

3.6

GROUNDWATER AND SOILS

3.6.1 Introduction

This section describes the environmental setting for groundwater and soils within the PMPU area, including contamination by hazardous materials, identifies applicable regulations, and analyzes the potential impacts that could result from implementing the proposed Program. Mitigation measures and the significance of impacts after mitigation also are described.

3.6.2 Environmental Setting

3.6.2.1 PMPU Area

3.6.2.1.1 Groundwater

The Port is located in the West Coast Basin of the Los Angeles County Coastal Plain basins (California Department of Water Resources 2011) (Figure 3.6-1). The West Coast Basin is bounded on the north by the Santa Monica Mountains, on the east by the Newport-Inglewood Uplift, on the west by the Palos Verdes Hills, and on the south by the Pacific Ocean. The West Coast Basin contains a series of aquifers and aquicludes. Aquifers are composed of thick, permeable sediments that are a source of water to groundwater wells. The term “aquiclude” describes the less permeable silt and clay layers that separate the aquifers. The West Coast Basin was adjudicated in 1961 following the intrusion of seawater into the aquifers in the basin.

In 1971, the LADPW began operating the Dominguez Gap Seawater Barrier Project, a line of injection wells between I-110 and I-710, to prevent seawater intrusion from migrating inland (Metropolitan Water District of Southern California [MWD] 2007). The Port is outside (seaward) of the Dominguez Gap Barrier. The groundwater beneath the Port is classified as saline and currently not considered potable water, and would not likely be considered a potable water source in the future. Drinking water is provided to the area by the LADWP.

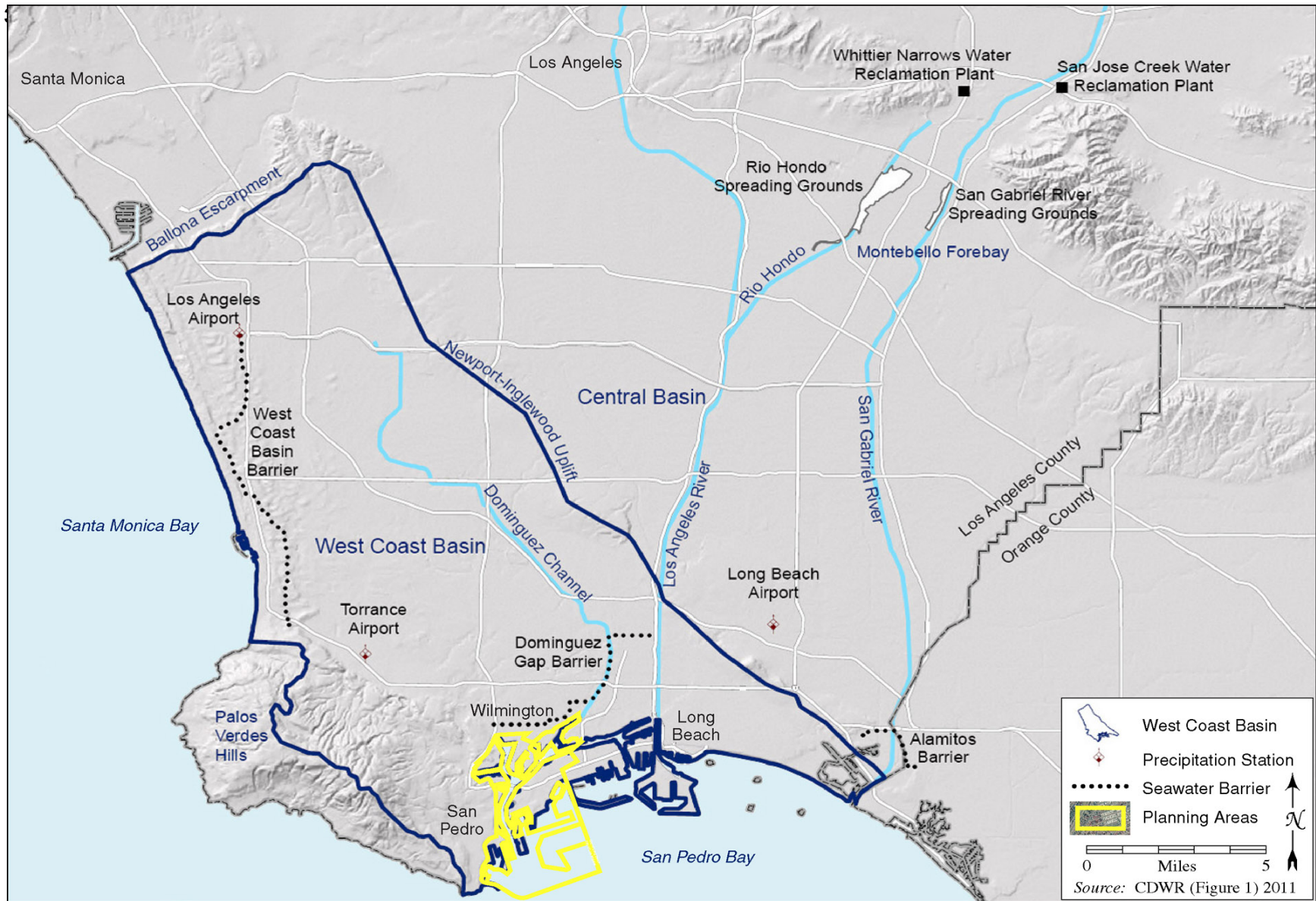


Figure 3.6-1. West Coast Groundwater Basin

1 The shallowest groundwater underneath the Port is in the unconfined semi-perched
2 aquifer. This semi-perched aquifer is composed of Recent age marine and estuarine
3 deposits as well as dredge material (to create land) and small amounts of construction
4 debris. The semi-perched aquifer extends 30 to 50 feet below the ground surface. The
5 direction of groundwater flow in the semi-perched aquifer fluctuates with the tides
6 (Tetra Tech 2007). Petroleum products and hazardous substances associated with
7 long-term industrial land use have contaminated some of the water in the semi-
8 perched aquifer (Tetra Tech 2007).

9 Beneath the semi-perched aquifer is the Bellflower Aquiclude of the Lakewood
10 formation. The Bellflower Aquiclude is approximately 100 to 120 feet thick and
11 composed of finer-grained sediments (clay, silt, sandy silt, silty sand, clayey sand,
12 sandy clay, and gravelly clay). The finer-grained sediments inhibit groundwater
13 movement between the semi-perched aquifer and the underlying Gage Aquifer (Tetra
14 Tech 2007).

15 Beneath the Bellflower Aquiclude, the Gage Aquifer is estimated to be 80 to 100 feet
16 thick. The Gage Aquifer is composed of fine to medium sand and variable amounts
17 of gravel, sand, silt, and clay and is confined by the Bellflower Aquiclude.
18 Underneath the Gage Aquifer lie the Lynwood and Silverwood aquifers. The
19 Silverwood Aquifer is the most productive aquifer in the West Coast Basin (MWD
20 2007). However, the Silverwood aquifer underneath the Port has been degraded by
21 seawater intrusion. Groundwater injections in the Dominguez Gap Barrier focus on
22 the Silverwood Aquifer to prevent seawater from degrading groundwater further
23 inland (MWD 2007).

24 **3.6.2.1.2 Soils**

25 Prior to development of the Los Angeles Harbor, extensive estuarine deposits were
26 present at the mouth of Bixby Slough, Dominguez Channel, and the Los Angeles
27 River. The organic-rich tidal muds originally overlaid naturally deposited alluvial
28 soils that, in turn, overlaid the Malaga mudstone of the Miocene Monterey
29 Formation. The mud and alluvial soils were extensively dredged or covered with fill
30 during harbor development to create extensive land masses of dredged fill material
31 that support numerous harbor facilities. Accordingly, much of the surface soil in the
32 harbor area now consists of older dredged fill material underlain by dredged material
33 engineered construction fill, and, in some places, old alluvial soils and muds.

34 **3.6.2.1.3 Overview of Contamination Sources**

35 Since the early 1900s, there has been a diversity of land uses at the Port that may
36 have contributed to historical and/or present contamination of the underlying soils
37 and groundwater. In the early 1900s, major land uses at the Port included shipping
38 operations, oil production, shipbuilding, and boat repair operations. Following World
39 War II, the Port expanded to support larger cargo ships and eventually container
40 carrying vessels. Consequently, land use activities in the Port expanded to support a
41 variety of commercial activities such as fisheries and other recreational and industrial
42 activities. Additional marinas and boat repair shops were founded on Port leaseholds.
43 Stored hazardous waste produced on these leaseholds included mixed solvent wastes,

1 polycyclic aromatic hydrocarbons (PAHs), waste lubricating oils, waste engine oils,
2 and metals (Weston Solutions 2009).

3 Today, the Port encompasses approximately 4,000 acres of land, 43 miles of
4 waterfront, and 26 cargo terminals, including dry and liquid bulk, container, break
5 bulk, automobile, and omni facilities (Weston Solutions 2009). Chemicals associated
6 with past and present land use activities have been released into the environment
7 through accidental release (i.e., leaks, spills, stormwater runoff) or intentional
8 discharges. At shipbuilding and boat repair shops, metals, polychlorinated biphenyls
9 (PCBs), PAHs, and organotins associated with paints, solvents used to remove paints,
10 and oil-based products used to operate heavy machinery are contamination sources.
11 In areas where liquid bulk products are stored and transported, contamination has
12 resulted from leakage of petroleum, fuels, or chemicals from holding tanks or spills
13 during transfer. Similarly, accidental releases of bulk products during transport and
14 handling at Port facilities and other industrial land uses at Port facilities (e.g., battery
15 disposal) are also possible historical sources of soil and/or groundwater
16 contamination (Weston Solutions 2009).

17 Known areas of soil and groundwater contamination within the Port are shown on
18 Figure 3.6-2.

19 **3.6.3 Applicable Regulations**

20 Applicable federal, state, and local laws identify lists of hazardous materials or
21 hazardous substances that may require special handling if encountered during
22 construction of the proposed appealable/fill projects. Generally, a “hazardous
23 material” refers to any material that, because of its quantity, concentration, or
24 physical or chemical characteristics, poses a significant present or potential hazard to
25 human health and safety or to the environment if released into the workplace or the
26 environment. Hazardous materials that are commonly found in soil and groundwater
27 include petroleum products, fuel additives, heavy metals, and VOCs.

28 **3.6.3.1 Federal Regulations**

29 **3.6.3.1.1 Resource Conservation and Recovery Act of 1976** 30 **(42 USC Sections 6901–6987)**

31 The goal of the Resource Conservation and Recovery Act of 1976 (RCRA) is the
32 protection of human health and the environment, the reduction of waste, the
33 conservation of energy and natural resources, and the elimination of the generation of
34 hazardous waste as expeditiously as possible. The Hazardous and Solid Waste
35 Amendments of 1984 significantly expanded the scope of RCRA by adding new
36 corrective action requirements, land disposal restrictions, and technical requirements.
37 The corresponding regulations in 40 CFR 260–299 provide the general framework
38 for managing hazardous waste, including requirements for entities that generate,
39 store, transport, treat, and dispose of hazardous waste.

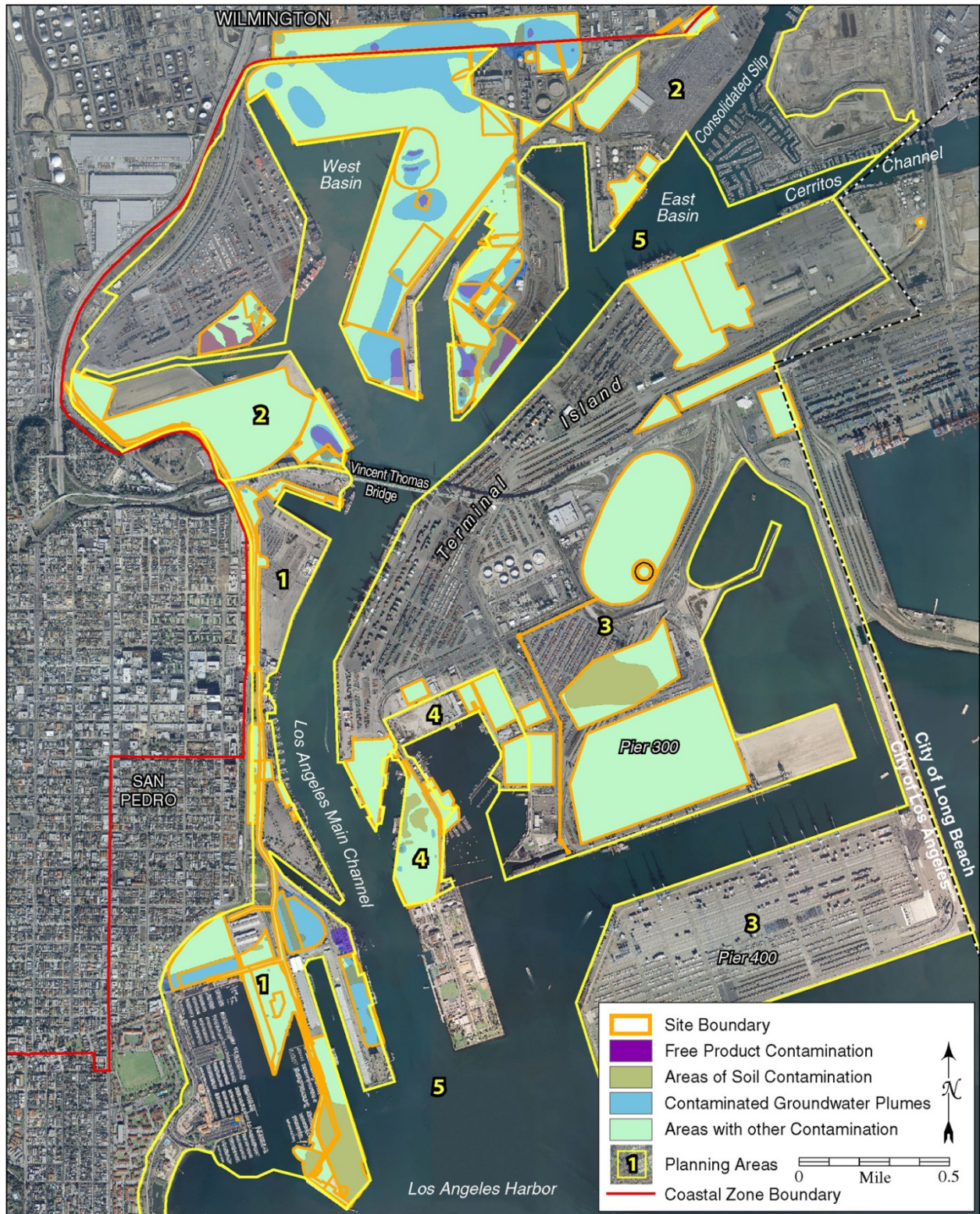


Figure 3.6-2. Areas of Contamination within the Port

3.6.3.1.2 Comprehensive Environmental Response, Compensation, and Liability Act of 1980

Site characterization and site remediation of hazardous materials is regulated by the federal Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). CERCLA, commonly known as Superfund, authorizes USEPA to respond to releases, or threatened releases, of hazardous substances that may endanger public health, welfare, or the environment. CERCLA also enables USEPA to force parties responsible for environmental contamination to clean it up or to reimburse the Superfund for response or remediation costs incurred by USEPA. The Superfund Amendments and Reauthorization Act (SARA) of 1986 revised various sections of CERCLA, extended the taxing authority for the Superfund, and created a free-standing law, SARA Title III, also known as the Emergency Planning and Community Right-to-Know Act (EPCRA).

3.6.3.2 State Regulations

3.6.3.2.1 California Code of Regulations, Title 22, Chapter 11, Section 66260 *et seq.*

CCR Title 22, Chapter 11, Article 2, Section 66261 defines a hazardous material as a substance or combination of substances that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either: 1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or, 2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of or otherwise managed. According to CCR Title 2 (Chapter 11, Article 3), substances having a characteristic of toxicity, ignitability, corrosivity, or reactivity are considered hazardous. Lastly, human health and safety impacts are often reduced by implementing ideas developed by the CalEPA OEHHA. OEHHA is not a regulatory agency; however, it develops and provides state and local government agencies with toxicological and medical information relevant to decisions involving public health. State agency users of such information include all Boards and departments within the CalEPA, as well as the California Department of Public Health, the Department of Food and Agriculture, the Office of Emergency Services, the CDFG, and the Department of Justice. OEHHA also works with federal agencies, the scientific community, industry, and the general public on environmental and public health issues.

3.6.3.2.2 Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5)

CalEPA Department of Toxic Substances Control [DTSC] is authorized by USEPA to enforce and implement federal hazardous materials laws and regulations. Most state hazardous materials regulations are contained in Title 22 of the CCR. DTSC provides cleanup and action levels for subsurface contamination; these levels are equal to, or more restrictive than, federal levels. DTSC acts as the lead agency for some soil and groundwater cleanup projects, and has developed land disposal restrictions and

1 treatment standards for hazardous waste disposal in California. DTSC is responsible for
2 the enforcement of the Hazardous Waste Control Law, which implements the federal
3 RCRA cradle-to-grave waste management system in California. California hazardous
4 waste regulations are stipulated in Title 22, Division 4.5.

5 **3.6.3.2.3 Hazardous Material Release Response Plans and** 6 **Inventory Law (California Health and Safety Code,** 7 **Division 20, Chapter 6.6)**

8 This state right-to-know law requires businesses to develop a Hazardous Material
9 Management Plan or a business plan for hazardous materials emergencies if they
10 handle more than 500 pounds, 55 gallons, or 200 cubic feet of hazardous materials. In
11 addition, the business plan includes an inventory of all hazardous materials stored or
12 handled at the facility above these thresholds. This law is designed to reduce the
13 occurrence and severity of hazardous materials releases. The Hazardous Materials
14 Management Plan or business plan must be submitted to the Certified Unified
15 Program Agency (CUPA), which, in this case, is Los Angeles County Fire
16 Department (LACFD). In 1997, the Health Hazardous Materials Division within the
17 LACFD became a CUPA to administer the following programs within Los Angeles
18 County: the Hazardous Waste Generator Program; the Hazardous Materials Release
19 Response Plans and Inventory Program; the California Accidental Release Prevention
20 Program; the Aboveground Storage Tank Program; and, the Underground Storage
21 Tank Program. The state has integrated the federal EPCRA reporting requirements
22 into this law; once a facility is in compliance with the local administering agency
23 requirements, submittals to other agencies are not required.

24 **3.6.3.2.4 Porter-Cologne Water Quality Control Act**

25 Sites that have contaminated groundwater fall within the jurisdiction of the Los
26 Angeles RWQCB and are subject to the requirements of the Porter-Cologne Water
27 Quality Control Act. Contaminated groundwater that is proposed to be discharged to
28 surface waters or to a publicly owned treatment works would be subject to the
29 applicable provisions of the CWA, including permitting and possibly pretreatment
30 requirements. An NPDES permit is required to discharge pumped groundwater to
31 surface waters, including local storm drains, in accordance with California Water
32 Code Section 13260. Additional restrictions may be imposed upon discharges to
33 water bodies that are listed as impaired under Section 303(d) of the CWA, including
34 San Pedro Bay.

35 **3.6.3.3 Local Regulations**

36 In addition to federal and state regulations, hazardous materials are frequently
37 defined under local hazardous materials ordinances, such as the Uniform Fire Code.
38 Depending on the type and degree of contamination that is present in soil and
39 groundwater, any of several governmental agencies may have jurisdiction over a site.
40 Generally, the agency with the most direct statutory authority over the affected media
41 is designated as the lead agency for purposes of overseeing any necessary
42 investigation or remediation. Typically, sites that are nominally contaminated with

1 hazardous materials remain within the jurisdiction of local hazardous materials
2 agencies, such as LACFD, which is the local CUPA.

3 **3.6.4 Impacts and Mitigation Measures**

4 **3.6.4.1 Methodology**

5 Soil and groundwater contamination impacts are evaluated with respect to the
6 significance criteria listed in Section 3.6.4.2, Thresholds of Significance. In addition,
7 the assessment of impacts considers the following regulatory controls and lease
8 measures that would govern construction and operational activities associated with
9 the proposed appealable/fill projects and land use changes under the proposed
10 Program.

- 11 ■ An individual NPDES permit for stormwater discharges or coverage under the
12 General Construction Activities Stormwater Permit would be obtained.
- 13 ■ A SPCC Plan and an OSCP would be prepared, and would be reviewed and
14 approved by the CDFG OSPR, in consultation with other responsible agencies.
15 The SPCC would detail and implement spill prevention and control measures to
16 prevent oil spills from seeping into onsite soils and reaching navigable waters.
17 The OSCP would identify and plan as necessary for contingency measures that
18 would minimize damage to soil and water quality and provide for restoration to
19 pre-spill conditions.
- 20 ■ Any contaminated soil encountered during construction of the proposed
21 appealable/fill projects, caused by prior activities, would be handled and/or
22 disposed of in accordance with LAHD lease conditions and all applicable federal,
23 state, and local regulations. Similarly, contaminated soil and groundwater
24 occurring as a result of construction- related oil spills would be properly handled
25 and/or disposed of in accordance with all federal, state, and local regulations.
- 26 ■ In accordance with standard LAHD lease conditions, the tenants would
27 implement a source control program, which provides for the inspection, control,
28 and cleanup of leaks from aboveground tank and pipeline sources, as well as
29 requirements related to groundwater and soil remediation.

30 The following LAHD leasing requirements (i.e., lease measures) apply to site
31 remediation and contamination contingency planning:

32 **Lease Measure GW-1: Site Remediation.** Unless otherwise authorized by the lead
33 regulatory agency for any given site, the tenant shall address all contaminated soils or
34 contamination within the proposed project boundaries discovered during demolition
35 and grading activities. Contamination existing at the time of discovery shall be the
36 responsibility of the past and/or current property owner. Contamination as a result of
37 the construction process shall be the responsibility of the tenant and/or tenant
38 contractors. Remediation shall occur in compliance with federal, state, and local
39 regulations and as directed by the lead regulatory agency for the site (Los Angeles
40 Fire Department [LAFD], DTSC, or Los Angeles RWQCB).

1 Soil removal shall be completed such that contamination levels in subsurface
2 excavations are below health screening levels established by OEHHA and/or
3 applicable action levels established by the lead regulatory agency with jurisdiction
4 over the site. Soil contamination waivers may be acceptable as a result of
5 encapsulation (i.e., paving) in backland areas and/or risk-based soil assessments but
6 shall be subject to the discretion of the lead regulatory agency. Excavated
7 contaminated soil shall be properly disposed of offsite unless the use of such material
8 onsite is beneficial to construction and approved by the agency overseeing
9 environmental concerns. All imported soil to be used as backfill in excavated areas
10 shall be sampled to ensure that it is suitable for use as backfill at an industrial site.

11 **Lease Measure GW-2: Contamination Contingency Plan.** The following
12 contingency plan shall be implemented to address contamination discovered during
13 demolition, grading, and construction.

- 14 a. All grading, trench excavation and filling operations, horizontal directional drilling,
15 and dewatering operations shall be observed for the presence of free-phase
16 petroleum products, chemicals, or contaminated soil/groundwater. Discolored soil
17 or suspected contaminated soil shall be segregated from clean soil. In the event
18 contaminated soil or groundwater is encountered during construction, the
19 contractor shall notify the LAHD's environmental representative. The LAHD shall
20 confirm the presence of the suspect material and direct the contractor to remove,
21 stockpile or contain, and characterize the suspect material(s) identified within the
22 boundaries of the construction area. Continued work at a contaminated site shall
23 require the approval of the LAHD Project Engineer.
- 24 b. Excavation of VOC-impacted soil shall require obtaining and complying with a
25 SCAQMD Rule 1166 permit.
- 26 c. The remedial option(s) of contaminated material shall be dependent upon a
27 number of criteria (including but not limited to types of chemical constituents,
28 concentration of the chemicals, health and safety issues, time constraints, cost,
29 etc.) and shall be determined on a site-specific basis. Both offsite and onsite
30 remedial options shall be evaluated.
- 31 d. The extent of removal actions shall be determined on a site-specific basis. At a
32 minimum, the impacted area(s) within the boundaries of the construction area
33 shall be remediated to the satisfaction of the LAHD and the lead regulatory
34 agency for the site. The LAHD Project Manager overseeing removal actions shall
35 inform the contractor when the removal action is complete.
- 36 e. Copies of hazardous waste manifests or other documents indicating the amount,
37 nature, and disposition of such materials shall be submitted to the Chief Harbor
38 Engineer within 30 days of project completion.
- 39 f. In the event that contaminated soil is encountered, all onsite personnel handling
40 or working in the vicinity of the contaminated material shall be trained in
41 accordance with USEPA and Occupational Safety and Health and Administration
42 (OSHA) regulations for hazardous waste operations. Training provides
43 precautions and protective measures to reduce or eliminate hazardous
44 materials/waste hazards at the work place.
- 45 g. When impacted soil must be excavated, air monitoring shall be conducted as
46 appropriate for related emissions adjacent to the excavation.

- 1 h. All excavations shall be backfilled with structurally suitable fill material that is
2 free from contamination.

3 3.6.4.2 Thresholds of Significance

4 The *L.A. CEQA Thresholds Guide* (City of Los Angeles 2006) and Port-specific
5 criteria for contaminated groundwater and soils are the bases for the following
6 significance criteria and for evaluating the significance of impacts on groundwater
7 and soils resulting from the proposed Program. Groundwater and soils impacts would
8 be significant under the following conditions:

- 9 **GW-1:** Exposure of soils containing toxic substances and petroleum
10 hydrocarbons, associated with prior operations, which would be
11 deleterious to humans, based on regulatory standards established by the
12 lead agency for the site;
- 13 **GW-2:** Changes in the rate or direction of movement of existing contaminants;
14 expansion of the area affected by contaminants; or increased level of
15 groundwater contamination, which would increase risk of harm to
16 humans;
- 17 **GW-3:** Demonstrable and sustained reduction in potable groundwater recharge
18 capacity or change in potable water levels sufficient to:
- 19 ■ Reduce the ability of a water utility to use the groundwater basin for
20 public water supplies, conjunctive use purposes, storage of imported
21 water, or summer/winter peaking, or to respond to emergencies and
22 drought;
 - 23 ■ Reduce yields of adjacent wells or well fields (public or private); or,
 - 24 ■ Adversely change the rate or direction of groundwater flow; and,
- 25 **GW-4:** Violation of regulatory water quality standards at an existing production
26 well, as defined in CCR, Title 22, Division 4, Chapter 15 and in the Safe
27 Drinking Water Act.

28 3.6.4.3 Impacts and Mitigation

29 **Impact GW-1: The proposed Program would expose soils**
30 **containing toxic substances and petroleum hydrocarbons,**
31 **associated with prior operations, resulting in exposure to**
32 **construction and operation personnel. The exposure would not**
33 **be deleterious to humans, based on regulatory standards**
34 **established by the lead agency for the site.**

35 Planning Area 2

36 Construction

37 In Planning Area 2, there are three appealable/fill projects: Berths 187-189 Liquid
38 Bulk Relocation; Yang Ming Terminal Redevelopment; and China Shipping Fill. The
39 Berths 187-189 Liquid Bulk Relocation would move liquid bulk to Berths 191-193.

1 Although project-specific details presently are unavailable, construction activities
2 associated with these proposed appealable/fill projects and land use changes are
3 expected to include grading, trenching, excavation, and other ground-disturbing
4 activities that could expose contaminated soils. In particular, soils and groundwater
5 underlying Berths 191-193 are contaminated with VOCs, petroleum hydrocarbons,
6 arsenic, copper, and lead (LAHD 2009) and could be exposed by construction
7 activities. The soils and groundwater underlying the Yang Ming Terminal
8 Redevelopment Project site are contaminated with total petroleum hydrocarbons
9 (TPH) and VOCs (LAHD 2009) that could be exposed by construction activities.
10 China Shipping Fill corresponds to an in-water project and would not encounter
11 contaminated soils and groundwater. Impacts to water and sediment quality from the
12 China Shipping Fill Project are addressed in Section 3.14, Water, Sediments, and
13 Oceanography. Relocation of the liquid bulk terminal at Berths 187-189 (Vopak) to
14 Berths 191-194, removal and demolition of the liquid bulk facility at Berths 118-120
15 (Kinder Morgan), and conversion of vacant land to liquid bulk or dry bulk on
16 Mormon Island, an optional land use site, could also entail ground-disturbing
17 activities that could encounter and/or expose contaminated soils.

18 Contaminated soil or groundwater encountered in the construction footprint of the
19 proposed appealable/fill projects would be handled, transported, remediated, and/or
20 disposed of in accordance with all applicable federal, state, and local laws and
21 regulations, the regulatory lead agency's (e.g., DTSC or Los Angeles RWQCB)
22 requirements, and LAHD leasing requirements related to hazardous materials,
23 hazardous wastes, and regulatory compliance. LAHD's lease measures, discussed in
24 Section 3.6.4.2, Thresholds of Significance, require tenants to address all
25 contamination within their lease boundaries that is discovered during demolition and
26 construction and to conduct remedial activities in accordance with federal, state, and
27 local regulations and the lead agency's direction. The lease measures also require
28 cleanups to lead agency action levels, proper disposal of contaminated materials, and
29 use of clean backfill. Further, the measures establish a contingency plan for
30 protecting worker and public health and safety and for protecting the environment in
31 the event unexpected contamination is discovered.

32 Compliance with these measures would ensure that if contaminated materials are
33 encountered at construction sites, onsite personnel would not have short-term or
34 long-term exposure to toxic substances or other contaminants associated with historic
35 uses at the Port.

36 *Operations*

37 Future improvements associated with proposed appealable/fill projects and land use
38 changes in Planning Area 2 likely would require asphalt paving or placement of
39 similar impervious surface material that would essentially cap any contamination
40 areas and prevent runoff from leaching through the remaining contaminants. This
41 would reduce the potential for exposure to residual contaminants to acceptable levels
42 prior to operation of the proposed appealable/fill projects and land use changes.
43 Therefore, operations associated with the proposed appealable/fill projects in
44 Planning Area 2 would not expose workers or the public to unacceptable levels of
45 soil or groundwater contamination, although converting the existing liquid bulk area
46 at Berth 187 to 189 to open space could leave the soil surface exposed. However,
47 during demolition of the liquid bulk facilities any exposed contaminated soil would

1 be handled, transported, remediated, and/or disposed of in accordance with all
2 applicable federal, state, and local laws and regulations, and LAHD leasing
3 requirements. This conformance would ensure that the public would not be exposed
4 to unacceptable levels of soil contamination through use of the open space area
5 following construction.

6 **Planning Area 3**

7 *Construction*

8 The Berth 300 Development Project is the only proposed appealable/fill project in
9 Planning Area 3. However, there are no known contaminated soils and groundwater
10 underneath the Berth 300 area. Land use changes and subsequent development in
11 other portions of Planning Area 3 could involve construction activities, that could
12 encounter contaminated soils. Regardless, any contaminated soil or groundwater
13 encountered within the construction footprint would be handled, transported,
14 remediated, and/or disposed of in accordance with all applicable federal, state, and
15 local laws and regulations, the regulatory lead agency's (e.g., DTSC or Los Angeles
16 RWQCB) requirements, and LAHD leasing requirements related to hazardous
17 materials, hazardous wastes, and regulatory compliance.

18 LAHD's lease measures, discussed in Section 3.6.4.2, Thresholds of Significance,
19 require tenants to address all contamination within their lease boundaries that is
20 discovered during demolition and construction and to conduct remedial activities in
21 accordance with local, state, and federal regulations and the lead agency's direction.
22 The lease measures also require cleanups to lead agency action levels, proper disposal
23 of contaminated materials, and use of clean backfill. Further, the measures establish a
24 contingency plan for protecting worker and public health and safety and for protecting
25 the environment in the event that unexpected contamination is discovered.

26 *Operations*

27 Asphalt paving, or the placement of similar impervious surface material at the Berth
28 300 Development Project site and areas with land use changes, would essentially cap
29 any previously unknown contamination areas and prevent runoff from leaching
30 through the remaining contaminants. Operations at the Berth 300 Development
31 Project site and areas undergoing land use changes would not disturb soils that
32 represent a potential risk of uncovering previously unknown historical contamination
33 or exposing workers or the public to such contamination.

34 **Planning Area 4**

35 *Construction*

36 Construction for the Tri Marine Expansion, 338 Cannery Street Adaptive Reuse and
37 Al Larson Marina projects, and associated land use changes, may expose
38 contaminated soils and groundwater. There is documented contamination with TPH
39 and lead in the soil and groundwater near the Tri Marine Expansion and 338 Cannery
40 Street Adaptive Reuse project sites (LAHD 2009). Further, there is documented
41 contamination of TPH and metals underlying the Al Larson Marina project site
42 (LAHD 2009).

1 Contaminated soil and/or groundwater encountered in the construction footprints of
2 these projects and land use changes would be handled, transported, remediated, and/or
3 disposed of in accordance with all applicable federal, state, and local laws and
4 regulations, the regulatory lead agency's (e.g., DTSC or Los Angeles RWQCB)
5 requirements, and LAHD leasing requirements related to hazardous materials,
6 hazardous wastes, and regulatory compliance.

7 LAHD's lease measures, discussed in Section 3.6.4.2, Thresholds of Significance,
8 require tenants to address all contamination within their lease boundaries discovered
9 during demolition and construction and to conduct remedial activities in accordance
10 with federal, state, and local regulations and the lead agency's direction. The lease
11 measures also require cleanups to lead agency action levels, proper disposal of
12 contaminated materials, and use of clean backfill. Further, the measures establish a
13 contingency plan for protecting worker and public health and safety and for
14 protecting the environment in the event unexpected contamination is discovered.

15 *Operations*

16 Asphalt paving, or the placement of similar impervious surface material at the proposed
17 appealable/fill project sites and land use changes in Planning Area 4, would essentially
18 cap any contamination areas and prevent runoff from leaching through the remaining
19 contaminants. Operations of these projects and proposed land use changes would not be
20 expected to uncover previously unknown historical contamination or expose workers or
21 the public to contamination.

22 **Impact Determination**

23 *Construction*

24 Compliance with all applicable federal, state, and local laws and regulations and lease
25 measures during construction activities associated with the proposed appealable/fill
26 projects and land use changes would ensure that if contaminated materials are
27 encountered, onsite personnel would not have short-term or long-term exposure to
28 toxic substances or other contaminants associated with historic uses at the Port.
29 Therefore, impacts would be less than significant.

30 *Operations*

31 Asphalt paving, or the placement of similar impervious surface material for the
32 proposed appealable/fill projects and areas with land use changes, would essentially
33 cap any previously unknown contamination areas and prevent runoff from leaching
34 through the remaining contaminants. Operation of the proposed appealable/fill
35 projects and land use changes would not uncover historical contamination or expose
36 humans to contaminants. Therefore, impacts on soil and groundwater would be less
37 than significant.

38 **Mitigation Measures**

39 Lease Measures GW-1 and GW-2 would reduce any potential for impact. No
40 mitigation is required.

Residual Impacts

Residual impacts would be less than significant.

Impact GW-2: The proposed Program would not result in changes in the rate or direction of movement of existing contaminants; expansion of the area affected by contaminants; or increases in the level of groundwater contamination, which would increase risk of harm to humans.

Planning Area 2

Construction

As discussed under Impact GW-1, soil and groundwater in portions of the PMPU area are affected by hazardous substances and petroleum waste as a result of historic Port activities. While some remediation has occurred, residual contamination remains within portions of the PMPU area. Excavation and grading activities in these areas and other areas with unknown contamination could encounter contaminated soil and/or groundwater. If contaminated soil and/or groundwater are encountered during construction of any of the proposed appealable/fill projects (Berths 187-189 Liquid Bulk Relocation, Yang Ming Terminal Redevelopment, and China Shipping Fill) and land use changes in Planning Area 2 they would be handled in accordance with federal, state, local requirements, and LAHD lease measures. However, the removal of contaminated soil and/or dewatering of contaminated groundwater would be localized to these proposed appealable/fill project sites and land use changes and would not be expected to cause remaining contamination to migrate to offsite areas.

Additionally, construction of the proposed appealable projects and land use changes would be expected to repave all but open area land uses, and the impermeable surface cover would serve as a barrier to runoff leaching into existing contamination zones. Following construction of the proposed appealable/fill projects and land use changes, runoff would be conveyed offsite and would not permeate the soil or enter the groundwater. Consequently, these projects and land use changes are not expected to change the rate or direction of movement, or extent of existing soil and/or groundwater contamination.

Operations

Future improvements associated with proposed appealable/fill projects and land use changes in Planning Area 2 likely would require asphalt paving or placement of similar impervious surface material over all but open area land uses that would essentially cap any residual contaminated soils areas and prevent runoff from leaching through the remaining contaminants. This would reduce the potential for exposure to residual contaminants to acceptable levels prior to operation of the proposed appealable/fill projects and land use changes. Converting the existing liquid bulk area at Berth 187 to 189 to open space could leave the soil surface exposed to runoff. However, during demolition of the liquid bulk facilities any exposed contaminated soil would be handled, transported, remediated, and/or disposed of in accordance with all applicable federal, state, and local laws and regulations, and LAHD leasing requirements. Land use changes associated with converting vacant

1 land on Mormon Island, an optional land use site, to liquid bulk would increase the
2 potential for groundwater and soil contamination due to accidental spills associated
3 with the storage of petroleum products and other hazardous materials. However,
4 LAHD and tenant operations are subject to lease measures and numerous federal,
5 state, and local laws and regulations designed to minimize the likelihood of further
6 releases of hazardous substances to the environment (Section 3.6.3, Applicable
7 Regulations). These controls include inventory and storage requirements, spill
8 prevention and emergency response plans and procedures, and reporting and
9 notification requirements. Compliance with all applicable existing regulations would
10 prevent operation of the proposed appealable/fill projects and land use changes from
11 expanding areas affected by contamination or from increasing levels of existing
12 contamination.

13 **Planning Area 3**

14 *Construction*

15 During construction of the Berth 300 Development Project, contaminated soil or
16 groundwater would be remediated according to the lease measures, and the surface of
17 any residual contamination zones would be repaved with an impermeable barrier,
18 thereby minimizing risks of expanding areas of contamination. Similarly,
19 contaminated soil and/or groundwater encountered by construction activities related
20 to land use changes would be handled in accordance with federal, state, local
21 requirements, and LAHD lease measures, and the removal of contaminated soil
22 and/or dewatering of contaminated groundwater would not be expected to cause
23 remaining contamination to migrate to offsite areas.

24 *Operations*

25 Land use changes in Planning Area 3 would replace the existing liquid bulk area
26 north of the TIWRP and convert this area to container cargo uses. This land use
27 change would minimize the potential for groundwater and soil contamination due to
28 accidental spills associated with the storage of petroleum products and other
29 hazardous materials.

30 Land use changes associated with converting existing maritime support uses at Berth
31 301, an optional land use site, to liquid bulk would increase the potential for
32 groundwater and soil contamination due to accidental spills associated with the
33 storage of petroleum products and other hazardous materials. However, conversion of
34 Berth 301 to container uses would not likely increase the potential for groundwater
35 and soil contamination.

36 Asphalt paving, or the placement of similar impervious surface material at the proposed
37 appealable/fill project sites and land use changes in Planning Area 3, would essentially
38 cap any residual contamination areas and prevent runoff from leaching through the
39 remaining contaminants.

40 Compliance with all lease measures and applicable existing regulations would
41 prevent the Berth 300 Development Project and other land use changes from
42 expanding areas affected by contamination or from increasing levels of existing
43 contamination.

1 Planning Area 4**2 Construction**

3 Construction for the Tri Marine Expansion, 338 Cannery Street Adaptive Reuse and
4 Al Larson Marina projects, and associated land use changes, could potentially expose
5 contaminated soils and groundwater. However, contaminated soil and/or groundwater
6 would be remediated according to LAHD lease measures and the surface of any
7 residual contamination zones would be repaved with an impermeable barrier.

8 Operations

9 Future improvements associated with proposed appealable/fill projects and land use
10 changes in Planning Area 4 likely would require asphalt paving or placement of
11 similar impervious surface material over all but open area land uses. These
12 improvements would essentially cap any residual contaminated soils areas and
13 prevent runoff from leaching through the remaining contaminants, thereby reducing
14 the potential for exposure to residual contaminants to acceptable levels prior to
15 operation of the proposed appealable/fill projects and land use changes. Furthermore,
16 compliance with all applicable existing regulations would prevent the Tri Marine
17 Expansion, 338 Cannery Street Adaptive Reuse, and Al Larson Marina projects, and
18 associated land use changes, from expanding areas affected by contamination or from
19 increasing levels of existing contamination.

20 Impact Determination**21 Construction**

22 Contaminated soil and/or groundwater encountered during construction of the
23 proposed appealable/fill projects and construction related to proposed land use
24 changes would be remediated in accordance with LAHD lease measures and the
25 surface of residual contamination zones would be repaved with an impermeable
26 barrier. Therefore, the construction of the proposed appealable/fill projects and
27 construction related to the land use changes would not be expected to change the rate,
28 direction, or extent of existing soil and/or groundwater contamination, and impacts
29 on soil and groundwater would be less than significant.

30 Operations

31 Operation of the proposed appealable/fill projects and land use changes would not
32 uncover historical contamination or expose humans to contaminants. Furthermore,
33 operation of the proposed appealable/fill projects and land use changes would be
34 subject to controls that would minimize the likelihood of additional contamination or
35 changes in the rate, direction, or extent of existing soil and/or groundwater
36 contamination. Therefore, impacts on soil and groundwater would be less than
37 significant

38 Mitigation Measures

39 No mitigation is required; however Lease Measures GW-1 and GW-2 reduce the
40 potential for impact.

1 **Residual Impacts**

2 Residual impacts would be less than significant.

3 **Impact GW-3: The proposed Program would not result in a**
4 **demonstrable and sustained reduction in groundwater recharge**
5 **capacity or change in potable water levels sufficient to reduce the**
6 **ability of a water utility to use the groundwater basin for public**
7 **water supplies, conjunctive use purposes, storage of imported**
8 **water, or summer/winter peaking, or to respond to emergencies**
9 **and drought; reduce yields of adjacent wells or well fields (public**
10 **or private); or, adversely change the rate or direction of**
11 **groundwater flow.**

12 **Planning Areas 2 - 4**

13 The PMPU area is underlain by saline, non-potable groundwater. Because the water
14 is non-potable, the amount of infiltration to the groundwater beneath the proposed
15 appealable/fill project sites is not applicable with respect to potential recharge of the
16 groundwater for drinking water storage. Therefore, any temporary increase or
17 decrease in permeability at project sites during construction or operations would be
18 not applicable.

19 **Impact Determination**

20 Because there are no potable water resources in the PMPU area, no impacts would
21 occur.

22 **Mitigation Measures**

23 No mitigation is required.

24 **Residual Impacts**

25 No residual impacts would occur.

26 **Impact GW-4: The proposed Program would not result in a**
27 **violation of regulatory water quality standards at an existing**
28 **production well, as defined in CCR, Title 22, Division 4, Chapter**
29 **15 and in the Safe Drinking Water Act.**

30 **Planning Areas 2 - 4**

31 Drinking water is supplied to the PMPU area by the LADWP, and there are no
32 production wells in the Port. Groundwater in the PMPU area is subject to extensive
33 saltwater intrusion and is not a source of potable water.

34 **Impact Determination**

35 Because no existing production wells are located in the PMPU area, no impacts
36 would occur.

1 **Mitigation Measures**

2 No mitigation is required.

3 **Residual Impacts**

4 No residual impacts would occur.

5 **3.6.5 Summary Impact Determination**

6 Table 3.6-1 summarizes the impact determinations of the proposed Program related
 7 to groundwater and soils. Identified potential impacts are based on federal, state, and
 8 City of Los Angeles significance criteria, Port criteria, and the scientific judgment of
 9 the report preparers.

10 For each type of potential impact, the table describes the impact, notes the impact
 11 determination, describes any applicable mitigation measures, and identifies the
 12 residual impacts (i.e., the impact remaining after mitigation). All impacts, whether
 13 significant or not, are included in the table.

Table 3.6-1. Summary Matrix of Potential Impacts and Mitigation Measures for Groundwater and Soils Associated with the Proposed Program

<i>Environmental Impacts</i>	<i>Impacts Determination</i>	<i>Mitigation Measures</i>	<i>Impacts After Mitigation</i>
<i>Construction</i>			
GW-1: Construction of the proposed Program would expose soils containing toxic substances and petroleum hydrocarbons, associated with prior operations, resulting in exposure to construction and operation personnel. The exposure would not be deleterious to humans, based on regulatory standards established by the lead agency for the site.	Less than significant	No mitigation is required; however Lease Measures GW-1 and GW-2 would reduce any potential for impact.	Less than significant
GW-2: Construction of the proposed Program would not result in changes in the rate or direction of movement of existing contaminants; expansion of the area affected by contaminants; or increases in the level of groundwater contamination, which would increase risk of harm to humans.	Less than significant	No mitigation is required; however Lease Measures GW-1 and GW-2 would reduce any potential for impact.	Less than significant
GW-3: Construction of the proposed Program would not result in a demonstrable and sustained reduction in groundwater recharge capacity or change in potable water levels sufficient to reduce the ability of a water utility to use the groundwater basin for public water supplies, conjunctive use purposes, storage of imported water, or summer/winter peaking, or to respond to emergencies and drought; reduce yields of adjacent wells or well fields (public or private); or, adversely change the rate or direction of groundwater flow.	No impacts	No mitigation is required	No impacts

Table 3.6-1. Summary Matrix of Potential Impacts and Mitigation Measures for Groundwater and Soils Associated with the Proposed Program

<i>Environmental Impacts</i>	<i>Impacts Determination</i>	<i>Mitigation Measures</i>	<i>Impacts After Mitigation</i>
GW-4: Construction of the proposed Program would not result in a violation of regulatory water quality standards at an existing production well, as defined in CCR, Title 22, Division 4, Chapter 15 and in the Safe Drinking Water Act.	No impacts	No mitigation is required	No impacts
<i>Operations</i>			
GW-1: Operation of the proposed Program would expose soils containing toxic substances and petroleum hydrocarbons, associated with prior operations, resulting in exposure to construction and operation personnel. The exposure would not be deleterious to humans, based on regulatory standards established by the lead agency for the site.	Less than significant	No mitigation is required	Less than significant
GW-2: Operation of the proposed Program would not result in changes in the rate or direction of movement of existing contaminants; expansion of the area affected by contaminants; or increases in the level of groundwater contamination, which would increase risk of harm to humans.	Less than significant	No mitigation is required	Less than significant
GW-3: Operation of the proposed Program would not result in a demonstrable and sustained reduction in groundwater recharge capacity or change in potable water levels sufficient to reduce the ability of a water utility to use the groundwater basin for public water supplies, conjunctive use purposes, storage of imported water, or summer/winter peaking, or to respond to emergencies and drought; reduce yields of adjacent wells or well fields (public or private); or, adversely change the rate or direction of groundwater flow.	No impacts	No mitigation is required	No impacts
GW-4: Operation of the proposed Program would not result in a violation of regulatory water quality standards at an existing production well, as defined in CCR, Title 22, Division 4, Chapter 15 and in the Safe Drinking Water Act.	No impacts	No mitigation is required	No impacts

1 **3.6.6 Significant Unavoidable Impacts**

2 No significant unavoidable impacts to groundwater or soils would occur as a result of
 3 implementation of the proposed Program.

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