters on the 303(d) list receive effluent discharged from Sanitation Districts' WRPs, as shown in Table 11-13.

**Table 11-13. Clean Water Act Section 303(d) List of Impaired Water Bodies in Reaches with WRP Discharge**

| CalWater Watershed Label | Name and Size | Pollutant/Stressor | Pollutant Category | Expected TMDL Completion Year | WRPs Upstream of Affected Reach |
|---|---|---|---|---|---|
| 40531000 | San Jose Creek Reach 2 | Coliform Bacteria | Pathogens | 2019 | POWRP |
| 40531000 | San Jose Creek Reach 1 | Ammonia | Nutrients | N/A | POWRP<br>SJCWRP |
| | | Coliform Bacteria | Pathogens | 2009 | |
| | | Total Dissolved Solids | Salinity | 2021 | |
| | | Toxicity | Toxicity | 2019 | |
| | | pH | Miscellaneous | 2021 | |

**Table 11-13 (Continued)**

| CalWater Watershed Label | Name and Size | Pollutant/Stressor | Pollutant Category | Expected TMDL Completion Year | WRPs Upstream of Affected Reach |
|---|---|---|---|---|---|
| 40515010 | San Gabriel River Reach 2 | Coliform Bacteria | Pathogens | 2011 | POWRP SJCWRP WNWRP |
| | | Cyanide | Other inorganics | 2021 | |
| | | Lead | Metals/Metalloids | N/A | |
| 40515010 | San Gabriel River Reach 1 | Coliform Bacteria | Pathogens | 2019 | POWRP SJCWRP LCWRP LBWRP |
| | | pH | Miscellaneous | 2009 | |
| 40515010 | Coyote Creek (13 miles) | Ammonia | Nutrients | N/A | LBWRP[a] |
| | | Indicator Bacteria | Pathogens | 2009 | |
| | | Copper, Dissolved | Metals/Metalloids | 2006 | |
| | | Diazinon | Pesticides | 2019 | |
| | | Lead | Metals/Metalloids | N/A | |
| | | pH | Miscellaneous | 2019 | |
| | | Toxicity (listing made by EPA in 2002) | Toxicity | 2008 | |
| 40516000 | San Gabriel River Estuary | Copper | Metals/Metalloids | N/A | SJCWRP LCWRP LBWRP |
| | | Dioxin | Other Organics | 2021 | |
| | | Nickel | Metals/Metalloids | 2021 | |
| | | Oxygen, Dissolved | Nutrients | 2021 | |
| 40515010 | Rio Hondo Reach 2 | Cyanide | | 2021 | WNWRP[b] |
| | | Coliform Bacteria | Pathogens | 2009 | |
| 40515010 | Rio Hondo Reach 1 | Coliform Bacteria | Pathogens | 2019 | WNWRP[b] |
| | | Copper | Metals/Metalloids | N/A | |
| | | Lead | Metals/Metalloids | N/A | |
| | | Toxicity | Toxicity | 2021 | |
| | | pH | Miscellaneous | N/A | |
| | | Trash | Trash | N/A | |
| | | Zinc | Metals/Metalloids | N/A | |
| 40515010 | Los Angeles River (Carson Street to Figueroa Street; 11 miles) | Ammonia | Nonpoint/Point Source | N/A | WNWRP[b,c] |
| | | Coliform Bacteria | Nonpoint/Point Source | 2009 | |
| | | Copper | Source Unknown | N/A | |
| | | Lead | Nonpoint/Point Source | N/A | |
| | | Nutrients (algae) | Nonpoint/Point Source | N/A | |
| | | Oil | | 2019 | |
| | | Trash | Source Unknown | N/A | |
| 40512000 | Los Angeles River (Estuary to Carson Street; 3.4 miles) | Ammonia | Nutrients | N/A | WNWRP[b,c] |
| | | Cadmium | Metals/Metalloids | N/A | |
| | | Coliform Bacteria | Pathogens | 2009 | |
| | | Copper, Dissolved | Metals/Metalloids | N/A | |
| | | Cyanide | Other Inorganics | 2019 | |
| | | Diazinon | Pesticides | 2019 | |
| | | Lead | Metals/Metalloids | N/A | |
| | | Nutrients (algae) | Nutrients | N/A | |
| | | pH | Miscellaneous | 2003 | |

**Table 11-13 (Continued)**

| CalWater Watershed Label | Name and Size | Pollutant/Stressor | Pollutant Category | Expected TMDL Completion Year | WRPs Upstream of Affected Reach |
|---|---|---|---|---|---|
| | | Trash | Trash | N/A | |
| | | Zinc, Dissolved | Metals/Metalloids | N/A | |
| 40512000 | Los Angeles River Estuary (207 acres) | Chlordane (sediment) | Pesticides | 2019 | WNWRP[b,c] |
| | | DDT (sediment) | Pesticides | 2019 | |
| | | PCBs (polychlorinated biphenyls) (sediment) | Other Inorganics | 2019 | |
| | | Sediment Toxicity | Toxicity | 2019 | |
| | | Trash | Trash | N/A | |
| 40518000 | Los Angeles/Long Beach Cabrillo Marina (77 acres) | Benzo(a)pyrene (3,4-Benzopyrene-7-d) | Other Organics | 2021 | WNWRP[b,c] |
| | | DDT | Pesticides | 2019 | |
| | | PCBs | Other Organics | 2019 | |
| 40512000 | Los Angeles Harbor – Consolidated Slip (36 acres) | 2-Methylnaphthalene | Other Organics | 2008 | WNWRP[b,c] |
| | | Benthic Community Effects | Miscellaneous | 2019 | |
| | | Benzo(a)pyrene (3,4-Benzopyrene-7-d) | Other Organics | 2008 | |
| | | Benzo[a]anthracene | Other Organics | 2019 | |
| | | Cadmium (sediment) | Metals/Metalloids | 2019 | |
| | | Chlordane (tissue and sediment) | Pesticides | 2019 | |
| | | Chromium (sediment) | Metals/Metalloids | 2019 | |
| | | Chrysene (C1-C4) | Other Organics | 2008 | |
| | | Copper (sediment) | Metals/Metalloids | 2019 | |
| | | DDT (tissue and sediment) | Pesticides | 2019 | |
| | | Dieldrin | Pesticides | 2008 | |
| | | Lead (sediment) | Metals/Metalloids | 2019 | |
| | | Mercury (sediment) | Metals/Metalloids | 2019 | |
| | | PCBs (tissue and sediment) | Other Organics | 2019 | |
| | | Phenanthrene | Other Organics | 2008 | |
| | | Pyrene | Other Organics | 2008 | |
| | | Sediment Toxicity | Toxicity | 2019 | |
| | | Toxaphene (tissue) | Pesticides | 2019 | |
| | | Zinc (sediment) | Metals/Metalloids | 2019 | |
| 40518000 | Los Angeles Harbor – Fish Harbor (91 acres) | Benzo(a)pyrene (3,4-Benzopyrene-7-d) | Other Organics | 2019 | WNWRP[b,c] |
| | | Benzo[a]anthracene | Other Organics | 2019 | |
| | | Chlordane | Pesticides | 2019 | |
| | | Chrysene (C1-C4) | Other Organics | 2019 | |
| | | Copper | Metals/Metalloids | 2019 | |
| | | DDT | Pesticides | 2019 | |
| | | Dibenz[a,h]anthracene | Other Organics | 2019 | |
| | | Lead | Metals/Metalloids | 2019 | |

**Table 11-13 (Continued)**

| CalWater Watershed Label | Name and Size | Pollutant/Stressor | Pollutant Category | Expected TMDL Completion Year | WRPs Upstream of Affected Reach |
|---|---|---|---|---|---|
| | | Mercury | Metals/Metalloids | 2019 | |
| | | PAHs (Polycyclic Aromatic Hydrocarbons) | Other Organics | 2019 | |
| | | PCBs | Other Organics | 2019 | |
| | | Phenanthrene | Other Organics | 2019 | |
| | | Pyrene | Other Organics | 2019 | |
| | | Sediment Toxicity | Toxicity | 2019 | |
| | | Zinc | Metals/Metalloids | 2019 | |
| 40512000 | Los Angeles Harbor – Inner Cabrillo Beach Area (82 acres) | DDT | Pesticides | 2019 | WNWRP[b,c] |
| | | Indicator Bacteria | Pathogens | N/A | |
| | | PCBs | Other Organics | 2010 | |

[a] The LBWRP is located at the mouth of Coyote Creek.

[b] During peak flow events, a portion of San Gabriel River flow can be diverted to the Rio Hondo via the Zone 1 Ditch. At these times, a portion of the diverted flow may contain effluent discharged from the POWRP or the SJCWRP and thus that effluent may enter the Los Angeles River basin via Rio Hondo. However, such effluent represents an immeasurably small portion of the total flood flow.

[c] WNWRP effluent discharge is normally fully infiltrated at the San Gabriel Coastal and Rio Hondo Spreading Grounds. Effluent only enters the lower portions of the San Gabriel River and Los Angeles River during flood events, at which times it represents an immeasurably small fraction of total streamflow.

N/A = not applicable

Source: State Water Resources Board 2010 (2010 Integrated Report)

## Soils

Sedimentation and erosion impacts are related to soils, slope, and the depth to groundwater at each program element location. Soil types present at each WRP are shown in Table 11-14. This table synthesizes applicable information from Chapter 8. As discussed in Chapter 10, none of the WRPs are known to have existing soil or groundwater contamination.

**Table 11-14. Soil Characteristics at the WRPs**

| Facility | Approximate Depth to Groundwater (feet) | Landslide Hazard Area | Soil Association | Soil Type | Slope (%) | Erosion Potential |
|---|---|---|---|---|---|---|
| SJCWRP | 3–5 | No | Hanford | Sandy loam | 0 | Low |
| POWRP | 20–30 | Yes | Hanford | Sandy loam | 0 | Low |
| LCWRP | Potentially shallow; can vary up to 35 feet | No | Hanford | Sandy loam | 0 | Low |
| | | | Yolo | Silty loam | 0 | Low |
| | | | Macho-Sorrento | Silty loam | 2.9 | Low-moderate |
| | | | Cropley | Clay | 0 | Low |
| | | | Foster | Sandy loam | 0 | Low |
| LBWRP | 20–25 | No | Chino (with inclusions of the Foster and Grangeville Associations | Clay loam | 0 | Low |

**Table 11-14 (Continued)**

| Facility | Approximate Depth to Groundwater (feet) | Landslide Hazard Area | Soil Association | Soil Type | Slope (%) | Erosion Potential |
|---|---|---|---|---|---|---|
| WNWRP | Shallow | No | Oceano | Sand | 2–5 | Moderate-high |
| | | | Marina-Carey | Sand and sandy loam | 2–15 | High |
| | | | Tujunga-Sobaba | Fine sand and fine sandy loam | 0–5 | Low-moderate |
| | | | Chino (with inclusions of the Foster and Grangeville Associations | Clay loam | 0 | Low |
| Source: Tables 8-5 and 8-6 | | | | | | |

## Joint Water Pollution Control Plant

The JWPCP is located in the Dominguez Channel Watershed and overlies the West Coast Basin. The JWPCP is located in the Machado Lake Subwatershed, and the major waterway in the watershed is Wilmington Drain. The receiving water for the JWPCP is the Pacific Ocean.

The soil types present at the JWPCP are shown in Table 11-15. This table synthesizes applicable information from Chapter 8.

**Table 11-15. Soil Characteristics at the JWPCP**

| Facility | Approximate Depth to Groundwater (feet) | Landslide Hazard Area | Soil Association | Soil Type | Slope (%) | Erosion Potential |
|---|---|---|---|---|---|---|
| JWPCP | 35–40 | No | Agoura-Placentia | Sandy loam | 2–5 | Low-Moderate |
| | | | Agoura-Placentia | Sandy loam | 5–9 | Moderate |
| | | | Ramona-Placentia | Sandy loam | 9–15 | High |
| | | | Perkins-Rincon | Gravelly loam and silty clay loam | 0–15 | Low-Moderate |
| | | | Vista-Amargoss | Sandy loam | 30–50 | High |
| | | | Oak Glen-Gorman | Sandy loam | 9–30 | Moderate-High |
| | | | Diablo-Altamont | Clay | 2–9 | Low |
| | | | Altamont-Diablo | Clay | 9–30 | High |
| | | | Altamont-Diablo | Clay | 30–50 | High |
| | | | San Andreas-San Benito | Sandy loam and clay loam | 30–75 | High |
| | | | San Benito-Soper | Clay loam | 30–50 | High |
| | | | Beaches | Sand | Varies | Very High |
| Source: Tables 8-5 and 8-6 | | | | | | |

## 11.2.3 Project Setting

### 11.2.3.1 Groundwater Basins and Watersheds

The project elements are located in the groundwater basins and watersheds described in Sections 11.2.1.1 and 11.2.1.2. The location of each project element within the various watersheds, subwatersheds, and groundwater basins is summarized in Table 11-16. Project elements associated with the marine environment of the Pacific Ocean are discussed in Chapter 13 with the exception of tsunami effects on the riser/diffuser area (i.e., SP Shelf, PV Shelf, and existing ocean outfalls), which are included in this chapter.

**Table 11-16. Project Elements and Water Resources**

| Project Element | Watershed | Subwatershed | Groundwater Basin |
|---|---|---|---|
| Tunnel Alignment | | | |
| Wilmington to SP Shelf | Dominguez Channel | The northern portion of the alignment (from the JWPCP East shaft site to Anaheim Street) is in the Machado Lake Subwatershed. The southern portion of the alignment (from Anaheim Street to the Southwest Marine shaft site) is in the Los Angeles Harbor Subwatershed. | West Coast Basin and crosses the Dominguez Gap Barrier Project. |
| Wilmington to PV Shelf | Dominguez Channel | Same as for Wilmington to SP Shelf | Same as for Wilmington to SP Shelf |
| Figueroa/Gaffey to PV Shelf | Dominguez Channel | The northern portion of the alignment (from the JWPCP West shaft site to Anaheim Street) is in the Machado Lake Subwatershed. The southern portion of the alignment (from Anaheim Street to the Angels Gate shaft site) is located in the Los Angeles Harbor Subwatershed. | A portion of the alignment (from the JWPCP West shaft site to approximately Summerland Avenue) overlays the West Coast Basin. The remaining portion of the alignment does not traverse a groundwater basin. |
| Figueroa/Western to Royal Palms | Dominguez Channel | The northern portion of the alignment (from the JWPCP West shaft site to approximately Anaheim Street) is in the Machado Lake Subwatershed. The southern portion of the alignment (from Anaheim Street to the Royal Palms shaft site) is located in the Los Angeles Harbor Subwatershed. | A portion of the alignment (from the JWPCP West shaft site to approximately Capitol Drive) overlays the West Coast Basin. The remaining portion of the alignment does not traverse a groundwater basin. |
| Shaft Site | | | |
| JWPCP East | Dominguez Channel | Machado Lake Subwatershed | West Coast Basin |
| JWPCP West | Dominguez Channel | Machado Lake Subwatershed | West Coast Basin |
| TraPac | Dominguez Channel | Los Angeles Harbor Subwatershed | West Coast Basin |
| LAXT | Dominguez Channel | Los Angeles Harbor Subwatershed | West Coast Basin |
| Southwest Marine | Dominguez Channel | Los Angeles Harbor Subwatershed | West Coast Basin |
| Angels Gate | Dominguez Channel | Los Angeles Harbor Subwatershed | None |
| Royal Palms | Santa Monica Bay[a] | Lower Santa Monica Bay Peninsula Subwatershed[b] | None |

[a] The Santa Monica Bay (Ballona Creek) Watershed drains approximately 130 square miles of the western portion of the Los Angeles Basin including most of the city of Los Angeles west of downtown (and generally south of Mulholland Drive); the cities of Beverly Hills, Culver City, West Hollywood, portions of Santa Monica, Inglewood and portions of the Hollywood Hills; and Santa Monica Mountains. The watershed is highly urbanized.

[b] The Lower Santa Monica Bay Peninsula Subwatershed stretches from Playa Del Rey to Palos Verdes and drains 39.9 square miles into Santa Monica Bay. There are no large open channels that drain this watershed. (California State University Sacramento, Caltrans, and Office of Water Programs 2010.)

Source: MEC 2004.

Two of the groundwater basins adjacent to the coast and identified in Table 11-3 have experienced seawater intrusion. The two basins are the Central Basin and the West Coast Basin. Seawater intrusion can occur in areas where recent or active river systems have eroded through geological features (in this case the Newport Inglewood uplift), which results in mixing between the potable fresh water of the aquifer and seawater, thus reducing the availability of potable fresh water. This condition has been exacerbated by excessive pumping from the aquifer, effectively drawing in seawater. Of the three seawater injection barriers within Los Angeles County, the Dominguez Gap Barrier Project (Figure 11-1) is the second largest barrier. The barrier is owned and operated by the Public Works Flood Maintenance and Water Resources Divisions of the LACDPW (LACDPW 2010d.) It extends approximately 12 miles from F Street to E Street along the Dominguez Channel. It operates to prevent seawater intrusion into coastal aquifers, and consists of 94 injection wells and over 200 observation wells (Cheng and Ouazer 2004). The injection wells are typically 1,000 feet apart and range in depths from about 140 to 460 bgs (Cheng and Ouazer 2004). Fresh water (both imported and recycled) is injected through the injection wells into the aquifers. Injection wells are either single (injects fresh water into one aquifer) or dual (injects fresh water into two aquifers; a shallower upper and a deeper lower aquifer) (LACDPW 2010e). Approximately 1,700 AF of recycled water and approximately 3,790 AF of imported water was injected into the Dominguez Gap barrier in fiscal year 2007[3] (DWR 2008). Sources of water for the barrier include the Terminal Island Water Reclamation Plant, the Water Replenishment District, and potentially in the future, the West Basin Municipal Water District (West Basin Municipal Water District 2010).

Hydrogeological characteristics have the potential to affect the construction and operation of the shaft sites and, therefore, are summarized in Table 11-17. The impacts of physical characteristics on the shaft sites are evaluated in Section 11.4. Details of the shaft sites are presented in Chapter 3.

**Table 11-17. Hydrogeological Characteristics at the Shaft Sites**

| Shaft Site[a] | Approximate Shaft Depth (feet bgs) | Approximate Depth to Groundwater (feet bgs) | Landslide Hazard Area | Geologic Formation | Drainage |
|---|---|---|---|---|---|
| JWPCP East | 115 | 25–30 | No | Surface fill soils over Pleistocene (Lakewood Formation) sediment deposits of alluvial sands, silts, and clays | Pervious surface allows stormwater to infiltrate into ground; any sheet flow generated would run into the adjacent gutters and stormdrain system. |
| JWPCP West | 115 (Alternative 3)<br>140 (Alternative 4) | 35–40 | No | Surface fill soils over Pleistocene (Lakewood Formation) sediment deposits of alluvial sands, silts, and clays | |
| TraPac | 165 | 15 | No | 15 feet of artificial fill over alluvial and marine sediments of the Lakewood Formation and San Pedro Sand | Impervious surface generates sheet flow that drains into stormdrain system and into the harbor. |
| LAXT | 170 | 10 | No | Artificial fill over Holocene (Lakewood Formation) sediment deposits | |
| Southwest Marine | 170 | 10 | No | Artificial fill over Holocene sediment deposits and Timms Point Silt; Malaga Mudstone and Monterey Formation at depths greater than the shaft | |

[3] Department of Water Resources collects data for the Watermaster Service in the West Coast Basin in fiscal years. These volumes were recorded between July 1, 2007 and June 30, 2008.

**Table 11-17 (Continued)**

| Shaft Site[a] | Approximate Shaft Depth (feet bgs) | Approximate Depth to Groundwater (feet bgs) | Landslide Hazard Area | Geologic Formation | Drainage |
|---|---|---|---|---|---|
| Angels Gate | 245 | 155 | No | Fluvial sediments of dense sands and hard clays over the Altimira shale member of the Monterey Formation | Impervious surface generates sheet flow that drains into the stormdrain system and outlets into the Pacific Ocean. |
| Royal Palms | 50 | 12 | No | Altimira shale member of the Monterey Formation | Pervious surface that infiltrates into the ground; any sheet flow generated would drain into the Pacific Ocean. |

[a] This chapter contains analysis of impacts on fresh water only. Water quality and hydrology associated with marine project components (the riser/diffuser areas and existing ocean outfalls) are presented in Chapter 13, with the exception of a discussion of tsunamis in this chapter.

## 11.2.3.2 Stormwater Drainage Systems

This chapter and Chapter 20 both discuss stormwater drainage systems and facilities. A summary of drainage systems relevant to hydrology is provided in this section.

The Wilmington Drain, a stormdrain and flood control channel in the Dominguez Channel system, runs between the JWPCP and I-110. The Wilmington Drain is part of the Machado Lake ecosystem, which functions as a flood control system. The upper basin of Machado Lake contains a 40-acre recreational lake created by the impoundment of stormwater runoff; the lower basin is a fresh water marsh of approximately 60 acres. During major storms, stormwater flows over the dam into the lower basin and to the harbor outfall, which conveys runoff in an underground stormdrain to the West Basin of the Port of Los Angeles. (LACDPW 2008b.) The Wilmington Drain has a 150-foot-wide soft bottom vegetated channel with non-native plants and rip-rap-filled gabions north of Pacific Coast Highway. North of I-110 (near Lomita Boulevard), the drain is concrete-lined. Currently, the abundance of vegetation in the Wilmington Drain impedes the ability to convey a 50-year storm from I-110 past Pacific Coast Highway, but the city of Los Angeles is currently developing a project to improve the capacity of the unlined section of the drain.

The Dominguez Channel is a major stormdrain in the region. This channel is generally located to the north of I-405 and the JWPCP and east of I-110 and the JWPCP. It begins at 116th Street in the city of Hawthorne and continues in a southwesterly direction until it empties into the Consolidated Slip and East Turning Basin at the Port of Los Angeles. Some reaches of the channel are unlined, but it is primarily constructed of concrete. The concrete portion varies between a vertical-sided channel and a trapezoidal channel. The bottom of the channel is between 75 and 90 feet wide. The channel is designed to handle 50-year storm events. (MEC 2004.)

## 11.2.3.3 Tsunamis

Several of the project elements are located within the designated tsunami zone for Southern California. These include the following: the Trans Pacific Container Service Corporation (TraPac), Southwest Marine, and Los Angeles Export Terminal (LAXT) shaft sites; and the San Pedro Shelf (SP Shelf), Palos Verdes Shelf (PV Shelf), and existing ocean outfalls riser/diffuser areas. Tsunamis are gravity waves of long wavelength generated by a sudden disturbance in a body of water. Typically, oceanic tsunamis are the result of sudden vertical movement along a fault rupture in the ocean floor, submarine landslides or subsidence, or volcanic eruption. Sudden displacement of water may set off transoceanic waves with wavelengths of up to 125 miles and with periods generally from 5 to 60 minutes. The trough of the tsunami wave arrives first, leading to the classic retreat of water from the shore as the ocean level drops. This is followed by the arrival of the crest of the wave, which can run up on the shore in the form of bores or surges in shallow water or simple rising and lowering of the water level in relatively deeper water such as in harbor areas.

Tsunamis are a relatively common natural hazard, although most of the events are small in amplitude and not particularly damaging. However, in the event of a large submarine earthquake or landslide, coastal flooding may be caused by either run-up of broken tsunamis in the form of bores and surges or by relatively dynamic flood waves. As has been shown historically, the potential loss of human life in the process can be great if such events occur in populated areas.

Abrupt sea-level changes associated with tsunamis in the past have reportedly caused damage to moored vessels within the outer portions of the Los Angeles Harbor. However, more recent studies (e.g., Synolakis et al. 1997; Borrero et al. 2001; Borrero et al. 2005) have projected larger tsunami run-ups based on near-field events, such as earthquakes or submarine landslides occurring in proximity to the California coastline. Offshore faults present a larger local tsunami hazard than previously thought, posing a direct threat to nearshore facilities. For example, the Santa Catalina Escarpment Fault, which lies south of Catalina Island, is located only 22 miles from the Port of Los Angeles. Simulations of tsunamis generated by uplift on this fault suggest waves in the port in excess of 12 feet, with an arrival time of within 20 minutes (Legg et al. 2004; Borrero et al. 2005). These simulations were based on rare events representing worst-case scenarios.

In addition, a landslide-derived tsunami is now perceived as a viable local tsunami hazard. Although many submarine landslides have been mapped off the Southern California shore, few appear to be of the scale necessary to generate a catastrophic tsunami. Of two large landslides that appear to be of this magnitude, Legg et al. (2004) indicated that one landslide is over 100,000 years old, and the other landslide is approximately 7,500 years old. In contrast, the recurrence of 3- to 20-foot fault movements on offshore faults would be in the several hundred- to several thousand-year range. Given that the frequency of fault movements on offshore faults is greater than that of submarine landslides, the study concludes that the most likely direct cause of most of the local tsunamis in Southern California would be tectonic movement during large offshore earthquakes.

A model has been developed specifically for the Los Angeles/Long Beach Port Complex that incorporates consideration of the localized landfill configurations, bathymetric features, and the interaction of the diffraction, reflection, and refraction of tsunami wave propagation in the predictions of tsunami wave heights (Moffatt and Nichol 2007). The port complex uses a model (Moffatt and Nichol 2007) with a methodology similar to the above studies to generate a tsunami wave from several different potential sources, including local earthquakes, remote earthquakes, and local submarine landslides. This model indicates that a reasonable maximum source for future tsunami events at the project sites would either be a Magnitude 7 earthquake on the Santa Catalina Escarpment Fault or a submarine landslide along the nearby Palos Verdes Peninsula.

# 11.3 Regulatory Setting

A variety of federal, state, and local agencies have jurisdiction over the program and project area. Important agencies and statutory authorities relevant to water quality, hydrology, and human health as they relate to the project are outlined in this section.

## 11.3.1 Federal

### 11.3.1.1 Clean Water Act

The CWA sets discharge limitations to receiving waters; requires states to establish and enforce water quality standards; initiates the NPDES permit program for municipal and industrial point-source discharges; and requires NPDES permits for municipal and industrial discharges, and for stormwater discharges caused by general construction activity.

CWA Section 404 requires that discharges of pollutants from point sources to waters of the United States (waters of the U.S.) be regulated. Section 401 of the CWA requires that any discharge of dredged or fill material into waters of the U.S. not violate state water quality standards.

CWA Section 303(d) requires that the state identify a list of impaired waterbodies and develop and implement TMDLs for these waterbodies (33 United States Code [USC] Section 1313(d)(1)). A TMDL specifies the maximum amount of a pollutant that can be discharged into a waterbody while still meeting applicable water quality standards and protecting beneficial uses. See Section 11.3.3.1 for additional details.

CWA Section 402 regulates discharges to surface waters through the NPDES program, which is administered by the EPA. In California, the State Water Resources Control Board (SWRCB) is authorized by the EPA to oversee the NPDES program through the RWQCBs (see related discussion under the Porter-Cologne Water Quality Control Act in Section 11.3.2.1). The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits.

### 11.3.1.2 California Toxics Rule

On May 18, 2000, the EPA established numeric criteria for priority toxic pollutants for the state of California (California Toxics Rule [CTR] 65 CFR 31682 [40 CFR 131.38]) for the protection of human health and aquatic life. These apply as ambient water quality criteria for inland surface waters, enclosed bays, and estuaries. The SWRCB adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California – 2000, on March 2, 2000, for implementation of the CTR (State Board Resolution No. 2000-15 as amended by Board Resolution No. 2000-030). This policy requires that discharges comply with TMDL-derived load allocations.

### 11.3.1.3 Pretreatment Program Regulations

The general pretreatment regulations, adopted as part of the CWA (40 Code of Federal Regulations [CFR] 403), require that municipal treatment plants regulate nonresidential waste discharges into public sewers. The regulations give operators of treatment plants the authority to prohibit or limit discharges of any pollutant that could pass through the treatment processes into receiving waters, interfere with treatment plant operations, or limit biosolids disposal options. The general pretreatment regulations also establish categorical pretreatment standards that regulate sewer discharges from specific types of industries.

The Sanitation Districts' pretreatment program began in 1972 with the adoption of the wastewater ordinance. In 1975, local effluent limits were established for industrial wastewater discharges, which were initially imposed to assist in meeting the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) standards included in the regional water quality control plan. Adoption and enforcement of local discharge limits and federal categorical standards are now a required part of the pretreatment program Jones & Stokes 1994). The Sanitation Districts' pretreatment program was approved by the EPA and the RWQCB in March 1985. The entire JOS service area is required to participate in the pretreatment program.

These numerical limits for nonresidential discharge to the sewer system and the authority provided by the wastewater ordinance form the basis for controlling the discharge of toxic compounds and other constituents of concern that are difficult to remove using conventional wastewater treatment processes from industrial sources. Implementation of the pretreatment program has enabled the Sanitation Districts to consistently meet NPDES permit limits at JOS treatment facilities. Monitoring and sampling are conducted for various organic compounds such as phenols, chlorinated hydrocarbons, and cyanide.

### 11.3.1.4 Executive Order 11988

Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. It requires federal agencies that intend to construct, permit, or fund projects within floodplains to:

- Avoid incompatible floodplain development
- Be consistent with the standards and criteria of the National Flood Insurance Program (NFIP)
- Restore and preserve natural and beneficial floodplain values

## 11.3.2 State

### 11.3.2.1 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Act established the SWRCB and divided the state into nine regional basins, each with its own RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface water and groundwater supplies.

The Porter-Cologne Water Quality Act authorizes the SWRCB to draft state policies regarding water quality. It also authorizes the SWRCB to issue waste discharge requirements (WDRs) for discharges to state waters. The SWRCB, or one of the nine RWQCBs under the SWRCB, is required to adopt water quality control plans (basin plans) for the protection of water quality. A basin plan must:

- Identify the beneficial uses of the water to be protected
- Establish water quality objectives for the reasonable protection of the beneficial uses
- Establish a program of implementation for achieving the water quality objectives

These plans also provide the technical basis for determining WDRs, taking enforcement actions, and evaluating clean water grant proposals. Basin plans are updated and reviewed every 3 years. NPDES permits issued to control pollution must implement requirements of the applicable regional basin plans (see Section 11.3.3 for additional discussion of NPDES and the regional basin plans).

### 11.3.2.2 State Water Resources Control Board Recycled Water Policy

With Resolution No. 2009-0011, the SWRCB adopted the Recycled Water Policy for the state of California (SWRCB 2009). This policy strongly encourages local and regional water agencies to optimize their use of local water sources by emphasizing water recycling, water conservation, and the maintenance of supply infrastructure and use of stormwater (including dry-weather urban runoff). To achieve this, the policy adopts the following goals for California:

- Increase the use of recycled water over 2002 levels by at least 1 million AFY by 2020 and by at least 2 million AFY by 2030
- Increase the amount of water conserved in urban and industrial use in comparison to 2007 by at least 20 percent by 2020
- Substitute as much recycled water for potable water as possible by 2030

The purpose of this policy is to increase the use of recycled water[4], including that from municipal wastewater sources. The policy specifically identifies the use of recycled water as having a beneficial impact because it supports the sustainable use of groundwater and/or surface water and substitutes for the use of potable water. The policy mandates the use of recycled water as follows:

- The SWRCB established mandates to increase the use of recycled water in California by 200,000 AFY by 2020 and by an additional 300,000 AFY by 2030. These mandates will be achieved through the cooperation and collaboration of the SWRCB, the RWQCBs, the environmental community, water purveyors, and the operators of publicly owned treatment works. The SWRCB will evaluate progress toward these mandates biennially and review and revise the implementation provisions of the policy as necessary in 2012 and 2016.
- Agencies producing recycled water that is available for reuse and is not being put to beneficial use will make that recycled water available to water purveyors for reuse on reasonable terms and conditions.
- The SWRCB declares that pursuant to Water Code Section 13550 et seq., it is wasteful and an unreasonable use of water if recycled water is available and not put to beneficial use in lieu of potable water.

The policy identifies the roles of the SWRCB and the RWQCBs in encouraging, promoting, and requiring the use of recycled water. The RWQCBs are to cooperate and collaborate to increase the use of recycled water in their jurisdictions and will use their authority to the fullest extent possible to encourage the use of recycled water. The SWRCB is responsible for establishing general policies governing the permitting of recycled water projects consistent with its role of protecting water quality and sustaining water supplies and will lead the effort to meet the recycled water use goals.

[4] Defined per Water Code Section 13050(n): "Recycled water means water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource."

Finally, the policy provides a list of incentives for the use of recycled water. The policy encourages the use of TMDLs to provide an incentive to use recycled water. Because water recycling reduces mass loadings from municipal wastewater sources and the receiving waters to which they discharge, TMDLs should be assigned by the RWQCB in a manner that provides an incentive for greater water recycling (SWRCB 2009).

### 11.3.2.3 California Code of Regulations, Title 23

Title 23 of the California Code of Regulations (CCR) establishes the California Water Code, which governs the use of water in the state. It states that water resources must be put to beneficial use to the fullest extent of which they are capable, and that the waste, unreasonable use, or unreasonable method of use of water is illegal. It identifies that the conservation of water is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare. There are several sections under the California Water Code (which are summarized in this section) that are particularly applicable to wastewater treatment facilities.

Section 1210 of the California Water Code regulates the ownership of recycled water. This section states that between the owner of the wastewater treatment plant and the entities contributing to the wastewater into the collection system, the owner of the treatment plant has exclusive rights to recycled water.

Section 1211 defines actions that must be taken if points of discharge are to be changed or use of discharge is to change. Prior to making any change in the point of discharge, place of use, or purpose of use of recycled water, the owner of any wastewater treatment plant shall obtain approval of the SWRCB for that change through a petition process. The board will review the changes pursuant to the provisions of Chapter 10. This does not apply to changes in the discharge or use of recycled water that do not result in decreasing the flow in any portion of a watercourse.

Section 13050 defines pollution, contamination, and nuisance as they relate to receiving waters in the state of California as follows.

> *Pollution* means an alteration of the quality of the waters of the state by waste to a degree that unreasonably affects either of the following:
>
> - The waters for beneficial uses
> - Facilities which serve these beneficial uses
>
> Pollution may include contamination.
>
> *Contamination* means an impairment of the quality of the waters of the state by waste to a degree [that] creates a hazard to public health through the spread of disease. This includes any equivalent effect resulting from the disposal of waste, whether or not waters of the state are affected.
>
> *Nuisance* means anything that meets all of the following requirements:
>
> - Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
> - Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon the individuals may be unequal.

- Occurs during, or as a result of, the treatment or disposal of wastes.

Section 13510 declares that the people of the state have a primary interest in the development of facilities to recycle water containing waste to supplement existing surface and underground water supplies and to assist in meeting the future water requirements of the state. Section 13550 et seq. strengthens this by stating that under certain conditions, the use of potable water for nonpotable purposes (landscape irrigation) is a waste or unreasonable use of water if recycled water is available.

#### 11.3.2.4 California Code of Regulations, Title 22, Division 4, Chapter 15

Title 22, Division 4, Chapter 15 regulates and monitors the water quality of domestic water supplies. This regulation includes standards and maximum levels for groundwater constituents that must be tested by water purveyors that pump groundwater using wells and distribute that water as a potable water supply to customers.

#### 11.3.2.5 California Code of Regulations, Title 22, Division 4, Chapter 3

Title 22, Division 4, Chapter 3 Water Recycling Criteria, governs the use of recycled water throughout the state of California, and were last updated in December 2000. The Water Recycling Criteria are not directly applied to any specific water recycling project; rather, they are incorporated in water reclamation requirements issued by the local RWQCB.

#### 11.3.2.6 California General Construction Permit

Construction activities are regulated under the latest NPDES General Permit for Discharges of Stormwater Runoff Associated With Construction Activity (General Construction Permit), or CAS000002, provided that the total amount of ground disturbance during construction is 1 acre or more. The Los Angeles RWQCB (LARWQCB) enforces the General Construction Permit. Coverage under the General Construction Permit requires preparation of a stormwater pollution prevention plan **(**SWPPP) and a notice of intent (NOI). The SWPPP includes pollution-prevention measures (measures to control erosion, sediment, and non-stormwater discharges and hazardous spills); demonstration of compliance with all applicable local and regional erosion and sediment control standards; identification of responsible parties; a detailed construction timeline; and a best management practices (BMPs) monitoring and maintenance schedule. The NOI includes site-specific information and certification of compliance with the terms of the General Construction Permit.

### 11.3.3 Regional

#### 11.3.3.1 Los Angeles Regional Water Quality Control Board

The Clearwater Program is located within the jurisdiction of the LARWQCB. The LARWQCB provides for the development and periodic review of basin plans that designate the beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters. Beneficial uses represent the services and qualities of a waterbody (i.e., the reasons why the waterbody is considered valuable), while water quality objectives represent the standards necessary to protect and support those beneficial uses. Basin plans are implemented primarily by using the NPDES permitting system. They include TMDLs adopted to regulate waste discharges so that water quality objectives are met (see discussion of the NPDES system in Section 11.3.1.1). Basin plans are updated every 3 years and provide the technical basis for determining WDRs and taking enforcement actions.

One method the LARWQCB uses to implement basin plan criteria is through the issuance of WDRs, which are issued to any entity that discharges point-source effluent to a surface waterbody. The WDR permit also serves as a federally required NPDES permit (under the CWA) and incorporates the requirements of other applicable regulations.

The EPA entered into a consent decree with the Natural Resources Defense Council, Heal the Bay, and the Santa Monica Bay Keeper on March 22, 1999, under which the LARWQCB must adopt TMDLs for all impairments existing at the time in the Los Angeles region, within 13 years from that date. The expected TMDL completion year for impaired water bodies with WRP discharges on the 303(d) list are summarized in Table 11-13.

#### Beneficial Uses

The LARWQCB has set beneficial uses for surface waters, groundwaters, coastal waters, and wetlands under its jurisdiction. Beneficial uses are designated to protect water quality necessary for the survival or well-being of humans, plants, and wildlife, and are determined by the RWQCB and identified in a basin plan. Beneficial uses in the Water Quality Control Plan for the Los Angeles Region (Basin Plan) include potential, intermittent, and existing beneficial uses for both surface water and groundwater bodies. To ensure downstream degradation of beneficial uses does not occur, tributaries without specified beneficial uses assume the beneficial uses of the downstream water. Beneficial uses for waters downstream of the WRP discharge locations are included in Table 11-6.

#### Water Quality Objectives

The California Water Code, Division 7, Chapter 4, Section 13241, specifies that each RWQCB will establish water quality objectives that, in the RWQCB's judgment, are necessary for the reasonable protection of beneficial uses and the prevention of nuisances. The LARWQCB enforces water quality objectives for inland surface waters, wetlands, and groundwater as part of the Basin Plan. The statewide objectives for ocean waters under the California Ocean Plan apply to all ocean waters in the region. The California Ocean Plan is discussed in Chapter 13.

The regional inland surface water quality objectives contained in the Basin Plan include ammonia; bacteria, coliform; bioaccumulation; biochemical oxygen demand; biostimulatory substances; chemical constituents; chlorine, total residual; color; exotic vegetation; floating material; methylene blue activated substances; mineral quality; nitrogen (nitrate, nitrite); oil and grease; oxygen, dissolved; pesticides; pH; polychlorinated biphenyls (PCBs); radioactive substances; solid, suspended, or settleable materials; taste and odor; temperature; toxicity; and turbidity.

Wetlands are under the regional objectives for surface water quality but also have regional narrative objectives. These narratives include objectives for hydrology and habitat.

The regional objectives for groundwater contained in the Basin Plan include bacteria; chemical constituents and radioactivity; mineral quality; nitrogen (nitrate, nitrite); and taste and odor. Chapter 3 of the Basin Plan provides a list of water quality objectives for the region (LARWQCB 1994).

### 11.3.3.2 Regional Water Quality Control Policy – Enclosed Bays and Estuaries of California

The SWRCB adopted a water quality control policy that provides principles and guidelines to prevent degradation and to protect the beneficial uses of waters of enclosed bays and estuaries. The Los Angeles Harbor, including the lower San Gabriel River Tidal Prism, is considered to be an enclosed bay under this policy. The policy addresses activities such as the discharge of effluent, thermal wastes, radiological waste, dredged materials, and other materials that adversely affect beneficial uses of the bay and estuarine waters. Among other requirements, WDRs developed by the RWQCB must be consistent with this policy.

### 11.3.3.3 Order Nos. 91-100 & R4-2009-0048

These orders, established by the LARWCB, are the permits that regulate the volume and type of recharge in the Montebello Forebay. The Water Replenishment District is responsible for obtaining all recharge water in the Montebello Forebay and regularly testing the groundwater. The LACDPW is responsible for operations of the spreading grounds once the Water Replenishment District secures the water. The Sanitation Districts produce and supply the recycled water. The permit specifies that the maximum quantity of recycled water spread in any 60-month period cannot exceed 35 percent. The Water Replenishment District plans on purchasing 50,000 AF in 2011 to maximize the amount under regulatory limits. (Water Replenishment District 2010.) Currently, the Sanitation Districts are contracted with the Water Replenishment District to provide recycled water from the SJCWRP and WNWRP for the purposes of recharging the spreading grounds. The POWRP also provides recycled water for groundwater recharge at the spreading grounds.

### 11.3.3.4 NPDES Stormwater (MS4) Permits

#### Los Angeles County MS4 Permit

The Los Angeles County Municipal Separate Storm Sewer Systems (MS4) Permit (NPDES Permit No. CAS004001, Order No. 01-182) specifies the WDRs for municipal stormwater and urban runoff discharges from MS4s within the county of Los Angeles. The NPDES permit incorporates a provision to implement and enforce approved load allocations (TMDLs) for municipal stormwater discharges and requires amending the Stormwater Quality Management Plan after pollutant loads have been allocated and approved. The NPDES permit requirements are part of a two-phased program to regulate water quality. Phase I stormwater regulations were directed at MS4s serving a population of 100,000 or more, including interconnected systems and stormwater discharges associated with industrial activities, including construction activities. (The Phase I Final Rule was published on November 16, 1990 [55 CFR 47990].) Therefore, these requirements are applicable to the Los Angeles County Flood Control District (LACFCD), the county of Los Angeles, and 84 incorporated cities within the LACFCD (except Long Beach). The NPDES permit requires new development and redevelopment projects to incorporate stormwater mitigation measures. Depending on the type of project, either a standard urban stormwater mitigation plan or a site-specific mitigation plan is required to reduce the quantity and improve the quality of rainfall runoff that leaves the site. Developers are encouraged to begin work on complying with these regulations by visiting the appropriate city or county watershed protection department during the design phase of their projects.

The Phase II stormwater regulations are directed at stormwater discharges not covered in Phase I, including small MS4s (serving a population of less than 100,000), small construction projects (1 to 5 acres), municipal facilities with delayed coverage under the Intermodal Surface Transportation Efficiency Act of 1991, and other discharges for which the EPA administrator or the state determines that the stormwater discharge contributes to a violation of a water quality standard, or is a significant contributor of pollutants to waters of the United States.

### Long Beach MS4 Permit

The Long Beach MS4 Permit (NPDES Permit No. CAS004003, Order No. 99-060) specifies the WDRs for municipal stormwater and urban runoff discharges within the city of Long Beach. Although Long Beach is within Los Angeles County, in 1999 it received its own MS4 permit that allows it to discharge into receiving waters. Discharges from MS4s consist of surface runoff (nonstormwater and stormwater) from various land uses in the hydrologic drainage basins within the city. Pollutants commonly found in stormwater runoff include pathogens, heavy metals, pesticides, herbicides, and synthetic organic compounds (fuels, waste oils, solvents, lubricants, and grease). Discharges from the MS4 that cause or contribute to the violation of water quality standards or water quality objectives are prohibited. Discharges from the MS4 of stormwater, or non-stormwater, for which the city of Long Beach is responsible, cannot cause or contribute to a condition of nuisance.

### 11.3.3.5 Dewatering Activities

Small amounts of construction-related dewatering are covered under the General Construction Permit. However, in 2008, the LARWQCB adopted Waste Discharge Requirements for Discharges of Groundwater From Construction and Project Dewatering to Surface Waters (Order No. R-4-2008-0032, NPDES Permit No. CAG 9944004), which covers larger amounts of dewatering. The permit covers “treated or untreated groundwater generated from permanent or temporary dewatering operations or other appropriate wastewater discharges not specifically covered in other general NPDES permits” (LARWQCB 2008). This includes treated or untreated wastewater from permanent or temporary construction dewatering operations. To comply with the permit, the applicant must submit an NOI. If found eligible, the executive officer will notify the discharger that the discharge is authorized under the terms and conditions of this order and prescribe an appropriate monitoring and reporting system. The permit includes discharge prohibitions, effluent limitations and discharge specifications, receiving water limitations, provisions, and compliance determinations. If the groundwater is found to be contaminated exclusively with petroleum products or volatile organic compounds, the activity would be subject to Dewatering Permit No. R-4-2007-0021. To obtain the necessary permit, a reasonable potential analysis using a representative sample of groundwater or wastewater to be discharged will be compared to the water quality screening criteria to determine the most appropriate permit.

### 11.3.3.6 NPDES Discharge Permits

Each WRP facility has an individual NPDES permit issued by the LARWQCB. Each of these permits limits the amount of recycled water that can be legally discharged to the receiving body of water. These limits vary based on the dry- and wet-season flows in the receiving water and the level of water quality constituents present at the time of discharge. Discharge limitations are included to protect the public and the environment from pollution of the receiving water, to maintain and achieve water quality standards, and to provide guidance for water quality monitoring and reporting at each permitted discharge location on an average monthly, average weekly, maximum daily, and in some cases instantaneous, basis.

## 11.3.4 Local

### 11.3.4.1 The County of Los Angeles Municipal Code

Appendix J of the Los Angeles Municipal Code includes discussion of grading and erosion control measures during construction. Elements of this appendix that relate to the Clearwater Program include:

**J101.7 Stormwater Control Measures.** The permittee and the owner of the property on which the grading is performed shall put into effect and maintain all precautionary measures necessary to protect adjacent water courses and public or private property from damage by erosion, flooding, and deposition of mud, debris, and construction-related pollutants originating from the site during grading and related construction activities.
(Ordinance 2010-0053 Section 95; Ordinance 2007-0108 Section 33 (part), 2007.)

**J111.1 General.** All grading plans and permits and the owner of any property on which such grading is performed shall comply with the provisions of this section for NPDES compliance. All best management practices shall be installed before grading begins. As grading progresses, all best management practices shall be updated as necessary to prevent erosion and to control construction related pollutants from discharging from the site. All best management practices shall be maintained in good working order to the satisfaction of the Building Official until final grading approval has been granted by the Building Official and all permanent drainage and erosion control systems, if required, are in place.
(Ordinance 2007-0108 Section 33 (part), 2007.)

**J111.2 Stormwater Pollution Prevention Plan (SWPPP).** The Building Official may require a SWPPP. The SWPPP shall contain details of best management practices, including desilting basins or other temporary drainage or control measures, or both, as may be necessary to control construction-related pollutants which originate from the site as a result of construction related activities. When the Building Official requires a SWPPP, no grading permit shall be issued until the SWPPP has been submitted to and approved by the Building Official. (Ordinance 2007-0108 Section 33 (part), 2007.)

**J111.3 Wet Weather Erosion Control Plans (WWECP).** When a grading permit is issued and the Building Official determines that the grading will not be completed prior to November 1, the owner of the site on which the grading is being performed shall, on or before October 1, file or cause to be filed with the Building Official a WWECP. The WWECP shall include specific best management practices to minimize the transport of sediment and protect public and private property from the effects of erosion, flooding or the deposition of mud, debris or construction related pollutants. The best management practices shown on the WWECP shall be installed on or before October 15. The plans shall be revised annually or as required by the Building Official to reflect the current site conditions. The WWECP shall be accompanied by an application for plan checking services and plan-checking fees equal in amount to 10 percent of the original grading permit fee.
(Ordinance 2007-0108 Section 33 (part), 2007.)

### 11.3.4.2 The City of Long Beach Municipal Code

The City of Long Beach Municipal Code includes a discussion of construction development requirements as they relate to NPDES and standard urban stormwater mitigation plan regulations under Chapter 18.95, Section 18.95.050. The following apply to stormwater regulations within the program area.

### 18.95.050 – Development Construction

A. …Prior to the issuance of any building or grading permit for any project, the construction plans shall include features meeting the construction activities BMPs (CA-10 through CA-12, CA-20, CA-21 and CA-23, and CA-30 through CA-32) and the applicable provisions of the erosion and sediment control BMPs (ESC-1 through ESC-56) published in the "California

Storm Water Best Management Practice Handbooks (Construction Activity) (1993)," and BMP (CD-4[2]) of the "Caltrans Storm Water Quality Handbooks, Construction Contractor's Guide and Specifications (1997)", to ensure that every construction site meets the requirement of these regulations during the time of construction.

B. …Project plans shall include a narrative discussion of the rationale used for selecting or rejecting BMPs. The project architect or engineer of record, or authorized qualified designee, shall sign a statement on the plans [that identifies the effectiveness of the BMPs].

C. …Developments located adjacent to or directly discharging into environmentally sensitive areas, in a hillside area, or those that will result in the disturbance of [1] acre or more in size, shall have their construction plans include features meeting the applicable construction activities BMPs (CA-1 through CA-40) and erosion and sediment control BMPs (ESC-1 through ESC-56) published in the "California Storm Water Best Management Practice Handbooks (Construction Activity) (1993)" to ensure that every construction site meets the requirement of these regulations during the time of construction. Furthermore, these projects shall be required to prepare and submit to the city [of Long Beach] a SWPPP. The SWPPP shall include appropriate construction site BMPs listed in subsection [18.95.050 of the City of Long Beach Municipal Code].

D. …Projects with disturbed areas of [5] acres or greater shall prepare and submit to both the RWQCB and the city a SWPPP. The SWPPP shall include appropriate construction site BMPs listed in subsection 18.95.050.C [of the City of Long Beach Municipal Code]. In addition, an NOI to comply with the state construction activity storm water permit shall be filed with the RWQCB, and evidence of such filing shall be submitted to the city [of Long Beach].

### 11.3.4.3 The City of Pomona Municipal Code

The City of Pomona Municipal Code includes a discussion of discharge regulations and requirements in relation to stormwater management. This discussion can be found within Article X of Chapter 18 of the code, and an excerpt (3 through 5 of Section 18-495) is included as it relates to the Clearwater Program.

### Section 18-495. Reduction of Pollutants in Stormwater

Any person engaged in activities that will or may result in pollutants entering the city storm sewer system shall undertake all practicable measures to reduce such pollutants. Examples of such activities include ownership and use of facilities which may be a source of pollutants such as parking lots, gasoline stations, industrial facilities, commercial facilities, stores fronting city streets, etc. The following minimal requirements shall apply:

(3) *Best management practices for new developments and redevelopments.* Any construction contractor performing work in the city shall endeavor, whenever possible, to provide filter materials at the catchbasin to retain any debris and dirt from flowing into the city's storm sewer system. The city engineer may establish controls on the volume and rate of stormwater runoff from new developments and redevelopments as may be appropriate to minimize the discharge and transport of pollutants. Any person or company engaging in a construction activity that requires a NPDES construction permit must demonstrate possession of such permit before grading and/or building permits may be issued. A copy of the NPDES permit shall be retained on site and shall be shown to authorized enforcement officials upon request.

(4) *Notification of intent and compliance with general permits.* Each … discharger … shall provide notice of intent, comply with, and undertake all other activities required by any general stormwater permit applicable to such discharges. All persons or companies engaging in industrial activity that requires an individual NPDES permit shall acquire such permit before discharging any nonstormwater runoff into the city storm sewer system. A copy of the NPDES permit shall be retained on site and shall be shown to authorized enforcement officials upon request. Each discharges identified in an individual NPDES permit relating to stormwater discharges shall comply with and undertake all activities required by such permit.

(5) *Compliance with best management practices.* Where best management practices guidelines or requirements have been adopted by any federal, state, regional, and/or city agency for any activity, operation, or facility that may cause or contribute to stormwater pollution or contamination, illicit discharges, and/or discharge of nonstormwater to the stormwater system, every person undertaking such activity or operation or owning or operating such facility shall comply with such guidelines or requirements as may be identified by the city engineer.

#### 11.3.4.4 The City of Cerritos Municipal Code

The City of Cerritos Municipal Code includes a discussion of stormwater and urban runoff prevention controls under Chapter 6.32 in relation to stormwater management. Excerpts (A and C of Section 6.32.050) of the code (Ordinance 777 Section 1 (part), 1997) as it applies to the Clearwater Program are included.

#### 6.32.050 – Construction Site Requiring Building Permit and/or Grading Plan

(A) Any person or business engaging in construction activity that required an NPDES construction permit must obtain that permit from the RWQCB, and must demonstrate possession of such permit before grading and/or building permits can be issued. The NPDES construction permit shall be retained on site and shall be shown to the authorized enforcement officer upon request.

(C) The following BMPs shall apply to all projects under construction in the city at the time of demolition of an existing structure or commencement of new construction, and shall remain in place until receipt of a certificate of occupancy.

1. Runoff, sediment, and construction debris shall not leave the site and enter the stormdrain system.
2. Any sediments or other materials that are tracked off site shall be removed the same day as they are tracked off site. Where determined necessary by the authorized enforcement officer, a temporary sediment barrier shall be installed.
3. Drainage controls to prevent runoff from leaving the site shall be utilized as needed, depending on the topography of the site and extent of proposed grading. These controls may include but are not limited to the following:
    a. detention ponds, sediment ponds or infiltration pits
    b. dikes, filter berms or ditches
    c. down drains, chutes or flumes

4. Plastic covering may be utilized to prevent erosion of an otherwise unprotected area, along with runoff devices to intercept and safely convey the runoff.
5. Excavated soil shall be located on the site in a manner that eliminates the possibility of sediment running off site. Soil piles shall be covered until the soil is either used or removed.
6. No runoff from washing construction or other industrial vehicles on site shall be permitted to leave the site or enter the storm drain system.
7. The city may, as a condition of granting a construction permit, set reasonable limits on the clearing of vegetation from construction sites, including but not limited to regulating the length of time during which soil may be bare and, in certain sensitive cases, prohibit bare soil.

### 11.3.4.5 The City of Carson Municipal Code

Article V of Chapter 8 of the City of Carson Municipal Code includes ordinances dedicated to stormwater and urban runoff pollution control. The ordinance within this chapter (Ordinance 96-1101, Section 1) that relates to the Clearwater Program is as follows:

### 5808 – Requirements for Industrial/Commercial and Construction Activities

Each industrial discharger, discharger associated with construction activity, or other discharger described in any general storm water permit addressing such discharges, as may be issued by the U.S. EPA, the SWRCB, or the RWQCB shall comply with all requirements of such permit. Each discharger identified in an individual NPDES permit shall comply with and undertake all activities required by such permit. Proof of compliance with any such permit may be required in a form acceptable to the City Manager or designated representative, prior to the issuance of any grading, building or occupancy permits, or any other type of permit or license issued by the [city of Carson].

### 11.3.4.6 The City of Los Angeles Municipal Code

Chapter IX of the City of Los Angeles Municipal Code includes ordinances that relate to the reduction of stormwater runoff during construction. The following ordinances of the municipal code that relate to the Clearwater Program are included.

**Ordinance No. 172,673 – Effective7/30/99.** (Chapter IX, Article 1, Section 91.106.4.1, Exception 14.) The Department of Building and Safety shall require applicants, as a condition for issuing a grading or building permit, to incorporate into the plan documents best management practices necessary to control stormwater pollution from sediments, erosion, and construction materials leaving the construction site. Such requirements shall be in accordance with the provisions contained in the "Development Best Management Practices Handbook, Part A Construction Activities" adopted by the Board of Public Works as authorized by Section 64.72 of the Los Angeles Municipal Code.

**Ordinance No. 179,324 – Effective 12/10/07.** (Chapter IX, Article 1, Section 91.106.4.1, Exception 15.) The Department of Building and Safety shall have the authority to withhold grading and/or building permits for developments until:

A. The applicant incorporates into the development to the satisfaction of the Bureau of Sanitation of the Department of Public Works, best management practices necessary to control stormwater pollution in accordance with the Development Best Management

Practices Handbook, Part B Planning Activities adopted by the Board of Public Works as authorized by LAMC Section 64.72; and

B. The Bureau of Sanitation of the Department of Public Works receives a Covenant and Agreement, signed by the owner and recorded with the Los Angeles County Recorder, declaring that the best management practices necessary to control stormwater pollution shall be installed and/or constructed and maintained in proper working condition at all times; and

C. The applicant submits to the Bureau of Sanitation of the Department of Public Works, a set of plans and specifications showing compliance with the Standard Urban Stormwater Mitigation Plan or Site Specific Mitigation Plan.

# 11.4 Environmental Impacts and Mitigation Measures

Data and information used in the environmental impact analysis were obtained from several sources including:

- Sanitation Districts Water Monitoring Department
- NPDES permits for each WRP and the JWPCP
- LACDPW
- SWRCB
- LARWQCB

## 11.4.1 Methodology and Assumptions

### 11.4.1.1 Program Methodology

All program elements, except effluent management, were analyzed by comparing baseline conditions to conditions during construction and/or operation of the program element, and quantifying the change. The program would comply with all local regulations cited in Section 11.3.4, and existing regulations managing erosion, sedimentation, and runoff that could be caused by construction are incorporated where appropriate into the analysis of the program elements.

#### Effluent Management

The effluent volumes discharged from each WRP would change under all alternatives, including the No-Project Alternative (Alternative 5), of the Clearwater Program. This change would result from changing operations within the Sanitation Districts' facilities and factors outside the Sanitation Districts' control, such as a decrease in wastewater flows that might occur due to water conservation, or a decrease in recycled water discharge to receiving bodies that might occur as a result of increased reuse demand. The 2050 WRP wastewater flow projections are based on population and a per capita wastewater generation rate in the JOS. It is projected that by 2050, all of the WRPs would be at their full capacity, and the SJCWRP would be expanded by 25 million gallons per day (MGD). Projections for reuse of recycled water from the WRPs are based on evaluated reports, reviewed master plans, and personal communications with reuse project proponents in the JOS. Based on this research, and the likelihood of implementing the future reuse projects currently being proposed, low-end and high-end reuse projections were developed.

Discharge to the unlined channels of San Jose Creek and the San Gabriel River from the SJCWRP is represented by the amount of water that is necessarily diverted to avoid surcharging the plant's outfall during peak flow periods, and makes up a portion of the plant effluent contracted to the Water Replenishment District as discussed in Section 11.3.3.3. This discharge may not be delivered to the Water Replenishment District uniformly throughout the year. It is anticipated that future deliveries to the Water Replenishment District may be similar to current deliveries and may range from 10 to 50 MGD due to the continued and increased reliance on groundwater recharge and recycled water to increase the Southern California water supply. Recycled water discharged to unlined channels of San Jose Creek, the Zone Ditch 1, the Rio Hondo, and the San Gabriel River (i.e., reused through groundwater replenishment) from the POWRP and WNWRP represents the difference between the anticipated treated flow (i.e., plant capacity in 2050) and that being sent to other reuse applications.

The Sanitation Districts' Clearwater Program is consistent with the SWRCB Recycled Water Policy to provide recycled water to water purveyors in the region. The Recycled Water Policy mandates an increase in the use of recycled water in California of 200,000 AFY by 2020 and of an additional 300,000 AFY by 2030. This would be achieved through the cooperation and collaboration of the SWRCB, RWQCBs, environmental community, water purveyors, and operators of publicly owned treatment works.

The annual average daily discharge for 2008 (baseline) and the projected range of discharges to receiving waters in 2050 (planning horizon) are summarized in Table 11-18. For effluent reuse not discharged to receiving waters, the annual average reuse for 2008 (baseline) and the projected range of reuse for 2050 (planning horizon) is provided in Table 11-19. It should be noted that, in general, the quantities of recycled water delivered do not equal the quantities treated, spread, discharged, or directly reused due to metering differences between the Sanitation Districts and the various water purveyors.

**Table 11-18. Annual Average Daily Discharge to Receiving Waters for 2008 (Baseline) and Projected Range of Discharges to Receiving Waters for 2050 (Planning Horizon)**

| | | Daily Discharge to Receiving Waters (MGD) | |
|---|---|---|---|
| **WRP** | **Use (Discharge Point)** | **Annual Average (2008[a])** | **Projected Range (2050)** |
| SJCWRP | Groundwater recharge (spreading grounds and discharge into unlined channels) (SJC002, SJC003, and SJC001A) | 24 | 24 |
| POWRP | Groundwater recharge (discharge into unlined channel) (PO001) | 4 | 5–6 |
| WNWRP | Groundwater recharge (spreading grounds and discharged into unlined channels) (WN001, WN002, WN004) | 5 | 9 |
| SJCWRP | Other discharge (SJC001) | 41 | 0–49 |
| LCWRP | Discharge (LC001) | 25 | 12–31 |
| LBWRP | Discharge (LB001) | 12 | 9–14 |

[a] Source: Sanitation Districts 2009a; 2009b; 2009c; 2009d; 2009e

**Table 11-19. Annual Average Reuse for 2008 (Baseline) and Projected Range of Reuse for 2050 (Planning Horizon) That Is Not Discharged to Receiving Waters**

| | | Effluent Reuse (MGD) | |
|---|---|---|---|
| **WRP** | **Use** | **Annual Average (2008[a])** | **Projected Range (2050)** |
| SJCWRP | Reuse | 7[b] | 52–101 |
| POWRP | Reuse | 4 | 9–11 |
| LCWRP | Reuse | 3[b] | 6–25 |
| LBWRP | Reuse | 6 | 11–16 |
| WNWRP | Reuse | 1 | 5 |

[a] Source: Sanitation Districts 2009a; 2009b; 2009c; 2009d; 2009e

[b] The Central Basin Municipal Water District recycled water distribution system receives a combination of recycled water from both the SJCWRP and LCWRP, which was accounted for under the LCWRP in the 2008 Annual Monitoring Report. However, this table accounts for the recycled water under the SJCWRP because most of the recycled water delivered through the system actually originated from the SJCWRP.

A detailed characterization of streamflow and WRP discharge data is presented in the analysis under Impact BIO-1 in Chapter 6. That analysis finds that for most of the year, except during periods after heavy rainfall or upstream dam releases, WRP discharges are the primary flow source in the stream channels receiving such discharges. Discharges from the POWRP, WNWRP, and SJCWRP discharge points located upstream of the San Gabriel Coastal Spreading Grounds primarily infiltrate to groundwater at the Rio Hondo and San Gabriel Coastal Spreading Grounds, and in unlined channels located upstream of these spreading grounds. Discharges from the lowermost SJCWRP discharge point (SJC001) and from the LCWRP and LBWRP are made to fully lined channels and are conveyed downstream to the Pacific Ocean at San Pedro Bay, likely with minimal infiltration. Because of the location of the discharge points, water quality is controlled by WRP discharge composition during the dry season, and is not responsive to WRP discharge composition in the aftermath of storm events or during major dam releases. During the dry season, WRP discharges comprise the majority of instream flows, so the instream water quality parameters are typically similar to the NPDES-permitted composition of the WRP discharge. After rainfall events or during major dam releases, instream flows greatly exceed WRP discharges and the discharges have proportionally little potential to affect instream water quality parameters. Intermediate conditions where instream flows derived from other sources contribute a significant portion of flow, and thus have the potential to materially affect instream water quality parameters, are quite rare, occurring for only a few days each year. No water quality data characterizing such conditions were located. However, it is likely that during such times, ambient flows are typically water quality limited with regard to turbidity, while WRP discharges are water quality limited to the extent allowed under their NPDES permit. The rationale for this is explained in the following paragraph.

Most flows in excess of WRP discharge volumes are related to storm events. Due to the high percent of impervious surface coverage in much of the watershed, coupled with a large fraction of watershed channels that are fully lined with concrete, incidental precipitation that does not infiltrate runs off quickly, resulting in rapid rises in discharge followed by a relatively rapid decline (i.e., over a period of a few days) to normal flows. During the rainfall event and peak flow discharge, large volumes of accumulated pollutants are washed into channels. These include oils, greases, and metal particulates accumulated on roadways; landscaping chemicals and pet wastes accumulated in residential areas; fine particulate and aerosol materials deposited from the atmosphere since the previous rainfall event; and other, lesser pollutant sources. These pollutants are predominately carried off during the peak flow event, and especially during the initial hours of the event. Conversely, after flows decline to the point where instream flow is dominated by WRP discharge, there is little mechanism for delivery of such pollutants to surface waters. Human activities such as landscape irrigation produce some runoff, but there are limited overland flows to deliver roadway pollutants or atmospherically deposited pollutants to surface waters. Thus, during dry season flows, there is less potential to deliver pollutants to surface waters except via NPDES-permitted discharges.

Implementation of the NPDES Phase II permit described in Section 11.3.3.4 is expected to reduce pollutant loading from wet-weather and dry-weather urban runoff. This is expected to have a beneficial effect on water quality in the receiving waters. Furthermore, per the incentives outlined in the SWRCB Recycled Water Policy described in Section 11.3.2.2, TMDLs will be assigned in a manner that provides an incentive for greater water recycling.

Non-point source pollution from urban runoff, which degrades water quality, cannot be controlled by the Sanitation Districts. Activities generating urban runoff (e.g., impervious surfaces collecting pollutants, pesticide and herbicide application to landscaped areas that are irrigated, etc.) are regulated by a number of agencies with jurisdictions to do so including the EPA, SWRCB, LARWQCB, Los Angeles County, city of Long Beach, and all cities in the watersheds. Furthermore, the stormwater infrastructure, which conveys the polluted urban runoff to the receiving waters, is managed by the California Department of Transportation (Caltrans), the LACDPW, local flood control districts, and local cities (see Section 20.2.1.2 for a discussion of the stormwater infrastructure). The Sanitation Districts are not able to propose or solely implement program elements in this area, which is outside their jurisdiction.

Proposed operational changes at the WRPs would result in a net reduction in effluent volumes delivered to the lower San Gabriel River (Reach 1, Figure 11-3) and the San Gabriel River Estuary. These changes would alter the volume of fresh water flows and the pollutant loadings being delivered to the estuary. Effects are potentially significant and are analyzed in this chapter.

### 11.4.1.2 Project Methodology and Assumptions

All project elements were analyzed by comparing baseline conditions to conditions during construction and/or operation of the proposed project element and quantifying the change between conditions. The project would comply with all local regulations cited in Section 11.3.4, and existing regulations managing erosion, sedimentation, and runoff that could be caused by construction are incorporated where appropriate into the analysis of project elements. Assumptions were made regarding the type of construction that would take place at each shaft site and incorporated into the analysis. The appropriate construction method for each shaft would be chosen prior to construction based on site-specific soils and geologic characteristics from the following list, which describes the various shaft construction methods.

1. Slurry diaphragm walls are often used for watertight excavation. This circular wall is constructed in segments. A void is excavated around the perimeter of the shaft footprint and is filled with a bentonite slurry to maintain stability of the excavation. Once the excavation is complete, a metal cage is lowered into the slurry and concrete is placed by tremie techniques from the bottom up. This process is continued until all the panels are complete, resulting in an impervious reinforced wall limiting groundwater inflow.
2. Ground freezing involves inserting a matrix of tubes into the ground around the shaft to be excavated and pumping refrigerant into the tubes creating a perimeter frozen zone. Material from the middle of the frozen zone is then excavated. When the construction work is completed, the refrigerant is turned off and the frozen ground returns to preconstruction conditions.
3. Sequential excavation is used for deep shafts in suitable ground conditions above the water table. These shafts are supported using steel ring beams with liner plates, shotcrete, or timber lagging.

The shaft would be excavated 5 to 10 feet at a time and then a ring would be put in place. This is method is also known as top-down excavation.

The following assumptions were made regarding impacts associated with dewatering during construction.

1. Based on the anticipated construction method of using a tunnel boring machine (TBM), the tunnel would be watertight. Equal pressure between the cutting face and the soil would be maintained. There would be minimal leakage of groundwater into the excavation because the soil interface is isolated within the pressurized cutting face. Therefore, only minimal volumes of nuisance water would need to be removed from the tunnel during construction. Water generated during tunnel construction would not be released directly into receiving waters. Any inflow of water and/or slurry used during tunneling activities would be pumped back to a working shaft site. All collected water (including nuisance and slurry decant) would be discharged to the sewer for treatment at the JWPCP or the Terminal Island Water Reclamation Plant.
2. Although the shaft walls and bottom would be sealed to prevent water intrusion, dewatering could be necessary at the shaft sites during construction. For California Environmental Quality Act (CEQA) analysis purposes, it is conservatively assumed that nuisance water would be contaminated (e.g., due to alkalinity from contact with uncured concrete).
3. Groundwater dewatered at the shaft site would not be directly discharged to the stormwater system or receiving water, but sent to a treatment plant through the sewer system. Sewer disposal would depend on the location of the shaft site. Available treatment facilities include the JWPCP and the Terminal Island Water Reclamation Plant.
4. Dewatering at the shaft sites would occur at rates and times that would not exceed either the JWPCP or the Terminal Island Water Reclamation Plant capacity.

### 11.4.1.3 Baseline

### CEQA Baseline

The CEQA baseline for the Clearwater Program is described in Section 1.7.4.1. CEQA Guidelines require that an environmental impact report (EIR) include a description of the physical environmental conditions in the vicinity of a proposed project that exist at the time the notice of preparation is published, which is presented in Section 2.2.4. Thus, calendar year 2008 is the CEQA baseline for all project elements. For the Clearwater Program and to plan for facility needs, the Sanitation Districts used multiple data years. These data were comparable to discharge amounts for calendar year 2008. A limited review of prior years' data indicate that 2008 is a representative or slightly drier than average year. Therefore, for purposes of analyzing flow in surface waters, diversions, and discharges, the 2008 operational calendar year data were used. Furthermore, this year was considered by Sanitation Districts staff to be a typical year for WRP operational discharges and receiving water flows for the program-level analysis. Accordingly, the year 2008 constitutes the baseline for CEQA analysis.

### NEPA No-Federal-Action Baseline

The National Environmental Policy Act (NEPA) baseline for the Clearwater Program is described in Section 1.7.4.2. The NEPA baseline is not bound to a "no growth" scenario. Therefore, the NEPA baseline may include increases in operations over the life of a project that do not require federal action or approval.

Note that the NEPA analysis includes direct and indirect impacts as discussed in Section 3.5.2. Any impact associated with project elements located within the U. S. Army Corps of Engineers' (Corps') geographic jurisdiction (i.e., the marine environment) during construction would be the direct result of the Corps permit and considered a direct impact under NEPA. Any impact associated with project elements located outside the Corps' geographic jurisdiction during construction would be the indirect result of the Corps permit and considered an indirect impact under NEPA. Any impact that occurs during operation would be considered an indirect impact under NEPA.

## 11.4.2 Thresholds of Significance

The program and/or project would pose a significant impact if it exceeds any of the following thresholds for hydrology, water quality (fresh water), and public health (HYD):

HYD-1. Creates pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or causes regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving waterbody.

HYD-2. Adversely changes the level, rate, or direction of flow of groundwater.

HYD-3. Results in an increased level of groundwater contamination or affects the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion).

HYD-4. Causes regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations, Title 22, Division 4, Chapter 15, and in the Safe Drinking Water Act.

HYD-5. 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 would result in substantial erosion or siltation on site or off site.

HYD-6. 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 would result in flooding on site or off site.

HYD-7. Creates or contributes runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provides substantial additional sources of polluted runoff.

HYD-8. Results in demonstrable and sustained reduction of groundwater recharge capacity.

HYD-9. Places housing or other structures within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Map, or other flood hazard delineation map, which would impede or redirect flood flows.

HYD-10. 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.

HYD-11. Is subject to inundation by seiche, tsunami, or mudflow.

HYD-12. Substantially increases workers' or the public's actual or potential exposure to wastes or pathogens.

Program and project elements were analyzed by threshold in the Preliminary Screening Analysis (Appendix 1-A) to identify potentially significant impacts on hydrology, water quality (fresh water), and public health before mitigation. Table 11-20 identifies which elements were brought forward for further analysis by threshold in this EIR/EIS for Alternatives 1 through 4. If applicable, Table 11-20 also identifies thresholds evaluated in this EIR/EIS if an emergency discharge into various water courses were to occur under the No-Project or No-Federal Action Alternatives, as described in Sections 3.4.1.5 and 3.4.1.6.

**Table 11-20. Thresholds Evaluated**

| | | Threshold | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Alt. | HYD-1 | HYD-2 | HYD-3 | HYD-4 | HYD-5 | HYD-6 | HYD-7 | HYD-8 | HYD-9 | HYD-10 | HYD-11 | HYD-12 |
| **Program Element** | | | | | | | | | | | | | |
| Conveyance System Improvements | 1–5 | X | | X | | X | | X | | | | | |
| SJCWRP Plant Expansion | 1–5 | X | | X | | X | | X | | | | | |
| SJCWRP Process Optimization | 1–4 | X | | X | | X | | X | | | | | |
| SJCWRP Effluent Management | 1–5 | X | | X | X | X | | | | | | | |
| POWRP Process Optimization | 1–4 | X | | X | | X | | X | | | | X | |
| POWRP Effluent Management | 1–5 | X | | X | X | X | | | | | | | |
| LCWRP Process Optimization | 1–4 | X | | X | | X | | X | | | | | |
| LCWRP Effluent Management | 1-5 | X | | X | X | | | | | | | | |
| LBWRP Process Optimization | 1–4 | X | | X | | X | | X | | | | | |
| LBWRP Effluent Management | 1–5 | X | | X | X | | | | | | | | |
| WNWRP Effluent Management | 1–5 | X | | X | X | X | | | | | | | |
| JWPCP Solids Processing | 1–5 | X | | X | | X | | X | | | | | |
| **Project Element** | | | | | | | | | | | | | |
| Wilmington to SP Shelf (onshore tunnel)[a] | 1,2 | | | X | X | | | | | | | | |
| Wilmington to PV Shelf (onshore tunnel)[a] | 1,2 | | | X | X | | | | | | | | |
| Figueroa/Gaffey to PV Shelf (onshore tunnel) | 3 | | | X | X | | | | | | | | |
| Figueroa/Western to Royal Palms (onshore tunnel) | 4 | | | X | X | | | | | | | | |
| JWPCP East Shaft Site | 1,2 | X | X | X | X | X | | X | | | | | |
| TraPac Shaft Site | 1,2 | X | X | X | | X | | X | | | | X | |
| LAXT Shaft Site | 1,2 | X | X | X | | X | | X | | | | X | |
| Southwest Marine Shaft Site | 1,2 | X | X | X | | X | | X | | | | X | |
| JWPCP West Shaft Site | 3,4 | X | X | X | X | X | | X | | | | | |
| Angels Gate Shaft Site | 3 | X | X | X | | X | | X | | | | | |
| Royal Palms Shaft Site | 4 | X | X | X | | X | | X | | | | X | |
| SP Shelf Riser/Diffuser Area | 1 | | | | | | | | | | | X | |

**Table 11-20 (Continued)**

| | Alt. | Threshold | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | HYD-1 | HYD-2 | HYD-3 | HYD-4 | HYD-5 | HYD-6 | HYD-7 | HYD-8 | HYD-9 | HYD-10 | HYD-11 | HYD-12 |
| PV Shelf Riser/Diffuser Area | 2,3 | | | | | | | | | | | X | |
| Existing Ocean Outfalls Riser/Diffuser Area | 1–4 | | | | | | | | | | | X | |
| **Emergency Discharge** | 5,6 | X | | | | X | | X | | | | | |

[a] The onshore tunnel alignment for the Wilmington to SP Shelf is the same as the onshore tunnel alignment for the Wilmington to PV Shelf.
Alt. = alternative

For a detailed discussion of impacts associated with marine hydrology and water quality resulting from the construction of the offshore tunnel, construction and operation of the riser/diffuser, and rehabilitation and maintenance of the existing ocean outfalls, refer to Chapter 13.

In the alternatives analysis that follows, if a program or project element is common to more than one alternative, a detailed discussion is presented only in the first alternative in which it appears. Additionally, in subsequent alternatives where no new elements are introduced under a specific threshold, that threshold is not repeated.

## 11.4.3 Alternative 1

### 11.4.3.1 Program

***Impact HYD-1. Would Alternative 1 (Program) create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving waterbody?***

#### Conveyance System – Conveyance Improvements

**Construction**

The Clearwater Program has identified the need for future conveyance improvements. The existing conveyance system is predominantly located within public rights-of-way at depths between 5 and 25 feet bgs; therefore, construction would typically take place at these depths. Because the precise location of the planned conveyance improvements and the appropriate construction techniques are not known at this time, the specific location of potential effects cannot be determined.

Implementation of the conveyance improvements could result in impacts on hydrology, water quality (fresh water), and public health. At this time, no specific projects have been proposed. The Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize any impacts. These standard practices and bid requirements are used as appropriate on conveyance system construction projects for both the installation of new sewers and the rehabilitation of existing sewers. Contractors would be required to comply with all applicable permits and regulations as noted.

- City, LACDPW, and Caltrans regulations as required, including implementation of appropriate BMPs that may include a WWECP
- NPDES General Permit for Storm Water Discharges Associated With Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002) for projects where 1 acre or more of soil will be disturbed; preparation of a site-specific SWPPP is required
- WDRs for Discharges of Groundwater From Construction and Project Dewatering to Surface Waters (General NPDES Permit No. CAG994004); preparation of a site-specific dewatering plan is required
- If necessary, individual permits in place of the general permits referenced herein if the project does not qualify for a general permit

In consideration of project compliance with these permit requirements, coupled with project location in areas of predominately low environmental sensitivity (public rights-of-way), impacts would be less than significant.

## San Jose Creek Water Reclamation Plant – Plant Expansion

### Construction

Construction would take place within the existing SJCWRP boundary on vegetated surfaces (lawns). Construction and excavation causes soil to be exposed, potentially leading to erosion and sedimentation. Soils at the SJCWRP are described in Table 11-14. Soils at the SJCWRP have low erosion potential. However, due to the removal of the soil and potential stock piling, erosion and sedimentation are of concern as they could convey sediment into the San Gabriel River, potentially causing regulatory violations as defined by the beneficial use standards and TMDLs outlined in the existing Basin Plan (discussed in Sections 11.2.1 and 11.3.3.1). Additional pollutants associated with construction activities and their typical sources are identified in Table 11-21.

**Table 11-21. Construction Pollutants**

| | Pollutant | | | | | | |
|---|---|---|---|---|---|---|---|
| **Construction Activity** | **Sediment** | **Nutrients** | **Trace Metals** | **Pesticides** | **Oil, Grease, Fuels** | **Other Toxic Chemicals** | **Miscellaneous Waste** |
| Construction Practices | | | | | | | |
| Dewatering Operations | X | | | | | X | |
| Paving Operations | X | | | X | X | X | X |
| Structure Construction/Painting | | | X | | | X | X |
| Landscaping | X | X | | X | X | | |
| Material Management | | | | | | | |
| Material Delivery and Storage | X | X | X | X | X | X | |
| Material Use | | X | X | X | X | X | |
| Waste Management | | | | | | | |
| Solid Waste | X | X | | | | | X |
| Hazardous Waste | | | | | | X | |
| Contaminated Spills | | | | | | X | |
| Concrete Waste | | | | | | | X |
| Sanitary/Septic Waste | | | | | | | X |

**Table 11-21 (Continued)**

| Construction Activity | Pollutant | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sediment | Nutrients | Trace Metals | Pesticides | Oil, Grease, Fuels | Other Toxic Chemicals | Miscellaneous Waste |
| Vehicle/Equipment Management | | | | | | | |
| Vehicle/Equipment Fueling | | | | | | X | X |
| Vehicle/Equipment Maintenance | | | | | | X | X |
| Source: California Stormwater Quality Association 2003 | | | | | | | |

The Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize erosion, sedimentation, or other such impacts. The contractor for the construction of plant expansion at the SJCWRP would be required to comply with all local and other regulations as noted.

- LACDPW regulations as required, including implementation of appropriate BMPs that may include a WWECP
- NPDES General Permit for Storm Water Discharges Associated With Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002) for projects where more than 1 acre will be disturbed; preparation of a site-specific SWPPP is required
- WDRs for Discharges of Groundwater From Construction and Project Dewatering to Surface Waters (General NPDES Permit No. CAG994004); preparation of a site-specific dewatering plan is required
- If necessary, individual permits in place of the general permits referenced herein if the project does not qualify for a general permit

Because the Sanitation Districts would require the contractor to comply with all the applicable stormwater and water quality regulations and permits, and in consideration of the low environmental sensitivity of the proposed work site (lawns), impacts would be less than significant.

## San Jose Creek Water Reclamation Plant, Pomona Water Reclamation Plant, Los Coyotes Water Reclamation Plant, and Long Beach Water Reclamation Plant – Process Optimization

### Construction

Process optimization at the WRPs would include constructing underground tanks (approximately 15 to 35 million gallons). At the SJCWRP, the storage tanks may be located under a parking lot, with a portion of one of the tanks sited beneath an existing vegetated area. At the POWRP, the tanks would be located below an existing graded, unpaved area. At both the LCWRP and LBWRP, the tanks would be located below an existing vegetated area. Extensive excavation would occur to construct the underground storage facilities and would require soil stockpiling. While soils on site have been identified as having low or low-moderate erosion potential (Table 11-14), the amount and length of excavation could lead to sedimentation off site. Furthermore, construction contaminants could also be transported off site by the action of water or wind, affecting water quality of receiving waters. However, the General Construction Permit requires stock pile management for inactive stock piles (defined as those that are not scheduled to be used within 14 days).

The Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize erosion, sedimentation, or other such impacts. Contractors for construction of process optimization at the SJCWRP, POWRP, LCWRP, and LBWRP would be required to comply with all local and other regulations as noted.

- City of Pomona, city of Cerritos, city of Long Beach, and LACDPW regulations as required, including implementation of appropriate BMPs that may include a WWECP
- NPDES General Permit for Storm Water Discharges Associated With Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002) for projects where 1 acre or more of soil will be disturbed; preparation of a site-specific SWPPP is required
- WDRs for Discharges of Groundwater From Construction and Project Dewatering to Surface Waters (General NPDES Permit No. CAG994004); preparation of a site-specific dewatering plan is required
- If necessary, individual permits in place of the general permits referenced herein if the project does not qualify for a general permit

Because the Sanitation Districts would require the contractor to comply with all applicable stormwater and water quality regulations and permits, and in consideration of the low environmental sensitivity of the proposed work areas (built areas and areas without sensitive natural communities), impacts would be less than significant.

## San Jose Creek Water Reclamation Plant – WRP Effluent Management

### Operation

Operation of the SJCWRP under the program could include a change to effluent management at the WRP. This change could result in a violation of regulatory standards either through a discharge of effluent that does not meet NPDES standards and loads pollutants into the receiving waters, or through a reduction in the effluent discharged that reduces the quantity of water in the receiving water and impairs beneficial use designations.

Treated effluent from the SJCWRP is discharged in accordance with a current NPDES permit (permit CA0053911). The SJCWRP is consistently compliant with the terms of this permit. Although violations of effluent standards occurred due to heavy rainfall in December 2010, the last violations before that occurred in June 2007. Furthermore, in the past, reported violations have generally been infrequent and swiftly corrected. Accordingly, it is assumed that discharges from the SJCWRP are compliant with the terms of the plant's NPDES permit, and thus, that the treated effluent discharged from the SJCWRP does not currently contribute to a degradation of water quality in the receiving waters in the form of pollutant loading. Wastewater at the SJCWRP would continue to be treated as in the past, and there would be no changes to the treatment process that would modify the quality of the effluent discharged. Therefore, the change in volume of treated effluent discharged from the SJCWRP into San Jose Creek and the San Gabriel River at the various discharge points would not create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code and would not cause the existing SJCWRP NPDES permit to be violated. Impacts would be less than significant.

The beneficial uses of the San Gabriel River and San Jose Creek are described in Table 11-12 and Section 11.2.2. The San Gabriel River and San Jose Creek are listed as being impaired for a number of constituents, which are summarized in Table 11-13. The SJCWRP would continue to discharge from SJC002, SJC003, and SJC001A into San Jose Creek and the San Gabriel River, and it is projected that the annual average daily discharge from these discharge points would remain the same (Table 11-18). The range in monthly average discharges under the program would also likely be comparable to baseline conditions (Table 11-5). Accordingly, there is little potential for future operations to alter discharge volume or quality relative to current conditions, and impacts would be less than significant.

The SJCWRP would also continue to discharge from SJC001 into Reach 1 of the San Gabriel River. The annual average rate of discharge would vary between 0 and 49 MGD, which represents a potentially substantial change from the baseline discharge rate of 41 MGD (varying monthly from 33 to 56 MGD) (Table 11-5 and Table 11-18). The change in SJC001 discharge is forecast to occur due to increased allocations to the San Gabriel Coastal Spreading Grounds, located upstream of SJC001 on the San Gabriel River, and also anticipates additional allocation of treated effluent that water purveyors in the region would use to meet the state mandate regarding recycled water described in Section 11.3.2.2. However, as described in the following, increases in reuse would not result in significant impacts along Reach 1 of the San Gabriel River.

Beneficial uses in the affected portion of the San Gabriel River (Reach 1) include existing uses REC-1 and REC-2, potential uses WARM and WILD, and conditional potential use MUN (Table 11-12). Additional beneficial uses occur in the San Gabriel River Estuary, but SJCWRP discharges are currently considered to have a negligible potential to affect those uses per the rationale detailed in the following analysis for the San Gabriel River Tidal Prism and Estuary.

The designations REC-1 and REC-2 refer to water contact and non-contact recreation, respectively. The lined channel reach contains no facilities for water contact recreation, is fenced and signed against public entry, and, for most of the year, the water consists of discharged treated effluent. Therefore, the reach is currently not suitable for water contact recreation, and there is no potential to alter the reach suitability for water contact recreation under the program. Non-contact recreational uses identified in the area include use of the adjacent bike path and occasional bird-watching; there is no potential for the program to alter these uses. Other potential non-contact recreational uses include boating and fishing. These activities are prohibited in the affected reach, which is signed and fenced. Boating in this fully lined reach would be impracticable. Fishing has not been observed in the affected reach (Allen et al. 2008:23-24). The reach does support fish populations of Wami tilapia (*Oreochromis urolepis*) and Mozambique tilapia (*O. mossambicus*), non-native sport fishes (Nico 2006a). There is an active recreational fishery for these species in the San Gabriel River Estuary (Allen et al. 2008). The tilapia have a high salinity tolerance and inhabit both the estuary and the influent streams, including the San Gabriel River and Coyote Creek; they have been established in these streams since at least the early 1970s (Nico 2006a, 2006b). They are regarded by the California Department of Fish and Game (CDFG) as an invasive and undesirable species; however the Sanitation Districts manage flows in the San Gabriel River in a manner that prevents undesired strandings of these species. To achieve this goal, reductions in WRP discharges to the lined reaches of the San Gabriel River are performed gradually to avoid stranding tilapia above the waterline. Sanitation Districts' biologists monitor the process, and flows are managed to avoid stranding of the fish. The CDFG is also notified when such flow reductions are performed. Thus, under the baseline condition, WRP discharges are managed so as to avoid adverse impacts on the tilapia and the recreational fishery that utilizes them, and this management approach would continue unchanged under the program. Accordingly, impacts on REC-1 and REC-2 beneficial uses would be less than significant.

The potential use designation WILD refers to wildlife habitat. Because the affected channel is fully lined and unvegetated, it has little potential to provide habitat for terrestrial species. It may be occupied by aquatic species, chiefly including invertebrates and fishes, such as the tilapia. It may also be used by some foraging terrestrial wildlife species, such as rats (*Rattus norvegicus*), but that species is a pest and a public health hazard, and loss of habitat for it would not constitute a significant impact. Aquatic wildlife in the reach consists of the tilapia populations described in the preceding paragraph and, as detailed, the current and proposed practice is to manage WRP discharges in a manner that avoids impacts on this resource. Thus, impacts on the WILD beneficial use would be less than significant.

The potential use designation WARM refers to warm fresh water habitat. Potential effects on warm-water habitat would be substantially the same as those discussed above for the WILD beneficial use and, per the same rationale, would be less than significant.

The conditional potential beneficial use MUN refers to municipal and domestic water supply. Currently, the river reach is primarily used as a discharge point for industrial users and municipal users. Furthermore, municipal and domestic water supplies are not currently pulled from the river reaches, but rather obtained from the various domestic water purveyors or from the WRPs directly via recycled water infrastructure. All of these recycled uses, in the future and under program conditions, would be better supported by direct service from a treated wastewater source such as the SJCWRP or a potable water purveyor rather than by pumping treated wastewater from a stream channel. Accordingly, impacts on these beneficial uses would be less than significant.

A discussion of proposed operational changes at the WRPs that discharge into the San Gabriel River (i.e., the SJCWRP, LCWRP, and LBWRP) that could affect the San Gabriel River Tidal Prism and Estuary is provided later in this impact analysis.

## Pomona Water Reclamation Plant – WRP Effluent Management

### Operation

Operation of the POWRP under the program would result in a change to effluent management at the WRP. This change could result in a violation of regulatory standards, as described for the SJCWRP.

Treated effluent from the POWRP is discharged in accordance with a current NPDES permit (permit CA0053619). The POWRP is consistently compliant with the terms of this permit; no violations of effluent standards have occurred since March 2008. Accordingly, it is assumed that discharges from the POWRP are compliant with the terms of the plant's NPDES permit and that the treated effluent discharged from the POWRP does not currently contribute to a degradation of water quality in the receiving waters in the form of pollutant loading. Wastewater at the POWRP would continue to be treated as in the past, and there would be no changes to the treatment process at the WRP that would modify the quality of the effluent discharged. Therefore, the small anticipated change in the volume of treated effluent would not create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code and would not cause the existing POWRP NPDES permit to be violated. Impacts would be less than significant.

The POWRP discharge point PO001 is the principal source of discharge to the South Fork of the San Jose Creek tributary (part of Reach 2) that receives the discharge. As discussed under Impact BIO-1 in Chapter 6, there are no flow data for the South Fork but routine observations by Sanitation Districts staff indicate that dry-weather flow in the absence of POWRP discharges is negligible (less than 1 MGD); it is a lined channel and, presumably, there is little flow loss during its course to the San Jose Creek main stem. The South Fork joins the much larger North Fork about 13 miles above the confluence with the San Gabriel River. The North Fork of the San Jose Creek is also lined until about 1 mile above the confluence. Groundwater upwelling has been observed at perforations in the concrete lining of San Jose Creek. It appears that under current conditions, POWRP discharges are a secondary component of dry-season flows in lower San Jose Creek. Proposed POWRP effluent management is not anticipated to alter discharge rates substantially, and it is anticipated that the annual average daily discharge at PW001 would increase slightly from 4 MGD to a range of 5 to 6 MGD (Table 11-18). The range in monthly average discharges under the program would also likely be comparable to baseline conditions (Table 11-5). Because POWRP discharges are a secondary component of flows in San Jose Creek, the change in treated effluent discharged under the program would not have the potential to significantly affect water quality or beneficial uses of the receiving water. Impacts would be less than significant.

Except under flood flows, when POWRP discharges are a negligible portion of total stream flow, POWRP discharges are conveyed through Reach 2 of San Jose Creek and infiltrated within the unlined Reach 1 (Figure 11-3). Designated beneficial uses in these reaches include existing use WILD; intermittent uses GWR, REC-2, and WARM; potential or intermittent use REC-1; and conditional potential use MUN (Table 11-12).

The designation WILD refers to wildlife habitat. Reach 2 of San Jose Creek is fully lined and unvegetated, and thus has little potential to provide habitat for terrestrial species; however, it may be occupied by aquatic species, chiefly invertebrates and fishes. Reach 1 of San Jose Creek is unlined and contains aquatic habitat fringed by riparian vegetation. Because the program would maintain discharges comparable to those occurring under current conditions, there is little potential to affect these beneficial uses. Impacts would be less than significant.

The designations GWR, REC-2, and WARM refer to groundwater recharge, non-contact recreational use, and warm fresh water habitat, respectively, and apply to seasonal flows in intermittently flowing waters. Because POWRP discharges are infiltrated to groundwater in Reach 1 of San Jose Creek, and because the program would maintain discharges comparable to those occurring under current conditions, there is little potential to affect use GWR. Also, because the program would maintain discharges comparable to those occurring under current conditions, there is little potential to affect the existing beneficial uses REC-2 and WARM. Impacts would be less than significant.

The designation REC-1 and MUN, refer to contact recreational use and municipal and domestic water supply, respectively. The use MUN would be better supported by direct service from a treated wastewater source such as the POWRP rather than by pumping treated wastewater from a stream channel, as previously discussed for the SJCWRP. Accordingly, impacts on this beneficial use would be less than significant. The REC-1 use would not be affected because the program would maintain discharges comparable to those occurring under current conditions. Impacts would be less than significant.

## Los Coyotes Water Reclamation Plant – WRP Effluent Management

### Operation

Operation of the LCWRP under the program would result in a change to effluent management at the WRP. This change could result in a violation of regulatory standards as described for the SJCWRP.

Treated effluent from the LCWRP is discharged in accordance with a current NPDES permit (permit CA0054011). The LCWRP is consistently compliant with the terms of this permit; a 1-day effluent violation occurred in April 2010, and before that, another 1-day violation occurred in March 2008. Accordingly, it is assumed that discharges from the LCWRP are compliant with the terms of the plant’s NPDES permit, and that the treated effluent discharged from the LCWRP does not currently contribute to a degradation of water quality in the receiving waters in the form of pollutant loading. Wastewater at the LCWRP would continue to be treated as in the past, and there would be no changes to the treatment process at the WRP that would modify the quality of the effluent discharged. Therefore, the change in volume of treated effluent would not create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code and would not cause the existing LCWRP NPDES permit to be violated. Impacts would be less than significant.

The LCWRP would continue to discharge from LC001 into Reach 1 of the San Gabriel River. It is anticipated that the annual average daily discharge at LC001 would increase or decrease from 25 MGD to a range of 12 to 31 MGD (Table 11-18). The range in monthly average discharges under the program would likely be comparable to baseline conditions (Table 11-5). Change in discharge would occur due to increases in wastewater inflow to the WRP resulting from a growing population within the service area, as well as changes in other factors, such as land use. At the same time, there would be additional allocation of treated effluent that water purveyors in the region would use to meet the state mandate regarding recycled water described in Section 11.3.2.2. Because the volume and temporal variability of discharges from the LCWRP would not change substantially under the program, there is little potential for these changes to cause a regulatory standard to be violated. Impacts would be less than significant.

Beneficial uses in the affected portion of the San Gabriel River (Reach 1), previously detailed in the discussion of SJCWRP discharges to Reach 1, would apply to the LCWRP, which also discharges into Reach 1 of the San Gabriel River. Impacts would be less than significant.

A discussion of proposed operational changes at the WRPs that discharge into the San Gabriel River (i.e., the SJCWRP, LCWRP, and LBWRP) that could affect the San Gabriel River Tidal Prism and Estuary is provided later in this impact analysis.

## Long Beach Water Reclamation Plant – WRP Effluent Management

### Operation

Operation of the LBWRP under the program would result in a change to effluent management at the WRP. This change could result in a violation of regulatory standards, as described for the SJCWRP.

Treated effluent from the LBWRP is discharged in accordance with a current NPDES permit (permit CA0054119). The LBWRP is consistently compliant with the terms of this permit; no effluent violation has been recorded since January 2005. Accordingly, it is assumed that discharges from the LBWRP are compliant with the terms of the plant's NPDES permit and that the treated effluent discharged from the LBWRP does not currently contribute to a degradation of water quality in the receiving waters in the form of pollutant loading. Wastewater at the LBWRP would continue to be treated as in the past, and there would be no changes to the treatment process at the WRP that would modify the quality of the effluent discharged. Therefore, the change in the volume of treated effluent would not create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code and would not cause the existing LBWRP NPDES permit to be violated. Impacts would be less than significant.

The LBWRP would continue to discharge from LB001 into Coyote Creek, just upstream of its confluence with the San Gabriel River. It is anticipated that the annual average daily discharge at LB001 would increase or decrease from 12 MGD to a range of 9 to 14 MGD (Table 11-18). The range in monthly average discharges under the program would likely be comparable to baseline conditions (Table 11-5). Change in discharge would occur due to increases in wastewater inflow to the WRP resulting from a growing population within the service area, as well as changes in other factors, such as land use. At the same time, there would be additional allocation of treated effluent that water purveyors in the region would use to meet the state mandate regarding recycled water described in Section 11.3.2.2. Because the volume and temporal variability of discharges from the LBWRP would not be changed substantially under the program, there is little potential for these changes to cause a regulatory standard to be violated. Impacts would be less than significant.

Beneficial uses in the affected portion of Coyote Creek include existing use RARE; intermittent use REC-2; potential uses IND, PROC, REC-1, WARM, and WILD; and conditional potential use MUN. However, because the proposed changes in effluent management would not result in any substantial changes in the volume and temporal variability of discharges from the LBWRP, there is little potential to affect these beneficial uses. Impacts would be less than significant.

A discussion of proposed operational changes at the WRPs that discharge into the San Gabriel River (i.e., the SJCWRP, LCWRP, and LBWRP) that could affect the San Gabriel River Tidal Prism and Estuary is provided later in this impact analysis.

## Whittier Narrows Water Reclamation Plant – WRP Effluent Management

### Operation

Operation of the WNWRP under the program would result in a change to effluent management at the WRP. This change could result in a violation of regulatory standards, as described for the SJCWRP.

Treated effluent from the WNWRP is discharged in accordance with a current NPDES permit (permit CA0053716). The WNWRP is consistently compliant with the terms of this permit; no violations of effluent standards have occurred since October 2008. Accordingly, it is assumed that discharges from the WNWRP are compliant with the terms of the plant's NPDES permit and that the treated effluent discharged from the WNWRP does not currently contribute to a degradation of water quality in the receiving waters in the form of pollutant loading. Wastewater at the WNWRP would continue to be treated as in the past, and there would be no changes to the treatment process at the WRP that would modify the quality of the effluent discharged. Therefore, anticipated changes in the volume of treated effluent would not create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code and would not cause the existing WNWRP NPDES permit to be violated. Impacts would be less than significant.

The WNWRP currently has the operational flexibility to discharge flows to the San Gabriel River, the Zone 1 Ditch, or the Rio Hondo. Flows from these discharge locations are distributed to the San Gabriel Coastal Spreading Grounds and/or the Rio Hondo Spreading Grounds. The balance of flow to receiving waters can vary greatly from day to day. This flexibility would continue under the program. It is anticipated that the annual daily average flows would increase from 5 to 9 MGD (Table 11-18). The range of monthly average discharges under the program would also likely be comparable to baseline conditions (Table 11-5). Change in discharge would occur due to increases in wastewater inflow to the WRP resulting from a growing population within the service area, as well as changes in other factors, such as land use. At the same time, there would be additional allocation of treated effluent that water purveyors in the region would use to meet the state mandate regarding recycled water described in Section 11.3.2.2. Because the volume and temporal variability of discharges from the WNWRP would not change substantially under the program, there is little potential for these changes to cause a regulatory standard to be violated. Impacts would be less than significant.

WNWRP discharges are made to the San Gabriel River, the Zone 1 Ditch, or the Rio Hondo. Except under flood flows, when WNWRP discharges are a negligible portion of total stream flow, discharges to the San Gabriel River are made to Reach 3 and infiltrated within Reach 3 and Reach 2. Discharges to the Zone 1 Ditch are made to the ditch and infiltrated within the ditch or within the Rio Hondo (Reach 2,

Figure 11-3). Discharges to the Rio Hondo are likewise infiltrated within Reach 2. Designated beneficial uses in these reaches include existing uses GWR, RARE, REC-1, REC-2, WARM, and WILD; intermittent uses GWR, REC-1, REC-2, WARM, and WILD; potential uses IND, PROC, RARE, REC-1, and WARM; and conditional potential use MUN (Table 11-12). Because the proposed changes in effluent management would not result in substantial changes in the volume and temporal variability of discharges from the WNWRP, there is little potential to affect any of these beneficial uses. Impacts would be less than significant.

### San Jose Creek Water Reclamation Plant, Los Coyotes Water Reclamation Plant, and Long Beach Water Reclamation Plant (San Gabriel River Tidal Prism/Estuary) – WRP Effluent Management

#### Operation

Proposed operational changes at the WRPs would result in a net reduction in effluent volumes delivered to the lower San Gabriel River Tidal Prism and Estuary. These changes would alter the volume of fresh water flows and the pollutant loadings being delivered to the tidal prism.

No substantial changes are proposed for the LCWRP and LBWRP, which deliver discharges to the tidal prism (see previous discussion under this impact for effluent management at the LCWRP and LBWRP). Proposed changes in discharge volumes from SJCWRP discharge point SJC001 are likely to be propagated downstream to the tidal prism. The relevant discharge volumes range from an increase of 16 MGD to a reduction of 57 MGD relative to 2008 discharges, with flow reductions more likely to occur than flow increases (Table 11-5 and Table 11-18).

Existing discharge volumes are a minor component of discharges to the tidal prism, which are dominated by seawater discharges from the AES Alamitos and the Los Angeles Department of Water and Power (LADWP) Haynes electrical generating stations. These stations draw seawater for cooling purposes from Alamitos Bay and discharge the warmed seawater to the San Gabriel River. These stations have a combined maximum design cooling water flow of about 2,200 MGD, enough volume to maintain a net outflow to the ocean except on extreme high tides. Actual flow volumes are lower. For instance, during a year-long biological survey in 2006, average flow rates for both facilities combined were approximately 1,400 MGD (MBC 2003:23). These facilities may not be operated in this fashion in the near future, however, as the Long Beach Water Department has plans to deliver recycled water for cooling tower use as part of the city’s Recycled Water Master Plan. However, since the amount and constitution of the water (seawater versus fresh water) that might be released from the generating stations is unknown and therefore, represents a speculative scenario under CEQA, this chapter includes the analysis for 1,400 MGD which is the existing condition. Furthermore, impacts from a cessation of ocean water cooling at Haynes Generating Units 5 and 6 are less than significant for water quality, sea turtles, eelgrass, Pacific groundfish, and coastal pelagics (LADWP 2010).

Current WRP discharges amount to 41 MGD from the SJCWRP, 25 MGD from the LCWRP, and 12 MGD from the LBWRP, totaling 78 MGD (Table 11-5). This represents approximately 5.5 percent of discharges to the tidal prism (assuming cooling water flows from the electrical generating stations equal 1,400 MGD). Under the program, this discharge total would be between 21 and 94 MGD (Table 11-18). This represents between 1.5 percent and 6.7 percent of discharges to the tidal prism. These changes when compared to the existing percentage of discharges to the tidal prism are very small, especially considering the discharge of the electrical generating stations, and thus are unlikely to result in any observable change in either tidal flows or salinity within the estuary. Impacts related to flow volumes would be less than significant.

As previously discussed, all WRPs can be assumed to be compliant with the terms of their NPDES permits. Proposed flow reductions could only decrease pollutant loads derived from WRPs. Thus, there is no potential for proposed WRP effluent management to increase pollutant loading in the tidal prism. Given the dilution factors associated with generating station discharges, proposed changes would not substantially alter existing pollutant loading in the tidal prism. Impacts on pollutant loading and beneficial uses would be less than significant.

## Joint Water Pollution Control Plant – Solids Processing

### Construction

Proposed solids processing facilities include construction of six new 500,000-cubic-foot anaerobic digesters and replacement of the existing sludge dewatering system facilities. The anaerobic digesters would be located at least partially underground within a developed portion of the JWPCP. The dewatering system replacement would entail construction of a new building to house the new dewatering equipment and replacement support systems. Soil type and slope at the JWPCP varies; consequently, erosion potential varies, as shown in Table 11-15. Construction would comply with Appendix J of the Los Angeles County Municipal Code, but construction on site would potentially lead to pollution of receiving waters. The Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize erosion, sedimentation, or other such impacts. Contractors for the proposed solids processing facilities would be required to comply with all local and other regulations as noted.

- City of Carson regulations as required, including implementation of appropriate BMPs that may include a WWECP
- NPDES General Permit for Storm Water Discharges Associated With Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002) for projects where 1 acre or more of soil will be disturbed; preparation of a site-specific SWPPP is required
- WDRs for Discharges of Groundwater From Construction and Project Dewatering to Surface Waters (General NPDES Permit No. CAG994004) preparation of a site-specific dewatering plan is required
- If necessary, individual permits in place of the general permits referenced above if the project does not qualify for a general permit

Because the Sanitation Districts would require the contractor to comply with all applicable regulations and permits, and because the proposed work would occur in a fully developed area without sensitive environmental resources, impacts would be less than significant.

## CEQA Impact Determination

Construction and operation of Alternative 1 (Program) would not create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for receiving waters. Impacts would be less than significant.

### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### *Impact HYD-3. Would Alternative 1 (Program) result in an increased level of groundwater contamination or affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion)?*

## Conveyance System – Conveyance Improvements

### Construction

Conveyance system improvements would occur within the JOS service area but the precise locations of the planned conveyance improvements and the appropriate construction techniques are not yet known. Construction would generally take place in the existing public rights-of-way because that is the current location of the conveyance system. Conveyance system improvements could result in groundwater contamination due to release of contaminants such as fuels or lubricants during conveyance construction activities. Pollutants associated with construction activities and their typical sources are identified in Table 11-21. Because the Sanitation Districts would require the contractor to comply with all applicable regulations and permits, as noted under Impact HYD-1 (Program), and because the proposed work would occur in areas of predominately low environmental sensitivity (public rights-of-way), impacts would be less than significant. For areas where environmental sensitivity is high or unknown, the Sanitation Districts would be required to conduct subsequent CEQA review.

## San Jose Creek Water Reclamation Plant – Plant Expansion

### Construction

Construction would take place within the existing SJCWRP boundary on vegetated surfaces (lawns). Construction and excavation causes soil to be exposed, at which time contamination of groundwater could occur due to spills of contaminants, such as fuels or lubricants. Pollutants associated with construction activities and their typical sources are identified in Table 11-21. As discussed under Impact HYD-1 (Program), the Sanitation Districts would require the contractor to comply with all applicable regulations and permits. Moreover, the work would occur on site in an area of low environmental sensitivity (lawns). Therefore, impacts would be less than significant.

## San Jose Creek Water Reclamation Plant, Pomona Water Reclamation Plant, Los Coyotes Water Reclamation Plant, and Long Beach Water Reclamation Plant – Process Optimization

### Construction

Depths to groundwater at the WRPs range from 3 feet to 30 feet (Table 11-14). Construction associated with process optimization would include excavation to approximately 30 feet bgs, and groundwater has the potential to seep into the excavated areas at all sites. Construction of process optimization would contact groundwater, and could lead to groundwater contamination. Construction contaminants identified in Table 11-21, excluding sediment, could percolate into the elevated groundwater, causing contamination. The Sanitation Districts would require contractors to comply with all applicable regulations and permits, as noted under Impact HYD-1 (Program). Moreover, the proposed work would occur at sites of low environmental sensitivity (existing WRP facilities). Therefore, impacts would be less than significant.

## San Jose Creek Water Reclamation Plant – WRP Effluent Management

### Operation

The SJCWRP has four effluent discharge points. SJC001 discharges to a portion of the San Gabriel River that is lined from above the discharge point to the San Gabriel River Tidal Prism and Estuary. This lining maintains a separation between surface and groundwater. Therefore, proposed changes in WRP discharges at this discharge point would not infiltrate groundwater and would not result in an increased level of groundwater contaminants. Impacts would be less than significant.

SJC002 discharges to an unlined portion of San Jose Creek, and SJC003 and SJC001A both discharge to the unlined portion of the San Gabriel River. Because the locations and volumes of discharges would not substantially change relative to existing conditions, the program would not affect either the level of groundwater contamination or affect the transport of existing groundwater contamination. Impacts would be less than significant.

A discussion of proposed operational changes at the WRPs that discharge into the San Gabriel River (i.e., the SJCWRP, LCWRP, and LBWRP) that could affect the San Gabriel River Tidal Prism and Estuary is provided later in this impact analysis.

## Pomona Water Reclamation Plant – WRP Effluent Management

### Operation

The POWRP discharge point PO001 is the principal source of discharge to the San Jose Creek tributary that receives the discharge, and contributes approximately one-third of dry-season flow in the receiving section of San Jose Creek. Proposed POWRP effluent management would not alter discharge rates substantially compared to 2008 baseline conditions (Table 11-18). Therefore, the program does not have the potential to change surface water to groundwater interaction in any unlined channel sections downstream of the POWRP (specifically, the lower 6,000 feet of San Jose Creek and the San Gabriel River downstream from that point to the San Gabriel Coastal Spreading Grounds). Impacts would be less than significant.

## Los Coyotes Water Reclamation Plant and Long Beach Water Reclamation Plant – WRP Effluent Management

### Operation

Both the LCWRP and LBWRP discharge to Reach 1 of the San Gabriel River. The river is fully lined from above the discharge points to the San Gabriel River Tidal Prism and Estuary. This lining maintains a separation between surface and groundwater. Moreover, no substantial changes in discharge volume from these WRPs are projected to occur. Therefore, proposed changes in LBWRP and LCWRP discharges do not have the potential to infiltrate groundwater or result in an increased level of groundwater contaminants. Impacts would be less than significant.

A discussion of proposed operational changes at the WRPs that discharge into the San Gabriel River (i.e., the SJCWRP, LCWRP, and LBWRP) that could affect the San Gabriel River Tidal Prism and Estuary is provided later in this impact analysis.

## Whittier Narrows Water Reclamation Plant – WRP Effluent Management

### Operation

The WNWRP has the operational flexibility to discharge flows to the San Gabriel River, the Zone 1 Ditch, or the Rio Hondo. Flows from these discharge locations are distributed to the San Gabriel Coastal Spreading Grounds and/or the Rio Hondo Spreading Grounds. The balance of flow to receiving waters can vary greatly from day to day. In general, over 50 percent of the WNWRP's treated flow would be delivered to either spreading ground over the course of a year. The current average annual discharge of 5 MGD would be increased to approximately 9 MGD and would, as now, function primarily to infiltrate to groundwater at the spreading grounds. The discharge would continue to be tertiary-treated and meet all NPDES permit requirements as it currently does. Because no potential groundwater contamination issues have been identified with regard to current practices at the spreading grounds, the proposed increases in effluent discharge do not have the potential to result in an increased level of groundwater contaminants. Impacts would be less than significant.

## San Jose Creek Water Reclamation Plant, Los Coyotes Water Reclamation Plant, and Long Beach Water Reclamation Plant (San Gabriel River Tidal Prism/Estuary) – Effluent Management

### Operation

As discussed under Impact HYD-1 (Program), existing WRP discharges represent a 5.5 percent of total discharges to the tidal prism, which is dominated by seawater discharges from the AES Alamitos and LADWP Haynes electrical generating stations. Under the program, the discharge would represent between 1.5 percent and 6.7 percent of discharges to the tidal prism. These changes, when compared to the existing percentage of discharges to the tidal prism, are very small and thus are unlikely to result in any observable change in either tidal flows or salinity within the estuary. Proposed discharges would have a negligible potential to affect salinity in the tidal prism. Impacts on saltwater intrusion would be less than significant.

## Joint Water Pollution Control Plant – Solids Processing

### Construction

Proposed solids processing facilities include construction of six new 500,000-cubic-foot anaerobic digesters and replacement of the existing sludge dewatering system facilities. The anaerobic digesters would be located at least partially underground within a developed portion of the JWPCP. Replacement of the sludge dewatering system facilities would entail construction of a new building to house the new dewatering equipment and replacement of support systems. Construction could contact groundwater, and could lead to groundwater contamination. Construction contaminants identified in Table 11-21, excluding sediment, could percolate to groundwater, causing contamination. However, the Sanitation Districts would require all contractors to comply with all applicable regulations and permits, as noted under Impact HYD-1 (Program). Moreover, the work would be performed in an area of low environmental sensitivity (the existing JWPCP site). Impacts would be less than significant.

### CEQA Impact Determination

Construction and operation of Alternative 1 (Program) would not result in an increased level of groundwater contamination or affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion). Impacts would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### *Impact HYD-4. Would Alternative 1 (Program) cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations Title 22, Division 4, Chapter 15, and in the Safe Drinking Water Act?*

### San Jose Creek Water Reclamation Plant, Pomona Water Reclamation Plant, and Whittier Narrows Water Reclamation Plant – WRP Effluent Management

#### Operation

As part of the Sanitation Districts' water reuse program, treated effluent is released to the San Gabriel River and the Rio Hondo and conveyed to the San Gabriel Coastal Spreading Grounds and the Rio Hondo Spreading Grounds. The spreading grounds sustain the groundwater supply for the production wells that are part of the Central Basin's potable water supply. There are approximately 19 production wells located within proximity of the Rio Hondo and San Gabriel Coastal Spreading Grounds (Water Replenishment District 2008) and over 100 production wells in the Central Basin.

Under the program, the Sanitation Districts' discharge into receiving waters would continue to be tertiary treated and, therefore, suitable for recharge purposes. The Water Replenishment District and the water purveyors who operate the production wells monitor groundwater quality per Title 22. The Water Replenishment District limits the amount of treated effluent recharged per Order Nos. 91-100 and R4-2009-0048. Under the program, it is anticipated that the Water Replenishment District would continue to receive tertiary-treated effluent under contract with the Sanitation Districts. As discussed under Impact HYD-3 (Program), proposed changes in discharge volumes would have little potential to change the surface water to groundwater interaction in unlined channels of receiving waters. Furthermore, because the discharge is tertiary treated and the percentage of overall recharge that can be treated effluent is regulated, effluent management from the POWRP, SJCWRP, and WNWRP would not cause regulatory water quality standards at an existing production well to be violated. Impacts would be less than significant.

A discussion of proposed operational changes at the WRPs that discharge into the San Gabriel River (including the SJCWRP) that could affect the San Gabriel River Tidal Prism and Estuary is provided below.

### San Jose Creek Water Reclamation Plant, Los Coyotes Water Reclamation Plant, and Long Beach Water Reclamation Plant (San Gabriel River Tidal Prism/Estuary) – WRP Effluent Management

**Operation**

As discussed under Impact HYD-1 (Program), proposed operational changes at the WRPs could result in a net reduction in effluent volumes delivered to the lower San Gabriel River Tidal Prism and Estuary. Such changes would alter the volume of fresh water flows entering the tidal prism, potentially resulting in increased salinity within the tidal prism and a resultant increase in saltwater intrusion within connected aquifers. This could result in saltwater contamination at existing production wells.

However, as discussed under Impact HYD-1 (Program), existing WRP discharges only amount to 5.5 percent of total discharges to the tidal prism. Under the program, these discharges would represent between 1.5 and 6.7 percent of total discharges to the tidal prism. Proposed discharges would have a negligible potential to affect salinity in the tidal prism. Impacts related to contamination by saline groundwater at existing production wells would be less than significant.

### CEQA Impact Determination

Operation of Alternative 1 (Program) would not cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations, Title 22, Division 4, Chapter 15, and in the Safe Drinking Water Act. Impacts would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### *Impact HYD-5. Would Alternative 1 (Program) 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 erosion or siltation on site or off site?*

### Conveyance System – Conveyance Improvements

**Construction**

During construction, site drainage would be altered due to excavation, soil stockpiling, dewatering, etc., and these activities could lead to erosion or siltation on or off site caused primarily by an increase in exposed soils. Because the precise location of the planned conveyance improvements and the appropriate construction techniques are not known at this time, the specific location of potential effects cannot be determined. However, the Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize any impacts. These standard practices and bid requirements are used as appropriate on conveyance system construction projects for both the installation of new sewers and the rehabilitation of existing sewers. Contractors would be required to comply with all applicable regulations and permits as noted under Impact HYD-1 (Program). Moreover, the work would generally be performed in areas of low environmental sensitivity (public rights-of-way). Therefore, impacts would be less than significant.

### San Jose Creek Water Reclamation Plant – Plant Expansion; San Jose Creek Water Reclamation Plant, Pomona Water Reclamation Plant, Los Coyotes Water Reclamation Plant, and Long Beach Water Reclamation Plant – Process Optimization

#### Construction

As described for the conveyance system, the Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize erosion or siltation. Contractors for the construction of process optimization at the SJCWRP, POWRP, LCWRP, and LBWRP would be required to comply with all applicable regulations and permits as noted under Impact HYD-1 (Program). Moreover, the work would be performed in areas of low environmental sensitivity (existing WRP facilities). Therefore, impacts would be less than significant.

### San Jose Creek Water Reclamation Plant, Pomona Water Reclamation Plant, and Whittier Narrows Water Reclamation Plant – WRP Effluent Management

#### Operation

Effluent discharges would occur to the same receiving waters as occur now, and in similar volumes. There would be no impact.

### Joint Water Pollution Control Plant – Solids Processing

#### Construction

Construction of the solids processing anaerobic digesters would occur approximately 30 feet bgs. During construction, site drainage would be altered due to excavation, soil stockpiling, dewatering, etc., and these activities could lead to erosion or siltation on or off site caused primarily by an increase in exposed soils. The Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize erosion or siltation. Contractors for the proposed solids processing facilities would be required to comply with all applicable regulations and permits as noted under Impact HYD-1 (Program). Moreover, the work would be performed in an area of low environmental sensitivity (the existing JWPCP). Impacts would be less than significant.

### CEQA Impact Determination

Construction of Alternative 1 (Program) would not 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 erosion or siltation on site or off site. Impacts would be less than significant. Operation of Alternative 1 (Program) would have no impacts.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### *Impact HYD-7. Would Alternative 1 (Program) 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?*

## Conveyance System – Conveyance Improvements

### Construction

Runoff could be generated during the construction of the conveyance improvements due to the need to wet down the soil for dust control if employed improperly or if pollutants, such as sediments, were to increase in concentration. This could result in runoff in amounts that would overwhelm the stormwater drainage system. However, the Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize any construction-related runoff impacts. These standard practices and bid requirements are used as appropriate on conveyance system construction projects for both the installation of new sewers and the rehabilitation of existing sewers. Contractors would be required to comply with all applicable regulations and permits as noted under Impact HYD-1 (Program). Moreover, the work would generally be performed in areas of low environmental sensitivity (public rights-of-way). Therefore, impacts would be less than significant.

## San Jose Creek Water Reclamation Plant – Plant Expansion

### Construction

Stormwater controls would be necessary to prevent runoff in amounts that would overwhelm the stormwater drainage system and to prevent pollutants, such as sediments, to increase in concentration. The Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to prevent or reduce pollutants in runoff. Contractors would be required to comply with all applicable regulations and permits as noted under Impact HYD-1 (Program). Moreover, the work would be performed in an area of low environmental sensitivity (the existing WRP facilities). Therefore, impacts to be less than significant.

## San Jose Creek Water Reclamation Plant, Pomona Water Reclamation Plant, Los Coyotes Water Reclamation Plant, and Long Beach Water Reclamation Plant – Process Optimization

### Construction

Stormwater controls would be necessary to prevent runoff in amounts that would overwhelm the stormwater system. The Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to prevent runoff from construction. Contractors for the construction of process optimization at the SJCWRP, POWRP, LCWRP, and LBWRP would be required to comply with all applicable regulations and permits as noted under Impact HYD-1 (Program). Moreover, the work would be performed in areas of low environmental sensitivity (existing WRP facilities). Therefore, impacts would be less than significant.

## Joint Water Pollution Control Plant – Solids Processing

### Construction

Stormwater controls would be necessary to prevent runoff in amounts that would overwhelm the system and to prevent pollutants, such as sediments, to increase in concentration. The Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to prevent or reduce pollutants in runoff. Contractors for the construction of the solids processing facilities would be required to comply with all applicable regulations and permits as noted under Impact HYD-1 (Program). Moreover, the work would be performed in areas of low environmental sensitivity (the existing JWPCP). Therefore, impacts would be less than significant.

## CEQA Impact Determination

Construction of Alternative 1 (Program) would not 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. Impacts would be less than significant.

### Mitigation

No mitigation is required.

### Residual Impacts

Impacts would be less than significant.

## *Impact HYD-11. Would Alternative 1 (Program) be subject to inundation by seiche, tsunami, or mudflow?*

## Pomona Water Reclamation Plant – Process Optimization

### Construction

The POWRP is located below Elephant Hill, and portions of the site are in a landslide hazard area. Elephant Hill is designated as open space and is not regularly maintained. While the risk to the site from a wildfire is low, a fire on Elephant Hill would leave the slope exposed and more vulnerable to mudflows. A mudflow is a flooding condition in which the river of liquid and flowing mud moves on the surface of normally dry land areas (NFIP 2010). The charred and exposed soil in burned areas can become saturated during rains, and properties that were directly affected by the fire and those located below or downstream of the burn areas would be at risk once the winter rainy season commences. It can take up to 5 years for the vegetation to return to its previous state. Without vegetation, soils on steep slopes can become saturated during rains, liquefy, and then flow down hills as powerful mudflows.

During construction of the process optimization facilities, severe weather or the combination of severe weather and post-burn conditions could expose construction workers and equipment to a risk from mudflows. In consideration of existing fire control policies, the absence of fire from the area in recent years, and the relatively brief time frame of construction, this risk is small but real. Impacts would be significant before mitigation. Implementation of Mitigation Measure (MM) HYD-11 would reduce impacts to less than significant.

#### Operation

The process optimization facilities would be placed predominately underground and, therefore, would not be subject to mudflows. Impacts during operations would be less than significant.

### CEQA Impact Determination

Construction of process optimization at the POWRP for Alternative 1 (Program) would be subject to inundation by seiche, tsunami, or mudflow. Impacts would be significant before mitigation. Operation of Alternative 1 (Program) would result in less than significant impacts.

#### Mitigation

**MM HYD-11.** During the final design process, perform a geotechnical investigation. If it is determined that there is a potential for mudflow during construction of process optimization at the Pomona Water Reclamation Plant due to risks associated with severe weather or the combination of severe weather and post-burn conditions on Elephant Hill, a construction safety plan will be developed prior to construction activities and will include procedures to avoid risks to workers during the construction period. Procedures could include sandbagging and reseeding the burned area immediately following a fire to reestablish vegetation to buffer rainfall and promote a root system to help secure soil in place. Additionally, weather patterns will be monitored and construction will cease if weather could contribute to mudflow conditions.

#### Residual Impacts

The construction site for process optimization at POWRP would be at risk of a landslide if the vegetation cover on Elephant Hill were to burn and subsequently be subject to a prolonged period of heavy rain. Implementation of MM HYD-11 would minimize risks to construction workers and capital improvements. Residual impacts would be less than significant.

## 11.4.3.2 Project

### *Impact HYD-1. Would Alternative 1 (Project) create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving waterbody?*

### Shaft Sites – JWPCP East, TraPac, LAXT, and Southwest Marine

#### Construction

#### CEQA Analysis

There are two possible construction activities that could cause conditions resulting in a violation of regulatory standards at these shaft sites: (1) the construction of the shafts and (2) the generation of the slurry and nuisance water during tunneling. Therefore, water quality could be impaired in receiving waters through spillage of contaminants from construction equipment use at the shaft sites, erosion from exposed soils, or improper disposal of nuisance water or slurry removed from the tunnel that must be dewatered at the working shaft sites.

Contaminant spills could result from leakage or spillage of construction chemicals such as fuels, lubricants, paints, and other pollutants listed in Table 11-21. Such spilled materials could be conveyed in runoff during rainfall events. Discharge of dewatering waters may impair surface water quality. As discussed in Chapter 10, the JWPCP East shaft site is known to have existing contaminated groundwater and the TraPac, LAXT, and Southwest Marine shaft sites are in close proximity to contaminated sites with the potential to affect groundwater. Depth to groundwater at the shaft sites ranges from 10 to 15 feet bgs at the Southwest Marine, LAXT, TraPac shaft sites, and 25 to 30 feet bgs at the JWPCP East shaft site (Table 11-17). As shown in Table 11-17, the depth of the shaft would range from 115 to 170 feet bgs, depending on location. Construction would come into contact with groundwater. The volume of dewatering required would depend, in part, upon the shaft construction method, which was discussed in Section 11.4.1.2.

The Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize any impacts. These standard practices and bid requirements are used as appropriate on construction projects. In general, contractors are required to comply with all local and other regulations as noted.

- City of Carson and LACDPW regulations as required, including implementation of appropriate BMPs that may include a WWECP
- NPDES General Permit for Storm Water Discharges Associated With Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002) for projects where 1 acre or more of soil will be disturbed; preparation of a site-specific SWPPP is required
- WDRs for Discharges of Groundwater From Construction and Project Dewatering to Surface Waters (General NPDES Permit No. CAG994004); preparation of a site-specific dewatering plan is required
- If necessary, individual permits in place of the general permits referenced herein if the project does not qualify for a general permit

Because the Sanitation Districts would require the contractor to comply with all applicable stormwater, dewatering, and water quality regulations and permits, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction of Alternative 1 (Project) would not create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving waterbody. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 1 (Project) would not create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving waterbody. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### *Impact HYD-2. Would Alternative 1 (Project) adversely change the level, rate, or direction of flow of groundwater?*

### Shaft Sites – JWPCP East, TraPac, LAXT, and Southwest Marine

#### Construction

#### CEQA Analysis

As discussed under Impact HYD-1 (Project), construction of the shafts would come in contact with groundwater. The alteration of groundwater would be minimized by the use of construction techniques. For example, as discussed in Section 11.4.1.2, each of the three techniques proposed for shaft excavation incorporates measures that greatly retard potential leakage of groundwater into the excavation. Slurry diaphragm walls do this by creating hydraulic pressures within the excavation that equalize hydraulic pressure within the groundwater, while ground freezing and sequential excavation minimize groundwater intrusion by placing an impervious barrier between groundwater and the excavation. Use of these methods would minimize the potential to alter the direction of groundwater flow. The largest of the shafts would be the working shaft; depending on construction method used, the shaft may preclude groundwater movement over a distance of as much as 60 feet in diameter. This is a small cross-section relative to the areal extent of groundwater units (aquifers) and would not substantially impede groundwater flow. The remaining shafts would have smaller diameters and a proportionally smaller potential to impede groundwater flow. Therefore, impacts on the level, rate, and direction of groundwater flow would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

#### Operation

#### CEQA Analysis

Operational impacts would be the same as construction impacts; once operational, the shafts would block a portion of the groundwater flow. However, each shaft would have a small cross-section relative to the areal extent of various groundwater units. Therefore, impacts of the operating shaft on groundwater flow would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the operational life of the structure. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction and operation of Alternative 1 (Project) would not adversely change the level, rate, or direction of flow of groundwater. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction and operation of Alternative 1 (Project) would not adversely change the level, rate, or direction of flow of groundwater. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

## *Impact HYD-3. Would Alternative 1 (Project) result in an increased level of groundwater contamination or affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion)?*

### Tunnel Alignment – Wilmington to San Pedro Shelf (Onshore)

**Construction**

#### CEQA Analysis

Construction of the onshore tunnel could result in an increased level of groundwater contamination or affect the fate and transport of existing groundwater contamination by existing contaminated groundwater entering the tunnel during construction, or, by temporarily halting one of the Dominguez Gap Barrier Project injection wells, could allow saltwater intrusion into existing aquifers.

As discussed under Impact HYD-1 (Project) and HYD-2 (Project), there is typically some leakage from groundwater into the excavation area around the TBM cutting head. Furthermore, some water typically enters the excavation by entrainment in cuttings. As previously discussed in HYD-2 (Project), there is very little potential for tunneling to affect the rate and direction of groundwater flow. Furthermore, volumes would be minimized because of the methods of tunnel construction. Therefore, impacts would be less than significant.

During construction of the onshore tunnel, the alignment would extend past the Dominguez Barrier Gap Project injection well on E Street. As discussed in Section 11.2.3.1, the injections wells of the Dominguez Barrier Gap Project inject fresh water into the aquifers to prevent saltwater intrusion. The TBM would be designed to accommodate pressures required to prevent leakage of injection well water into the tunnel. Additionally, construction would not result in the temporary shutdown of any of the injection wells. Therefore, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## Shaft Sites – JWPCP East, TraPac, LAXT, and Southwest Marine

### Construction

#### CEQA Analysis

Groundwater contamination could occur in association with spills within the shaft excavation or on the ground surface in the construction area. Shaft construction also has the potential to affect existing groundwater contamination, primarily by affecting the direction and rate of groundwater flow via construction and any associated dewatering activities.

Contaminant spills could occur through leakage or spillage of construction chemicals such as fuels, lubricants, paints, and other pollutants listed in Table 11-21. Such spilled materials could then infiltrate to groundwater or contact dewatering discharge.

As discussed in Chapter 10, the JWPCP East shaft site is known to have existing contaminated groundwater (the site is currently under remediation) and the TraPac, LAXT, and Southwest Marine shaft sites are within close proximity of areas known to have contaminated soil and/or groundwater. As discussed under Impact HYD-1 (Program and Project), dewatering is required when groundwater seeps into excavated areas during construction. The removal of groundwater from the shafts could result in the migration of groundwater, and any contamination within it, throughout the subsurface. However, as discussed in HYD-2, the techniques employed to construct the shafts would minimize the need for dewatering and, therefore, reduce the potential for any groundwater contamination to migrate. Therefore, it is unlikely that dewatering would affect the fate of existing contaminated groundwater.

As discussed under Impact HYD-1 (Project), because the Sanitation Districts would require the contractor to comply with all applicable dewatering and water quality regulations and permits, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## CEQA Impact Determination

Construction of Alternative 1 (Project) would not result in an increased level of groundwater contamination or affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion). Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 1 (Project) would not result in an increased level of groundwater contamination or affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion). Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### *Impact HYD-4. Would Alternative 1 (Project) cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations, Title 22, Division 4, Chapter 15, and in the Safe Drinking Water Act?*

### Tunnel Alignment – Wilmington to San Pedro Shelf (Onshore)

**Construction**

#### CEQA Analysis

As discussed under Impact HYD-2 (Project), construction of the onshore tunnel alignment would not substantially change groundwater flows (direction or rate). Furthermore, as discussed previously under Impact HYD-3 (Project), construction would have a less than significant impact on groundwater contamination and the Dominguez Gap Barrier Project injection wells. Therefore, production wells would not be affected by construction of the onshore tunnel alignment. Impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### Shaft Sites – JWPCP East

**Construction**

#### CEQA Analysis

Shaft construction could potentially violate regulatory water quality standards at an existing production well, either by introducing contaminants to groundwater, or by altering groundwater flow in a manner that would alter the distribution of existing contaminated groundwater.

The potential for shaft site construction to introduce contaminants to the groundwater is analyzed under Impact HYD-3 (Project). As discussed in Impacts HYD-1 and HYD-3 (Project), the Sanitation Districts would require the contractor to comply with all applicable stormwater, dewatering, and water quality regulations and permits. In addition, no existing production wells have been identified that could be affected by shaft site construction activities. Therefore, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction of Alternative 1 (Project) would not cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations Title 22, Division 4, Chapter 15, and in the Safe Drinking Water Act. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 1 (Project) would not cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations, Title 22, Division 4, Chapter 15, and in the Safe Drinking Water Act. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

## *Impact HYD-5. Would Alternative 1 (Project) substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site?*

## Shaft Sites – JWPCP East, TraPac, LAXT, and Southwest Marine

### Construction

#### CEQA Analysis

There are no existing waterbodies located on the shaft sites. The TraPac, LAXT, and Southwest Marine shaft sites are primarily covered by impervious surfaces. The JWPCP East shaft site is currently a vacant disturbed lot with some impervious surfaces associated with the remediation facilities. Under existing conditions, stormwater flows and other runoff are conveyed to surface waters via existing stormwater systems within the immediate vicinity of the shaft sites. The Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize any impacts. These standard practices and bid requirements are used as appropriate on construction projects. Contractors would be required to comply with all applicable regulations and permits as noted under Impact HYD-1 (Project). Moreover, the work would be performed in an area of low environmental sensitivity (previously developed, impervious surfaces or disturbed vegetation). Therefore, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction of Alternative 1 (Project) would not 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 erosion or siltation on site or off site. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 1 (Project) would not 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 erosion or siltation on site or off site. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

## *Impact HYD-7. Would Alternative 1 (Project) 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?*

### Shaft Sites – JWPCP East, TraPac, LAXT, and Southwest Marine

#### <u>Construction</u>

#### CEQA Analysis

As discussed under Impact HYD-1 (Project), construction at the shaft sites would result in surface disturbance that could involve a significant volume of runoff water. However, the Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize any impacts. These standard practices and bid requirements are used as appropriate on construction projects. Contractors would be required to comply with applicable regulations and permits as noted under Impact HYD-1 (Project). Therefore, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction of Alternative 1 (Project) would not 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. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 1 (Project) would not 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. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

## *Impact HYD-11. Would Alternative 1 (Project) be subject to inundation by seiche, tsunami, or mudflow?*

### Shaft Sites – TraPac, LAXT, and Southwest Marine

#### Construction

#### CEQA Analysis

Shaft sites in the Port of Los Angeles are located in a highly developed area with shallow to flat topography. Mudflows would not occur at the shaft sites due to the lack of steep slopes and lack of exposed natural ground. A seiche is also unlikely due to a lack of confined bodies of water (e.g., lakes or ponds) in the area.

The TraPac, LAXT, and Southwest Marine shaft sites are located in the Port of Los Angeles, which is located in a tsunami zone. A model has been developed specifically for the Los Angeles and Long Beach Port Complex to predict tsunami wave heights. The model specifically examined seven different earthquake- and landslide-generated tsunami scenarios and considered local landfill configurations, bathymetric features, and the interaction of tsunami wave propagation to predict tsunami wave heights that could affect the port complex (Moffatt and Nichol 2007). The model predicts tsunami wave heights with respect to mean sea level, which is a reasonable, average condition under which a tsunami might occur (Moffatt and Nichol 2007). The tsunami study identified the lowest deck elevations throughout the

Port of Los Angeles using various sources of data; these locations included Angels Gate, Pier 400, Pier 300, the Los Angeles Main Channel entrance, the Vincent Thomas Bridge, and the Los Angeles West Channel. Based on the model results, it appears none of the shaft sites would be susceptible to overtopping by a tsunami with characteristics defined by the model (Moffatt and Nichol 2007). Additionally, because of the location of the port complex (i.e., along the California coast), the tsunami risk is considered by the Los Angeles Harbor Department (LAHD) as the average or normal condition for most on- and near-shore locations in Southern California (Port of Los Angeles 2009). Finally, due to the infrequent occurrence of surface fault rupture as described by the model and the short duration of construction, the probability that a seismic event and subsequent tsunami would coincide with construction activities is very low.

Discussed in greater detail in Chapter 16, these three shaft sites would be subject to the following emergency response and evacuation plans: Part 1926, Section 800, of Title 29 of the CFR; Part 1910 of Title 29 of the CFR; the Confined Space Entry Program; Title 8, Subchapter 20, Tunnel Safety Orders, of the CCR; the LAHD Emergency Procedures Plan; the City of Los Angeles Emergency Operations Master Plan; the Harbor Fire Protection Master Plan; and the Los Angeles County Operational Area Emergency Response Plan. The Los Angeles Emergency Operations Master Plan and Procedures includes the Los Angeles Harbor Department Plan and Tsunami Response Plan Annex, which details the responsibilities of the LAHD, the City of Los Angeles, and the City of Los Angeles Emergency Management Department in the event of a tsunami. The annex identifies evacuation routes for the San Pedro and harbor areas and specifies evacuation locations. According to the plan, the mission of the LAHD with respect to a tsunami is to provide employees, tenants, and the public with a safe, well planned, and organized method of evacuating the Port of Los Angeles area. The plan outlines several actions for which the Los Angeles Port Police are responsible, including following the established evacuation checklist, evacuating the affected tsunami inundation zone, and activating notification procedures. Additionally, an Annex: Tsunami Preparedness and Response Plan (Sanitation Districts 2008) has been developed by the Sanitation Districts in support of the Los Angeles County Operational Area Emergency Response Plan Tsunami Annex (Los Angeles County Office of Emergency Management 2006). As discussed in Chapter 16, the contractor would adhere to all emergency response and evacuation regulations, ensuring compliance with existing emergency response plans.

Based on the low probability of a tsunami occurring during construction and the emergency plans currently in place to manage a tsunami should one occur, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## Riser/Diffuser Area – San Pedro Shelf and Existing Ocean Outfalls

### Construction

#### CEQA Analysis

The riser and diffuser areas are not at risk for mudflows or seiches due to the lack of exposed steep slopes or confined bodies of water in the area. Furthermore, these areas are located in the ocean and, therefore, not subject to mudflows or seiches.

However, the SP Shelf riser and diffuser area and the existing ocean outfalls are located in a tsunami zone. Fault rupture, if it were to occur, could generate a tsunami large enough to affect these sites. However, due to the infrequent occurrence of surface fault rupture and the short duration of construction, the probability that a seismic event and subsequent tsunami would coincide with construction activities is very low. Construction workers would either be in boats, barges, or on a platform above the riser. Typically, a seiche or tsunami does not have an impact on boats because the wave travels under the boat. Construction platforms on the SP Shelf would be built to withstand seismic activity and related wave action. Risk of exposure to tsunami is considered by the LAHD as the average or normal condition for most on- and near-shore locations in Southern California (Port of Los Angeles 2009). Impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

### CEQA Impact Determination

Construction of Alternative 1 (Project) would not be subject to inundation by seiche, tsunami, or mudflow. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 1 (Project) would not be subject to inundation by seiche, tsunami, or mudflow. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### 11.4.3.3 Impact Summary – Alternative 1

Impacts on hydrology, water quality (fresh water), and public health analyzed in this EIR/EIS for Alternative 1 are summarized in Table 11-22 and Table 11-23. The proposed mitigation, where feasible, and the significance of the impact before and following mitigation are also listed in the tables.

**Table 11-22. Impact Summary – Alternative 1 (Program)**

| Program Element | Impact Determination Before Mitigation | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|
| Impact HYD-1. Would Alternative 1 (Program) create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving waterbody? | | | |
| Conveyance System | | | |
| Conveyance Improvements | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| SJCWRP | | | |
| Plant Expansion | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Effluent Management | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| POWRP | | | |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Effluent Management | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| LCWRP | | | |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Effluent Management | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| LBWRP | | | |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Effluent Management | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| WNWRP | | | |
| Effluent Management | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| JWPCP | | | |
| Solids Processing | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Impact HYD-3. Would Alternative 1 (Program) result in an increased level of groundwater contamination or affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion)? | | | |
| Conveyance System | | | |
| Conveyance Improvements | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |

**Table 11-22 (Continued)**

| Program Element | Impact Determination Before Mitigation | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|
| SJCWRP | | | |
| Plant Expansion | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Effluent Management | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| POWRP | | | |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Effluent Management | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| LCWRP | | | |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Effluent Management | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| LBWRP | | | |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Effluent Management | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| WNWRP | | | |
| Effluent Management | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| JWPCP | | | |
| Solids Processing | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Impact HYD-4. Would Alternative 1 (Program) cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations, Title 22, Division 4, and Chapter 15 and in the Safe Drinking Water Act? | | | |
| SJCWRP | | | |
| Effluent Management | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| POWRP | | | |
| Effluent Management | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |

**Table 11-22 (Continued)**

| Program Element | Impact Determination Before Mitigation | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|
| LCWRP | | | |
| Effluent Management | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| LBWRP | | | |
| Effluent Management | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| WNWRP | | | |
| Effluent Management | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| Impact HYD-5. Would Alternative 1 (Program) 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 erosion or siltation on site or off site? | | | |
| Conveyance System | | | |
| Conveyance Improvements | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| SJCWRP | | | |
| Plant Expansion | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Effluent Management | CEQA<br>No Impact During Operation | No mitigation is required. | CEQA<br>No Impact During Operation |
| POWRP | | | |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Effluent Management | CEQA<br>No Impact During Operation | No mitigation is required. | CEQA<br>No Impact During Operation |
| LCWRP | | | |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| LBWRP | | | |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| WNWRP | | | |
| Effluent Management | CEQA<br>No Impact During Operation | No mitigation is required. | CEQA<br>No Impact During Operation |
| JWPCP | | | |
| Solids Processing | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |

**Table 11-22 (Continued)**

| Program Element | Impact Determination Before Mitigation | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|
| Impact HYD-7. Would Alternative 1 (Program) 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? | | | |
| Conveyance System | | | |
| Conveyance Improvements | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| SJCWRP | | | |
| Plant Expansion | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| POWRP | | | |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| LCWRP | | | |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| LBWRP | | | |
| Process Optimization | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| JWPCP | | | |
| Solids Processing | CEQA<br>Less Than Significant Impact During Construction | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| Impact HYD-11. Would Alternative 1 (Program) be subject to inundation by seiche, tsunami, or mudflow? | | | |
| POWRP | | | |
| Process Optimization | CEQA<br>Significant Impact During Construction | MM HYD-11. During the final design process, perform a geotechnical investigation. If it is determined that there is a potential for mudflow during construction of process optimization at the Pomona Water Reclamation Plant due to risks associated with severe weather or the combination of severe weather and post-burn conditions on Elephant Hill, a construction safety plan will be developed prior to construction activities and will include procedures to avoid risks to workers during the construction period. Procedures could include sandbagging and reseeding the burned area immediately following a fire to reestablish vegetation to buffer rainfall and promote a root system to help secure soil in place. Additionally, weather patterns will be monitored and construction will cease if weather could contribute to mudflow conditions. | CEQA<br>Less Than Significant Impact During Construction |

### Table 11-22 (Continued)

| Program Element | Impact Determination Before Mitigation | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|
| | CEQA<br>Less Than Significant Impact During Operation | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |

### Table 11-23. Impact Summary – Alternative 1 (Project)

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact HYD-1. Would Alternative 1 (Project) create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving waterbody? | | | | |
| Shaft Site | | | | |
| JWPCP East | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| TraPac | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| LAXT | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Southwest Marine | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Impact HYD-2. Would Alternative 1 (Project) adversely change the level, rate, or direction of flow of groundwater? | | | | |
| Shaft Site | | | | |
| JWPCP East | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |

**Table 11-23 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| | CEQA<br>Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| | NEPA<br>Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Operation |
| TraPac | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| | CEQA<br>Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| | NEPA<br>Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Operation |
| LAXT | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| | CEQA<br>Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| | NEPA<br>Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Operation |
| Southwest Marine | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| | CEQA<br>Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| | NEPA<br>Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Operation |

## Table 11-23 (Continued)

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact HYD-3. Would Alternative 1 (Project) result in an increased level of groundwater contamination or affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion)? | | | | |
| Tunnel Alignment | | | | |
| Wilmington to SP Shelf (Onshore) | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Shaft Site | | | | |
| JWPCP East | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| TraPac | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| LAXT | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Southwest Marine | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |

## Table 11-23 (Continued)

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact HYD-4. Would Alternative 1 (Project) cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations, Title 22, Division 4, and Chapter 15 and in the Safe Drinking Water Act? | | | | |
| Tunnel Alignment | | | | |
| Wilmington to SP (Onshore) | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Shaft Site | | | | |
| JWPCP East | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Impact HYD-5. Would Alternative 1 (Project) substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site? | | | | |
| Shaft Site | | | | |
| JWPCP East | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| TraPac | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| LAXT | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |

**Table 11-23 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Southwest Marine | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Impact HYD-7. Would Alternative 1 (Project) 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? | | | | |
| Shaft Site | | | | |
| JWPCP East | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| TraPac | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| LAXT | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Southwest Marine | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Impact HYD-11. Would Alternative 1 (Project) be subject to inundation by seiche, tsunami, or mudflow? | | | | |
| Shaft Site | | | | |
| TraPac | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |

**Table 11-23 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| LAXT | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Southwest Marine | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Riser/Diffuser Area | | | | |
| SP Shelf | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Direct | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Existing Ocean Outfalls | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Direct | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |

## 11.4.4 Alternative 2

### 11.4.4.1 Program

Alternative 2 (Program) is the same as Alternative 1 (Program).

### 11.4.4.2 Project

The impacts for the onshore tunnel; the JWPCP East, TraPac, LAXT, and Southwest Marine shaft sites; and the existing ocean outfalls for Alternative 2 (Project) would be the same as for Alternative 1 (Project).

### *Impact HYD-11. Would Alternative 2 (Project) be subject to inundation by seiche, tsunami, or mudflow?*

## Riser/Diffuser Area – Palos Verdes Shelf

**Construction**

CEQA Analysis
Impacts from construction of the riser and diffuser on the PV Shelf would be the same as discussed for the SP Shelf under Alternative 1 (Project). Although fault rupture could generate a tsunami large enough to affect the construction site, the probability that a seismic event would coincide with construction activities is very low. Impacts would be less than significant.

NEPA Analysis
Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered direct impacts.

### CEQA Impact Determination

Construction of Alternative 2 (Project) would not be subject to inundation by seiche, tsunami, or mudflow. Impacts under CEQA would be less than significant.

Mitigation
No mitigation is required.

Residual Impacts
Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 2 (Project) would not be subject to inundation by seiche, tsunami, or mudflow before mitigation. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

Mitigation
No mitigation is required.

Residual Impacts
Impacts would be less than significant.

## 11.4.4.3 Impact Summary – Alternative 2

Impacts on hydrology, water quality (fresh water), and public health for Alternative 2 (Program), which are the same as Alternative 1 (Program), are summarized in Table 11-22. Impacts analyzed in this EIR/EIS for Alternative 2 (Project) are summarized in Table 11-24. The proposed mitigation, where feasible, and the significance of the impact before and following mitigation are also listed in the tables.

## Table 11-24. Impact Summary – Alternative 2 (Project)

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact HYD-1. Would Alternative 2 (Project) create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving waterbody? | | | | |
| Shaft Site | | | | |
| JWPCP East | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| TraPac | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| LAXT | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Southwest Marine | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Impact HYD-2. Would Alternative 2 (Project) adversely change the level, rate, or direction of flow of groundwater? | | | | |
| Shaft Site | | | | |
| JWPCP East | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| | CEQA Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Operation |
| | NEPA Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Operation |

**Table 11-24 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| TraPac | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| | CEQA<br>Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| | NEPA<br>Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Operation |
| LAXT | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| | CEQA<br>Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| | NEPA<br>Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Operation |
| Southwest Marine | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| | CEQA<br>Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| | NEPA<br>Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Operation |
| Impact HYD-3. Would Alternative 2 (Project) result in an increased level of groundwater contamination or affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion)? | | | | |
| Tunnel Alignment | | | | |
| Wilmington to PV Shelf (Onshore) | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |

**Table 11-24 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Shaft Site | | | | |
| JWPCP East | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| TraPac | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| LAXT | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Southwest Marine | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Impact HYD-4. Would Alternative 2 (Project) cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations, Title 22, Division 4, and Chapter 15 and in the Safe Drinking Water Act? | | | | |
| Tunnel Alignment | | | | |
| Wilmington to PV Shelf (Onshore) | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Shaft Site | | | | |
| JWPCP East | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |

**Table 11-24 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact HYD-5. Would Alternative 2 (Project) substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site? | | | | |
| Shaft Site | | | | |
| JWPCP East | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| TraPac | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| LAXT | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Southwest Marine | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Impact HYD-7. Would Alternative 2 (Project) 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? | | | | |
| Shaft Site | | | | |
| JWPCP East | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| TraPac | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |

**Table 11-24 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| LAXT | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Southwest Marine | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Impact HYD-11. Would Alternative 2 (Project) be subject to inundation by seiche, tsunami, or mudflow? | | | | |
| Shaft Site | | | | |
| TraPac | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| LAXT | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Southwest Marine | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Riser/Diffuser Area | | | | |
| PV Shelf | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Direct | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |

**Table 11-24 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Existing Ocean Outfalls | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Direct | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |

# 11.4.5 Alternative 3

## 11.4.5.1 Program

Alternative 3 (Program) is the same as Alternative 1 (Program).

## 11.4.5.2 Project

The impacts for the riser/diffuser area on the PV Shelf for Alternative 3 (Project) would be the same as those described for Alternative 2 (Project). The impacts for the existing ocean outfalls for Alternative 3 (Project) would be the same as those described for Alternative 1 (Project).

### *Impact HYD-1. Would Alternative 3 (Project) create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving waterbody?*

### Shaft Sites – JWPCP West and Angels Gate

#### <u>Construction</u>

CEQA Analysis

There are two possible construction activities that could cause conditions resulting in a violation of regulatory standards at these shaft sites: (1) the construction of the shafts and (2) the generation of the slurry and nuisance water during tunneling. Water quality could be impaired in receiving waters through spillage of contaminants from construction equipment use at the shaft sites, erosion from exposed soils, or improper disposal of nuisance water or slurry removed from the tunnel that must be dewatered at the working shaft sites.

The impact analysis for the JWPCP West and Angels Gate shaft sites would be the same as provided under Impact HYD-1 (Project) for Alternative 1 for the spillage of contaminants and soil erosion, although the potential for soil erosion and runoff would be greater at the Angels Gate shaft site because of the site’s sloping topography (see Chapter 8). The Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize any impacts. These standard practices and bid requirements are used as appropriate on construction projects. Contractors would be required to comply with all applicable regulations and permits as noted under Impact HYD-1 (Project) for Alternative 1. Therefore, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction of Alternative 3 (Project) would not create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving waterbody. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 3 (Project) would not create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving waterbody. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

## *Impact HYD-2. Would Alternative 3 (Project) adversely change the level, rate, or direction of flow of groundwater?*

### Shaft Sites – JWPCP West and Angels Gate

### <u>Construction</u>

#### CEQA Analysis

Impacts from construction of the JWPCP West and Angels Gate shaft sites would be similar to those discussed for the shaft sites under Alternative 1 (Project). Construction of the shafts would come in contact with groundwater. The alteration of groundwater would be minimized by the use of construction techniques. Use of these methods would minimize the potential to alter the direction of groundwater flow. Furthermore, as discussed under Impact HYD-2 (Project) for Alternative 1, each shaft would have a small cross-section relative to the areal extent of groundwater units (aquifers) and would not have the potential to substantially impede groundwater flow. Therefore, impacts on the level, rate, and direction of groundwater flow would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

**Operation**

#### CEQA Analysis

Operational impacts would be the same as construction impacts; once operational, the shafts would block a portion of the groundwater flow. However, each shaft would have a small cross-section relative to the areal extent of various groundwater units. Therefore, impacts of the operating shaft on groundwater flow would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the operational life of the structure. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction and operation of Alternative 3 (Project) would not adversely change the level, rate, or direction of flow of groundwater. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction and operation of Alternative 3 (Project) would not adversely change the level, rate, or direction of flow of groundwater. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### *Impact HYD-3. Would Alternative 3 (Project) result in an increased level of groundwater contamination or affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion)?*

## Tunnel Alignment – Figueroa/Gaffey to Palos Verdes Shelf (Onshore)

### Construction

#### CEQA Analysis

Impacts from construction of the Figueroa/Gaffey to PV Shelf onshore alignment would be similar to those discussed for the Wilmington to SP Shelf onshore alignment under Alternative 1 (Project). However, this tunnel alignment would not traverse near any injection wells at the Dominguez Gap Barrier Project because of the different location of the alignment. As previously discussed under Impact HYD-2, there is very little potential for tunneling to affect the rate and direction of groundwater flow. Furthermore, dewatering volumes would be minimized because of the methods of tunnel construction. Therefore, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## Shaft Sites – JWPCP West and Angels Gate

### Construction

#### CEQA Analysis

Groundwater contamination could occur in association with spills within the shaft excavation or on the ground surface in the construction area. Shaft construction also has the potential to affect existing groundwater contamination, primarily by affecting the direction and rate of groundwater flow via construction and any associated dewatering activities, as discussed in HYD-3 (Project) Alternative 1. Impacts from construction of the JWPCP West and Angels Gate shafts would be slightly less than those discussed for the shaft sites in Alternative 1 (Project). This is because the JWPCP West and Angels Gate shaft sites currently are not listed on a hazardous materials database and are not known to have any contaminants at concentrations exceeding relevant statutory criteria, as discussed in Chapter 10. Therefore, there is a low potential for existing groundwater contamination at these two shaft sites. Furthermore, the techniques employed to construct the shafts would minimize the need for dewatering, and thus would reduce the potential for groundwater to migrate. However, as discussed under Impacts HYD-1 and HYD-3 (Project) for Alternative 1, and in Chapter 10, accidental spills of diesel, lubricants, or other chemicals could occur during construction.

As discussed under Impact HYD-1 (Project) for Alternative 1, the Sanitation Districts would require the contractor to comply with all the applicable dewatering and water quality regulations and permits; thus impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction of Alternative 3 (Project) would not result in an increased level of groundwater contamination or would not affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion). Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 3 (Project) would not result in an increased level of groundwater contamination or would not affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion). Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

## *Impact HYD-4. Would Alternative 3 (Project) cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations, Title 22, Division 4, Chapter 15, and in the Safe Drinking Water Act?*

### Tunnel Alignment – Figueroa/Gaffey to Palos Verdes Shelf (Onshore)

**Construction**

#### CEQA Analysis

As discussed under Impacts HYD-2 and HYD-3 (Project), construction of the onshore tunnel alignment would have a less than significant impact on groundwater contamination, would not substantially change groundwater flows, and would not affect the fate and transport of existing groundwater contamination. Therefore, production wells would not be affected by construction of the onshore tunnel alignment. Impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## Shaft Sites – JWPCP West

### Construction

#### CEQA Analysis

Impacts from construction of the JWPCP West shaft site would be similar to those discussed for the JWPCP East shaft site in Alternative 1 (Project). As discussed in Impact HYD-1 (Project) and Impact HYD-3 (Project), the Sanitation Districts would require the contractor to comply with all applicable stormwater, dewatering, water quality, and other regulations and permits. In addition, no existing production wells have been identified that could be affected by shaft site construction activities. Therefore, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## CEQA Impact Determination

Construction of Alternative 3 (Project) would not cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations Title 22, Division 4, Chapter 15, and in the Safe Drinking Water Act. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

## NEPA Impact Determination

Construction of Alternative 3 (Project) would not cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations, Title 22, Division 4, Chapter 15, and in the Safe Drinking Water Act. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### *Impact HYD-5. Would Alternative 3 (Project) substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site?*

### Shaft Sites – JWPCP West and Angels Gate

#### Construction

CEQA Analysis

There are no existing water bodies located on the shaft sites. Under existing conditions, stormwater flows and other runoff are conveyed to surface waters via existing stormwater systems within the immediate vicinity of the shaft sites. The Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize any impacts. These standard practices and bid requirements are used as appropriate on construction projects. Contractors would be required to comply with all applicable regulations and permits as noted under Impact HYD-1 (Project) for Alternative 1. Therefore, impacts would be less than significant.

NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction of Alternative 3 (Project) would not 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 erosion or siltation on site or off site. Impacts under CEQA would be less than significant.

Mitigation

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 3 (Project) would not 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 erosion or siltation on site or off site. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

Mitigation

No mitigation is required.

Residual Impacts

Impacts would be less than significant.

### *Impact HYD-7. Would Alternative 3 (Project) 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?*

## Shaft Sites – JWPCP West and Angels Gate

### Construction

#### CEQA Analysis

Impacts for construction of the JWPCP West and Angels Gate shaft sites would be the same to those discussed for the shaft sites in Alternative 1 (Project). As discussed under Impact HYD-1 (Project), construction of the shaft sites would result in surface disturbance that could involve a significant volume of runoff water. However, the Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize any impacts. These standard practices and bid requirements are used as appropriate on construction projects. Contractors would be required to comply with all applicable regulations and permits as noted under Impact HYD-1 (Project) for Alternative 1. Therefore, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction of Alternative 3 (Project) would not 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. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 3 (Project) would not 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. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### 11.4.5.3 Impact Summary – Alternative 3

Impacts on hydrology, water quality (fresh water), and public health for Alternative 3 (Program), which are the same as Alternative 1 (Program), are summarized in Table 11-22. Impacts analyzed in this EIR/EIS for Alternative 3 (Project) are summarized in Table 11-25. The proposed mitigation, where feasible, and the significance of the impact before and following mitigation are also listed in the table.

**Table 11-25. Impact Summary – Alternative 3 (Project)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact HYD-1. Would Alternative 3 (Project) create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving waterbody? | | | | |
| Shaft Site | | | | |
| JWPCP West | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Angels Gate | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Impact HYD-2. Would Alternative 3 (Project) adversely change the level, rate, or direction of flow of groundwater? | | | | |
| Shaft Site | | | | |
| JWPCP West | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| | CEQA Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Operation |
| | NEPA Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Operation |
| Angels Gate | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |

**Table 11-25 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| | CEQA Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Operation |
| | NEPA Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Operation |
| Impact HYD-3. Would Alternative 3 (Project) result in an increased level of groundwater contamination or affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion)? | | | | |
| Tunnel Alignment | | | | |
| Figueroa/ Gaffey to PV Shelf (Onshore) | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Shaft Site | | | | |
| JWPCP West | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Angels Gate | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |
| Impact HYD-4. Would Alternative 3 (Project) cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations (CCR), Title 22, Division 4, Chapter 15, and in the Safe Drinking Water Act? | | | | |
| Tunnel Alignment | | | | |
| Figueroa/ Gaffey to PV Shelf (Onshore) | CEQA Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA Less Than Significant Impact During Construction |
| | NEPA Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA Less Than Significant Impact During Construction |

**Table 11-25 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Shaft Site | | | | |
| JWPCP West | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Impact HYD-5. Would Alternative 3 (Project) substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site? | | | | |
| Shaft Site | | | | |
| JWPCP West | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Angels Gate | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Impact HYD-7. Would Alternative 3 (Project) 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? | | | | |
| Shaft Site | | | | |
| JWPCP West | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Angels Gate | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |

**Table 11-25 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact HYD-11. Would Alternative 3 (Project) be subject to inundation by seiche, tsunami, or mudflow? | | | | |
| Riser/Diffuser Area | | | | |
| PV Shelf | CEQA<br>Less than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less than Significant Impact During Construction | Direct | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Existing Ocean Outfalls | CEQA<br>Less than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less than Significant Impact During Construction | Direct | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |

## 11.4.6 Alternative 4 (Recommended Alternative)

### 11.4.6.1 Program

Alternative 4 (Program) is the same as Alternative 1 (Program).

### 11.4.6.2 Project

The impacts for the JWPCP West shaft site for Alternative 4 (Project) would be the same as for Alternative 3 (Project), except tunnel construction would occur over a period of 4 years instead of 5 years. The construction impacts for the rehabilitation of the existing ocean outfalls would be the same as for Alternative 1 (Project).

#### *Impact HYD-1. Would Alternative 4 (Project) create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving waterbody?*

#### Shaft Site – Royal Palms

**Construction**

CEQA Analysis

Impacts from construction of the Royal Palms shaft site would be similar to those discussed for the shaft sites in Alternative 1 (Project). However, because the Royal Palms shaft site is an exit shaft site, nuisance water, slurry from the TBM, or other excavated material, would not be removed at this shaft site. Rather, this material would be collected and removed from the tunnel at the JWPCP West shaft site. The Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize any impacts. These standard practices and bid requirements are used as appropriate on construction projects. Contractors would be required to comply with all applicable regulations and permits as noted under Impact HYD-1 (Project) for Alternative 1. Therefore, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction of Alternative 4 (Project) would not create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving waterbody. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 4 (Project) would not create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving waterbody. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

## *Impact HYD-2. Would Alternative 4 (Project) adversely change the level, rate, or direction of flow of groundwater?*

### Shaft Site – Royal Palms

#### <u>Construction</u>

#### CEQA Analysis

Impacts from construction of the Royal Palms shaft site would be similar to those discussed for the shaft sites in Alternative 1 (Project). The alteration of groundwater would be minimized by the use of construction techniques. Use of these methods would minimize the potential to alter the direction of groundwater flow. Furthermore, as discussed under Impact HYD-2 (Project) for Alternative 1, the shaft would have a small cross-section relative to the areal extent of groundwater units (aquifers) and would not have the potential to substantially impede groundwater flow. Therefore, impacts to the level, rate, and direction of groundwater flow would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

**Operation**

#### CEQA Analysis

Operational impacts for the Royal Palms shaft site would be the same as those discussed for construction. Given the very shallow penetration of the underlying aquifer by the shaft (5 feet) and the large areal extent of the aquifer, the shaft would not have the potential to substantially impede groundwater flow. Therefore, impacts to the level, rate, and direction of groundwater flow would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the operational life of the structure. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction and operation of Alternative 4 (Project) would not adversely change the level, rate, or direction of flow of groundwater. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction and operation of Alternative 4 (Project) would not adversely change the level, rate, or direction of flow of groundwater. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### *Impact HYD-3. Would Alternative 4 (Project) result in an increased level of groundwater contamination or affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion)?*

## Tunnel Alignment – Figueroa/Western to Royal Palms (Onshore)

### Construction

#### CEQA Analysis

Impacts from construction of the Figueroa/Western to Royal Palms onshore alignment would be similar to those discussed for the Figueroa/Gaffey to PV Shelf onshore alignment under Alternative 3 (Project). This tunnel alignment also would not traverse near any injection wells at the Dominguez Gap Barrier Project. As previously discussed in HYD-2, there is very little potential for tunneling to affect the rate and direction of groundwater flow. Furthermore, dewatering volumes would be minimized because of the methods of tunnel construction. Therefore, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## Shaft Site – Royal Palms

### Construction

#### CEQA Analysis

Impacts from construction of the Royal Palms shaft site would be similar to those discussed for the shaft sites in Alternative 3 (Project). Shaft construction does not have the potential to affect groundwater contamination because, as detailed in Chapter 10, contaminated groundwater is not known to occur on or near the Royal Palms shaft site. However, groundwater contamination could occur in association with spills within the shaft excavation or on the ground surface in the construction area. Such spilled materials could then infiltrate to groundwater or contact dewatering discharge. As discussed under Impact HYD-1 (Project) for Alternative 1, the Sanitation Districts would require the contractor to comply with all applicable dewatering, water quality, and other regulations and permits; thus impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## CEQA Impact Determination

Construction of Alternative 4 (Project) would not result in an increased level of groundwater contamination or affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion). Impacts under CEQA would be less than significant.

#### Mitigation
No mitigation is required.

#### Residual Impacts
Impacts would be less than significant.

### NEPA Impact Determination
Construction of Alternative 4 (Project) would not result in an increased level of groundwater contamination or affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion). Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation
No mitigation is required.

#### Residual Impacts
Impacts would be less than significant.

## *Impact HYD-4. Would Alternative 4 (Project) cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations (CCR), Title 22, Division 4, Chapter 15, and in the Safe Drinking Water Act?*

### Tunnel Alignment – Figueroa/Western to Royal Palms (Onshore)

**Construction**

#### CEQA Analysis
Impacts from construction of the Figueroa/Western to Royal Palms onshore alignment would be similar to those discussed for the onshore alignment discussed under Alternative 3 (Project). As discussed under Impacts HYD-2 and HYD-3 (Project), construction of the onshore tunnel alignment would have a less than significant impact on groundwater contamination, would not substantially affect groundwater flows, and would not affect the fate and transport of existing groundwater contaminants. Therefore, production wells would not be affected by construction of the onshore tunnel alignment. Impacts would be less than significant.

#### NEPA Analysis
Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination
Construction of Alternative 4 (Project) would not cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations Title 22, Division 4, Chapter 15, and in the Safe Drinking Water Act. Impacts under CEQA would be less than significant.

#### Mitigation
No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 4 (Project) would not cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Title 22, Division 4, Chapter 15, and in the Safe Drinking Water Act. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

## *Impact HYD-5. Would Alternative 4 (Project) substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site?*

### Shaft Site – Royal Palms

#### Construction

#### CEQA Analysis

There are no existing waterbodies located on the shaft site, but it is located close enough to the Pacific Ocean that overland flow of stormwater could enter the ocean. Shaft site construction could result in offsite erosion or siltation only if runoff were to leave the construction site. The Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize any impacts. These standard practices and bid requirements are used as appropriate on construction projects. Contractors would be required to comply with all applicable regulations and permits as noted under Impact HYD-1 (Project) for Alternative 1. Therefore, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction of Alternative 4 (Project) would not 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 erosion or siltation on site or off site. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 4 (Project) would not 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 erosion or siltation on site or off site. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

## *Impact HYD-7. Would Alternative 4 (Project) 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?*

### Shaft Site – Royal Palms

**<u>Construction</u>**

#### CEQA Analysis

As discussed under Impact HYD-1 (Project), construction of the shaft site would require surface disturbance and dewatering operations. The Sanitation Districts incorporate many standard practices and requirements into each publicly bid construction contract to minimize any impacts. These standard practices and bid requirements are used as appropriate on construction projects. Contractors would be required to comply with all applicable regulations and permits as noted under Impact HYD-1 (Project) for Alternative 1. Therefore, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

### CEQA Impact Determination

Construction of Alternative 4 (Project) would not 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. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

## NEPA Impact Determination

Construction of Alternative 4 (Project) would not 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. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### *Impact HYD-11. Would Alternative 4 (Project) be subject to inundation by seiche, tsunami, or mudflow?*

## Shaft Site – Royal Palms

### <u>Construction</u>

#### CEQA Analysis

A mudflow is a flooding condition in which a river of liquid and flowing mud moves on the surface of normally dry land areas (NFIP 2010). Although there is an exposed slope adjacent to the Royal Palms shaft site, it is not located within a landslide hazard area. Therefore, based on the relatively short duration of construction and the low probability of a mudflow, this hazard is typically considered to pose an acceptable level of risk. Impacts would be less than significant.

A seiche is not likely to occur at the shaft site due to a lack of confined bodies of water (e.g., lakes or ponds) in the area.

The shaft site is located in a tsunami zone. Fault rupture, if it were to occur, could generate a tsunami large enough to affect the site. However, due to the infrequent occurrence of surface fault rupture and the short duration of construction, the probability that a seismic event and subsequent tsunami would coincide with construction activities is very low. Additionally, an Annex: Tsunami Preparedness and Response Plan (Sanitation Districts 2008) has been developed by the Sanitation Districts in support of the Los Angeles County Operational Area Emergency Response Plan Tsunami Annex (Los Angeles County Office of Emergency Management 2006). Discussed in Chapter 16, the contractor would adhere to all emergency response and evacuation regulations, ensuring compliance with existing emergency response plans. Based on the low probability of a tsunami occurring during construction and the emergency plans currently in place to manage a tsunami should one occur, impacts would be less than significant.

#### NEPA Analysis

Environmental impacts would be the same as described for the CEQA analysis, and would occur for the duration of construction. Baseline conditions would resume upon termination of construction. With respect to the Corps' NEPA scope of analysis described in Section 3.5, the environmental impacts would be considered indirect impacts.

## CEQA Impact Determination

Construction of Alternative 4 (Project) would not be subject to inundation by seiche, tsunami, or mudflow. Impacts under CEQA would be less than significant.

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

### NEPA Impact Determination

Construction of Alternative 4 (Project) would not be subject to inundation by seiche, tsunami, or mudflow. Impacts under NEPA would be less than significant with respect to the No-Federal-Action Alternative (see Section 3.4.1.6).

#### Mitigation

No mitigation is required.

#### Residual Impacts

Impacts would be less than significant.

## 11.4.6.3 Impact Summary – Alternative 4

Impacts on hydrology, water quality (fresh water), and public health for Alternative 4 (Program), which are the same as Alternative 1 (Program), are summarized in Table 11-22. Impacts analyzed in this EIR/EIS for Alternative 4 (Project) are summarized in Table 11-26. The proposed mitigation, where feasible, and the significance of the impact before and following mitigation are also listed in the table.

**Table 11-26 Impact Summary – Alternative 4 (Project)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact HYD-1. Would Alternative 4 (Project) create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving waterbody? | | | | |
| Shaft Site | | | | |
| JWPCP West | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Royal Palms | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |

**Table 11-26 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact HYD-2. Would Alternative 4 (Project) adversely change the level, rate, or direction of flow of groundwater? | | | | |
| Shaft Site | | | | |
| JWPCP West | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| | CEQA<br>Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| | NEPA<br>Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Operation |
| Royal Palms | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| | CEQA<br>Less Than Significant Impact During Operation | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Operation |
| | NEPA<br>Less Than Significant Impact During Operation | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Operation |
| Impact HYD-3. Would Alternative 4 (Project) result in an increased level of groundwater contamination or affect the fate and transport of existing groundwater contamination (including that from direct percolation, injection, or salt water intrusion)? | | | | |
| Tunnel Alignment | | | | |
| Figueroa/ Western to Royal Palms (Onshore) | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Shaft Site | | | | |
| JWPCP West | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |

**Table 11-26 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Royal Palms | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Impact HYD-4. Would Alternative 4 (Project) cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations (CCR), Title 22, Division 4, and Chapter 15 and in the Safe Drinking Water Act? | | | | |
| Tunnel Alignment | | | | |
| Figueroa/ Western to Royal Palms (Onshore) | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Shaft Site | | | | |
| JWPCP West | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Impact HYD-5. Would Alternative 4 (Project) substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site? | | | | |
| Shaft Site | | | | |
| JWPCP West | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Royal Palms | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |

**Table 11-26 (Continued)**

| Project Element | Impact Determination Before Mitigation | NEPA Direct or Indirect | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|---|
| Impact HYD-7. Would Alternative 4 (Project) 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? | | | | |
| Shaft Site | | | | |
| JWPCP West | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Royal Palms | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Impact HYD-11. Would Alternative 4 (Project) be subject to inundation by seiche, tsunami, or mudflow? | | | | |
| Shaft Site | | | | |
| Royal Palms | CEQA<br>Less Than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less Than Significant Impact During Construction | Indirect | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |
| Riser/Diffuser Area | | | | |
| Existing Ocean Outfalls | CEQA<br>Less than Significant Impact During Construction | N/A | No mitigation is required. | CEQA<br>Less Than Significant Impact During Construction |
| | NEPA<br>Less than Significant Impact During Construction | Direct | No mitigation is required. | NEPA<br>Less Than Significant Impact During Construction |

## 11.4.7 Alternative 5 (No-Project Alternative)

Pursuant to CEQA, an EIR must evaluate a no-project alternative. A no-project alternative describes the no-build scenario and what reasonably would be expected to occur in the foreseeable future if the project were not approved. Under the No-Project Alternative for the Clearwater Program, the Sanitation Districts would continue to expand, upgrade, and operate the JOS in accordance with the JOS 2010 Master Facilities Plan (2010 Plan) (Sanitation Districts 1994), which includes all program elements proposed under the Clearwater Program, excluding process optimization at the WRPs, as described in Section 3.4.1.5. A new or modified ocean discharge system would not be constructed. As a result, there would be a greater potential for an emergency discharge into various water courses, as described in Section 3.4.1.5.

Because there would be no construction of a new or modified JWPCP ocean discharge system, the Corps would not make any significance determinations under NEPA and would not issue any permits or discretionary approvals for dredge or fill actions or for transport or ocean disposal of dredged material.

### 11.4.7.1 Program

Alternative 5 (Program) would consist of the implementation of the 2010 Plan. The impacts for the conveyance system; expansion of the SJCWRP; WRP effluent management at the SJCWRP, POWRP, LCWRP, LBWRP, and WNWRP; and JWPCP solids processing for Alternative 5 (Program) would be the same as for Alternative 1 (Program) and would be subject to mitigation in accordance with the EIR prepared for the 2010 Plan (Jones & Stokes 1994). Because process optimization would not occur, impacts from process optimization associated with Impact HYD-11 in the Alternative 1 (Program) analysis would have no impact under Alternative 5 (Program).

As stated in Section 3.3.1.2, process optimization consists of modifications within the existing WRPs to ensure that the Sanitation Districts continue to consistently meet permit conditions in anticipation of increasing regulatory requirements. Essentially, process optimization consists of constructing large wastewater influent or primary-treated effluent storage tanks at each facility. In the absence of this work, and in consideration of future growth in demand for wastewater treatment associated with increases in the population served by treatment plant facilities, absence of process optimization would diminish facility capability to: (1) meet current NPDES permit requirements; (2) meet potential future, more stringent NPDES permit requirements; and/or (3) meet the needs of recycled water users. None of these outcomes is reasonably certain to occur. With regard to outcome (1), all facilities are currently compliant with their NPDES permit requirements and have few recent permit violations related to effluent discharge. Thus the potential for outcome (1) is not imminent, though it can be forecast in the context of future growth scenarios. With regard to outcome (2), such requirements have not yet been formulated, so it is speculative to conclude that facilities might not be compliant. With regard to outcome (3), the outcome is speculative because it would not occur under current usage conditions, but would only occur in the event of a change in the volume and distribution of recycled water. Thus no impacts to any of the thresholds would foreseeably occur with implementation of Alternative 5 (Program).

### 11.4.7.2 Project

Alternative 5 does not include a project component; therefore, a new or modified ocean discharge system would not be constructed. As a consequence of taking no action, there would be a greater potential for an emergency discharge of secondary effluent into the Wilmington Drain, as described in Section 3.4.1.5. Discharges into the Wilmington Drain would flow into Machado Lake (also known as Harbor Lake). As described in Section 11.2.3.2, the Wilmington Drain is a flood control structure that directs flows through the riparian woodland of Machado Lake in Ken Malloy Harbor Regional Park and ultimately discharges into the Los Angeles Harbor. The release of secondary effluent would be considered a violation of the JWPCP’s NPDES permit and the Clean Water Act, and, therefore, would likely affect the beneficial uses of the Wilmington Drain, Machado Lake, the Ken Malloy Regional Park, and the Los Angeles Harbor. In addition, discharges into the Wilmington Drain would likely result in violations of Los Angeles Harbor Bacteria Total TMDL, Machado Lake Nutrients TMDL, and the Los Angeles Countywide MS4 Permit.

The Wilmington Drain has the capacity to handle a discharge from the JWPCP during normal flow or dry-weather flow events. However, during a storm event, the combined stormflow and discharge from the JWPCP could exceed the capacity of the Wilmington Drain. If sufficient capacity were not available in the Wilmington Drain, the sewers tributary to the JWPCP could overflow and untreated wastewater could enter various water courses. Untreated wastewater overflowing out of the sewers would likely enter the adjacent stormdrains tributary to the Dominguez Channel and the Los Angeles River. Both the Dominguez Channel and the Los Angeles River discharge into the Los Angeles Harbor. The Dominguez Channel and the Los Angeles River are both fully-lined concrete channels and would not sustain any significant erosion or siltation; therefore, no impacts would occur to their existing drainage patterns.

However, a sewer overflow of untreated wastewater would be considered a violation of the JWPCP's NPDES permit and could affect the beneficial uses of the Dominguez Channel and the Los Angeles River. An overflow would likely result in similar violations of the NPDES permits and TMDLs as for the Wilmington Drain, with the exception of the Machado Lake Nutrients TMDL because none of the water courses would flow through Machado Lake. It would also likely result in violations of the Dominguez Channel, and the Greater Los Angeles and Long Beach harbors Toxic Pollutants TMDL. Additionally, sewer overflow that is not captured by stormdrains could result in intrusion and contamination of the groundwater and local fresh water productions wells.

Exceeding the capacity of the Wilmington Drain could also result in mudslides, ground failure, and unstable earth conditions in the unlined portions of the Wilmington Drain and possibly around Machado Lake; therefore, it could substantially alter the existing drainage pattern of the Wilmington Drain resulting in substantial erosion or siltation. An increase in sedimentation, as a result of emergency discharge, could have offsite water quality impacts and other issues. Similar impacts could also occur in the various low-lying areas along the JOS as a result of uncaptured secondary effluent causing soil instability and erosion.

It is unlikely that an emergency discharge into the Wilmington Drain or a sewer overflow would be captured and treated subsequently. Therefore, the impact to water quality, drainage patterns, and beneficial uses of various water courses such as the Wilmington Drain, Los Angeles River, and Dominguez Channel would be significant and unavoidable. There is no feasible mitigation that would reduce this impact.

### 11.4.7.3 Impact Summary – Alternative 5

Impacts on hydrology, water quality (fresh water), and public health for Alternative 5 (Program) would be the same as those summarized for Alternative 1 (Program) in Table 11-22, excluding process optimization. Note that the mitigation measures for Alternatives 1 through 4 (Program) are not applicable to Alternative 5 (Program). Significant impacts for Alternative 5 (Project) are summarized in Table 11-27.

**Table 11-27. Impact Summary – Alternative 5 (Project)**

| Project Element | Impact Determination Before Mitigation | Mitigation | Residual Impact After Mitigation |
|---|---|---|---|
| Impact HYD-1. Would Alternative 5 (Project) create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving waterbody? | | | |
| Emergency Discharge | CEQA<br>Significant Impact During Operation | No mitigation is feasible. | CEQA<br>Significant and Unavoidable Impact During Operation |
| Impact HYD-5. Would Alternative 5 (Project) substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site? | | | |
| Emergency Discharge | CEQA<br>Significant Impact During Operation | No mitigation is feasible. | CEQA<br>Significant and Unavoidable Impact During Operation |
| Impact HYD-7. Would Alternative 5 (Project) 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? | | | |
| Emergency Discharge | CEQA<br>Significant Impact During Operation | No mitigation is feasible. | CEQA<br>Significant and Unavoidable Impact During Operation |

## 11.4.8 Alternative 6 (No-Federal-Action Alternative)

Pursuant to NEPA, an environmental impact statement (EIS) must evaluate a no-federal-action alternative. The No-Federal-Action Alternative for the Clearwater Program consists of the activities that the Sanitation Districts would perform without the issuance of the Corps' permits. The Corps' permits would be required for the construction of the offshore tunnel, construction of the riser and diffuser, the rehabilitation of the existing ocean outfalls, and the ocean disposal of dredged material. Without a Corps permit to work on the aforementioned facilities, the Sanitation Districts would not construct the onshore tunnel and shaft sites. Therefore, none of the project elements would be constructed under the No-Federal-Action Alternative. The Sanitation Districts would continue to use the existing ocean discharge system, which could result in emergency discharges into various water courses, as described in Sections 3.4.1.6 and 11.4.7.2. The program elements for the recommended alternative would be implemented in accordance with CEQA requirements. However, based on the NEPA scope of analysis established in Sections 1.4.2 and 3.5, these elements would not be subject to NEPA because the Corps would not make any significance determinations and would not issue any permits or discretionary approvals.

### 11.4.8.1 Program

The program elements are beyond the NEPA scope of analysis.

### 11.4.8.2 Project

The impact analysis for Alternative 6 (Project) is the same as described for Alternative 5 (Project).

### 11.4.8.3 Impact Summary – Alternative 6

The program is not analyzed under Alternative 6. Significant hydrology, water quality (fresh water), and public health project impacts would be the same as summarized in Table 11-27 for Alternative 5 (Project).

## 11.4.9 Comparison of Significant Impacts and Mitigation for All Alternatives

A summary of significant impacts on hydrology, water quality (fresh water), and public health resulting from the construction and/or operation of program and/or project elements is provided in Table 11-28. Impacts are compared by alternative. Proposed mitigation, where feasible, and the significance of the impact following mitigation under CEQA and NEPA are also listed in the table.

**Table 11-28. Comparison of Significant Impacts and Mitigation for Hydrology, Water Quality (Fresh Water), and Public Health for All Alternatives**

| Element | Impact Before Mitigation | Mitigation Measure | Residual Impact After Mitigation |
|---|---|---|---|
| **Alternatives 1, 2, 3, 4, and 5[a] (Program)** | | | |
| Impact HYD-11. Would Alternatives 1, 2, 3, 4, and 5 (Program) be subject to inundation by seiche, tsunami, or mudflow? | | | |
| POWRP – Process Optimization | CEQA Significant Impact During Construction | MM HYD-11. During the final design process, perform a geotechnical investigation. If it is determined that there is a potential for mudflow during construction of process optimization at the Pomona Water Reclamation Plant due to risks associated with severe weather or the combination of severe weather and post-burn conditions on Elephant Hill, a construction safety plan will be developed prior to construction activities and will include procedures to avoid risks to workers during the construction period. Procedures could include sandbagging and reseeding the burned area immediately following a fire to reestablish vegetation to buffer rainfall and promote a root system to help secure soil in place. Additionally, weather patterns will be monitored and construction will cease if weather could contribute to mudflow conditions. | CEQA Less Than Significant Impact During Construction |

[a] Process optimization would not apply to Alternative 5 (Program). Additionally, all mitigation measures and residual impacts would not apply to Alternative 5 (Program).

| Element | Impact Before Mitigation | Mitigation Measure | Residual Impact After Mitigation |
|---|---|---|---|
| **Alternatives 5 (Project)** | | | |
| Impact HYD-1. Would Alternative 5 (Project) create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving waterbody? | | | |
| Emergency Discharge | CEQA Significant Impact During Operation | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Operation |
| Impact HYD-5. Would Alternative 5 (Project) substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site? | | | |
| Emergency Discharge | CEQA Significant Impact During Operation | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Operation |
| Impact HYD-7. Would Alternative 5 (Project) 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? | | | |
| Emergency Discharge | CEQA Significant Impact During Operation | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Operation |

**Table 11-28 (Continued)**

| Element | Impact Before Mitigation | Mitigation Measure | Residual Impact After Mitigation |
|---|---|---|---|
| **Alternatives 6 (Project)** | | | |
| Impact HYD-1. Would Alternative 6 (Project) create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving waterbody? | | | |
| Emergency Discharge | CEQA Significant Impact During Operation | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Operation |
| Impact HYD-5. Would Alternative 6 (Project) substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site? | | | |
| Emergency Discharge | CEQA Significant Impact During Operation | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Operation |
| Impact HYD-7. Would Alternative 6 (Project) 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? | | | |
| Emergency Discharge | CEQA Significant Impact During Operation | No mitigation is feasible. | CEQA Significant and Unavoidable Impact During Operation |