# 4.10 Hydrology and Water Quality

This section addresses issues involving potential impacts to hydrology and water quality resulting from the Project. The environmental setting provides information on surface water and groundwater in the vicinity of the Project site. This section also describes the regulatory setting, identifies the applicable significance thresholds for impacts, assesses potential impacts of the Project, and recommends measures to mitigate any significant impacts, if applicable. The section also provides a discussion of cumulative impacts. Alternatives are discussed in Chapter 5.0, Alternatives.

As described in Chapter 2.0, Project Description, the Project would include the demolition and remediation of the site, followed by soil stabilization or revegetation of disturbed areas, with some minor long-term operations associated with remediation.

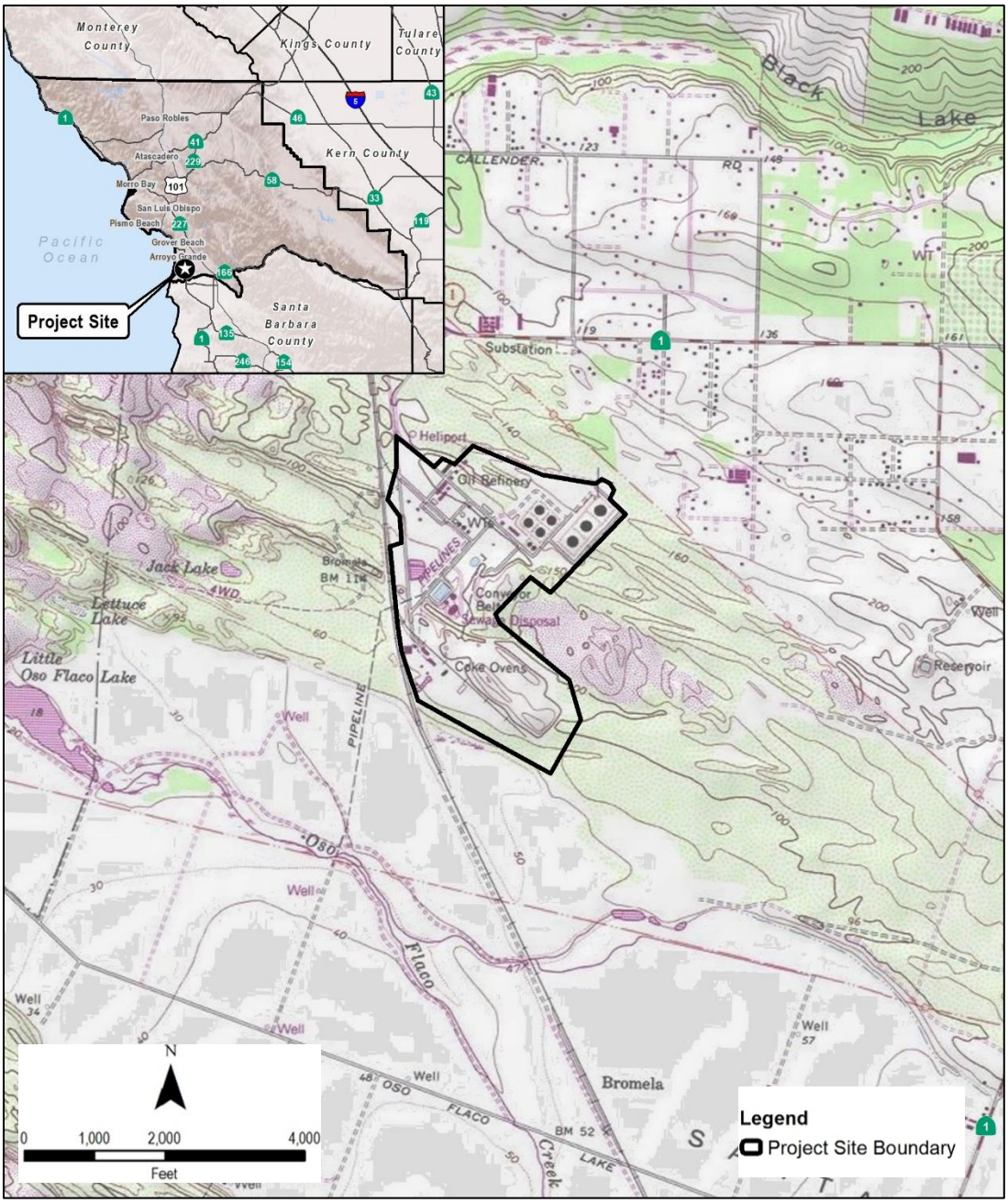
## 4.10.1 Environmental Setting

### 4.10.1.1 Topography and Drainage

The Project site is located on undulating dune topography, with elevations ranging from approximately 100 to 180 feet above mean sea level (Figure 4.10-1). The overall slope gradient is to the southwest, toward Oso Flaco Creek, located approximately 0.6 mile southwest of the Project site, at the closest point. Slope gradients within the Project site are predominantly gentle, with localized steeper slopes up to 30 feet high where the topography has been modified by grading. The engineered slope gradients are generally 2:1 (horizontal to vertical) or flatter. Spill containment berms are constructed around aboveground storage tanks. In addition, a large evaporation/percolation basin ("Evaporation Pond" in Area 5, Figure 2-3) with engineered side slopes is located in the southwest part of the site.

The soils underlying the Project site are Oceano sands, which are derived from old sand dune deposits. The soils have slow surface runoff and are excessively drained, with a high capacity to transmit water (USDA NRCS 2023; USDA SCS 1984). Due to the high infiltration rates, most precipitation on the dune deposits percolates into the soil with minimal runoff, flooding, ponding, or erosion. In addition, the Santa Maria Refinery (SMR) site topography is generally graded inward. This condition supports retention and infiltration of stormwater that flows off of equipment pads and minimizes potential for off-site runoff. The highly permeable sandy soils and site topography result in no observable stormwater runoff from the facility. Even during heavy rainfall, stormwater runoff from the operations pads infiltrates soon after encountering the surrounding sandy soil, and there is no observable overland flow or stormwater runoff. The infiltration capacity of the dune sand soils and the absence of runoff are clearly demonstrated through direct observations and a 2015 carbon plant no-discharge analysis (Order 2014-0057-DWQ; see Chapter 2.0, Project Description).

**Figure 4.10-1 Regional Topography and Drainage of Project Area**




Source: USGS 7.5-minute quads

The wastewater outfall line originates at the water effluent treatment (WET) plant (see Area 7 in Figure 2-3) and runs west through the Pismo/Oceano dunes for two miles to the shoreline and then terminates at a seafloor diffuser located 0.5 mile offshore at a surveyed depth of approximately 38 feet below mean sea level in the Pacific Ocean and is subject to a State Lands lease (see Appendix A). Inshore portions of the outfall line corridor lie beneath a zone of shallow sand bars and breaking waves. The nearshore environment features a broad sand beach, which is exposed to the prevailing northwesterly wind and swells (Tenera/Stantec 2023). Active sand dunes between the intertidal

zone and the SMR consist of a series of parallel ridges generally aligned perpendicular to the prevailing west-northwesterly winds. The topography of the older dune sands, which comprise the sediments along the eastern portion of the outfall line, generally consists of broad west-northwest trending drainages and intervening broad ridges.

Oso Flaco Creek terminates in Little Oso Flaco Lake (Figure 4.10-1), 0.25 mile from the Pacific Ocean. Oso Flaco Creek and its tributary Little Oso Flaco Creek are mostly channelized and generally flow year-round, supported by irrigation tailwater runoff. Portions of the Phillips 66-owned parcels 092-401-011 and 092-401-013 are within the 100-year floodplain. However, the Project site is located outside the 100-year Flood Hazard Zone (Figure 4.10-2) (FEMA 2023). Similarly, the Project site is not within a dam inundation area (County 1999).

#### 4.10.1.2 Surface Water Quality

The overall slope gradient of the Project site is to the southwest, toward Oso Flaco Creek, located approximately 0.6 mile southwest of the Project site, at the closest point. Although located within the Santa Maria Valley, Oso Flaco Creek is not part of the Santa Maria River Watershed. The creek originates in agricultural fields north of the Santa Maria River Estuary. The Oso Flaco Creek Watershed encompasses approximately 10,370 acres. Land use within the watershed is primarily irrigated vegetable row crops. Beneficial uses of Oso Flaco Creek, as established in the Central Coast Water Quality Control Plan for the Central Coastal Basin (Basin Plan), include municipal/domestic supply; agricultural supply; groundwater recharge; recreation (contact and non-contact); wildlife habitat; warm freshwater habitat; preservation of biological habitats of special significance; rare, threatened, or endangered species; freshwater replenishment; and commercial and sport fishing (Central Coast Water Board 2019).

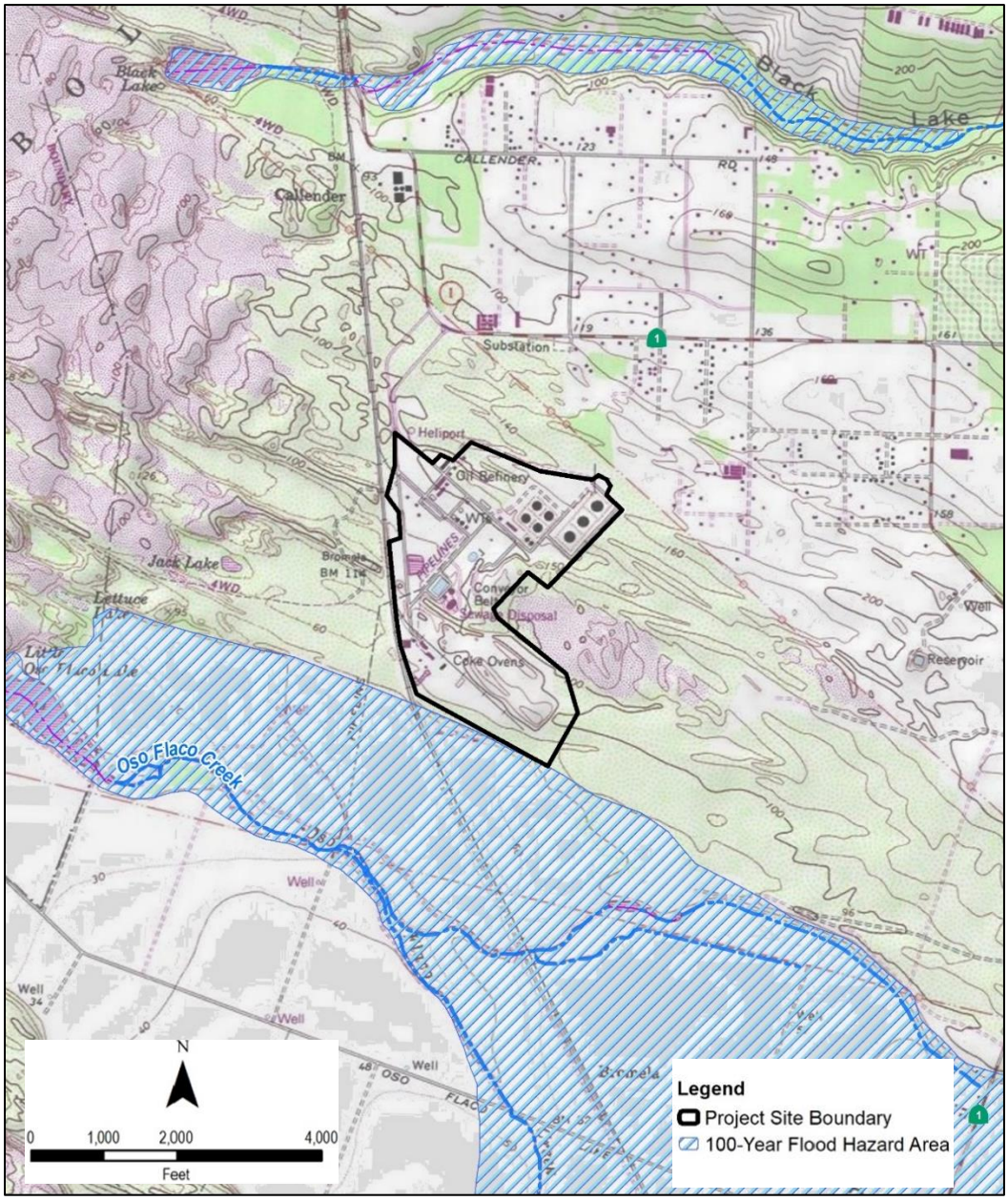
Under Clean Water Act Section 303(d), the State of California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives. Oso Flaco Creek and its tributary Little Oso Flaco Creek are listed by the U.S. Environmental Protection Agency (U.S. EPA) as 303(d) Impaired Water Bodies, for which a Total Maximum Daily Load (TMDL) must be established. TMDLs define how much of a specific pollutant/stressor a given water body can tolerate and still meet relevant water quality standards. Oso Flaco Creek and its tributary Little Oso Flaco Creek are listed as Impaired Water Bodies based on high levels of ammonia, chloride, chlorpyrifos, fecal coliform, malathion, nitrates, sodium, toxicity, and turbidity (SWRCB 2023a).

The downstream Little Oso Flaco Lake is the largest of four small freshwater lakes located in the Guadalupe Nipomo Dunes Complex. Little Oso Flaco Lake occupies a surface area of 82 acres and is classified by the U.S. Fish and Wildlife Service as palustrine (i.e., inland, non-tidal) emergent wetlands, a valuable habitat for wildlife and subsequently a resource for many recreational and educational activities (County 2015).

The SMR maintains two separate stormwater collection systems for contact and non-contact stormwater. Contact stormwater is precipitation runoff from areas within the tank berms and from the operating units or other areas, where the runoff could become contaminated. As discussed in Chapter 2.0, Project Description, non-contact stormwater management for the SMR's existing operations is covered under Individual National Pollutant Discharge Elimination System (NPDES)

Permit #CA0000051. Non-contact stormwater from streets in an unimproved area, not subject to oil spills, is collected in a non-contact storm water sewer system and flows by gravity to an evaporation pond. This non-contact storm water is discussed below and is not discharged through the outfall pipeline.

**Figure 4.10-2 100-Year Flood Hazard Zone for Oso Flaco Creek**




Source: USGS 7.5-minute quads, FEMA 2023

Process wastewater and contact stormwater are treated in the WET plant. Treated effluent from the WET plant is regulated by Waste Discharge Requirements Order No. R3-2013-0028, National Pollutant Discharge Elimination System (NPDES) Permit No. CA0000051). NPDES Permit R3-2013-0028, allows the SMR to discharge up to 0.575 million gallons per day of treated production

wastewater and contact stormwater to the outfall pipeline. Most process units and operations areas are located on concrete pads, and tanks have containment berms. Oily wastewater collects in drains within the process areas and routes through an oily-water collection system to an oil/water separator and then to the WET plant.

The WET plant consists of two surge tanks, dissolved air flotation, a trickling filter, an Orbal aeration system, and a secondary clarifier. Sludge generated by the treatment processes is recycled at the coking facility. In 2023, with the shutdown of SMR processes, the Central Coast Regional Water Quality Control Board (Central Coast Water Board) approved the use of the facility's industrial water to supplement flows to sustain the water effluent treatment plant's biological treatment process.

Treated wastewater from the WET plant is permitted to discharge through the outfall and diffuser system to Discharge Point #001 in the Pacific Ocean. This discharge pipeline is comprised of 12-inch- to 14-inch-diameter pipe that originates at the wastewater plant and runs west through the Pismo/Oceano dunes for two miles to the shoreline and then terminates at a seafloor diffuser located 0.5 mile offshore in State Lands lease (see Appendix A). In January 2024, the dissolve air floatation process was taken offline completely due to the lack of oily wastewater influent. Operations of the WET plant and subsequently NPDES Permit No. R3-2013-0028 are estimated to terminate completely in 2024 and will require a Central Coast Water Board hearing and approval. The outfall pipeline will be capped and remain in place.

Non-contact stormwater is stormwater that flows off of SMR access roads, hardscape areas, and unimproved areas not in contact with process equipment, raw materials, or product, or within the oil storage tank containment areas. Non-contact stormwater collects in the non-contact stormwater sewer system and flows by gravity to an evaporation/percolation basin (Evaporation Pond, Area 5, see Figure 2-3). Non-contact stormwater does not discharge to the ocean outfall.

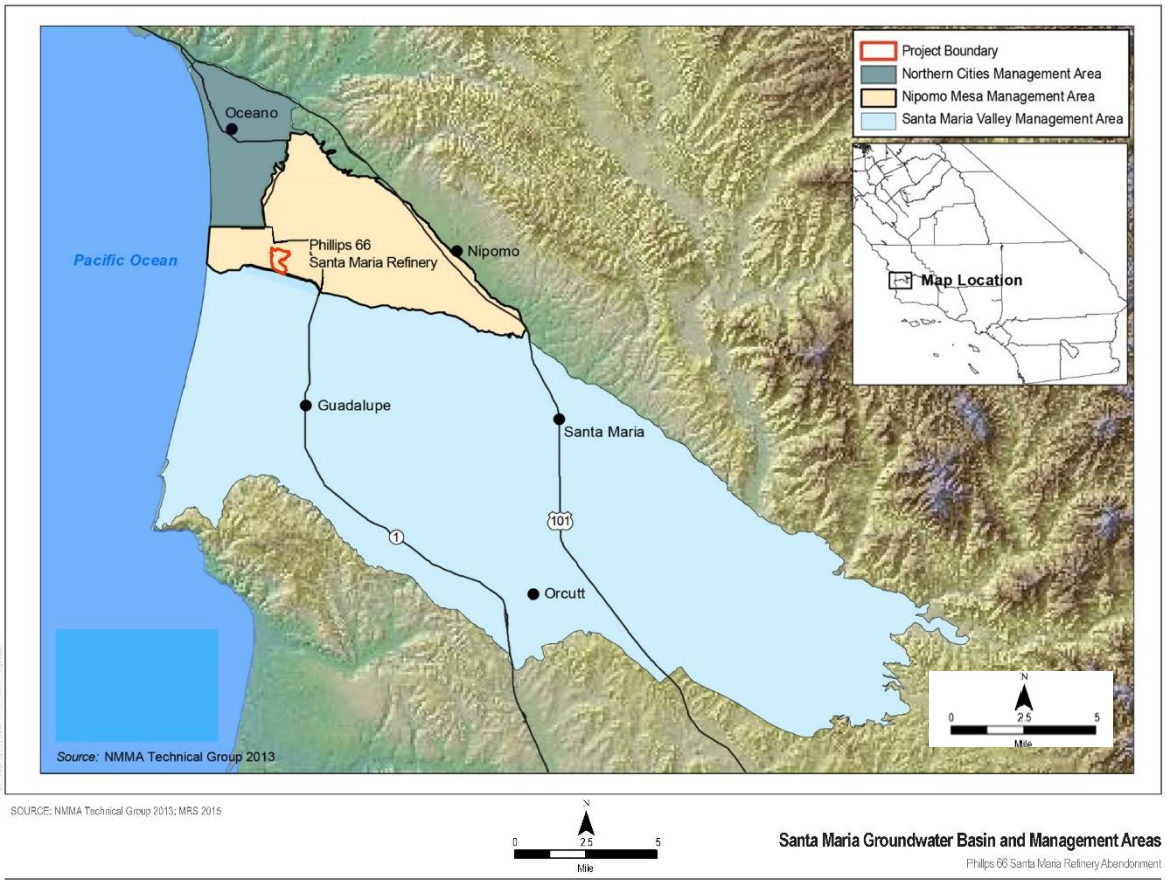
Stormwater at the carbon plant is managed independently of the SMR individual permit. There is no stormwater runoff from the carbon plant. Stormwater management at the carbon plant is the subject of a 2015 no-discharge determination (Order 2014-0057-DWQ) that will remain in effect during facility shutdown and decontamination, and during demolition. As previously discussed, the inward grade and soil conditions at the carbon plant result in retention and infiltration of stormwater that flows off of equipment pads. Analysis and observations demonstrate the infiltration capacity of the dune sand soils and the absence of runoff.

#### 4.10.1.3 Groundwater Supply

The SMR extracts groundwater from the Nipomo Mesa Management Area (NMMA) of the Santa Maria Groundwater Basin (Figure 4.10-3). The source of groundwater for the SMR wells is the deep aquifer in the Paso Robles and Careaga formations underlying the Nipomo Mesa. The deep aquifer is also the main source of water for surrounding municipal and agricultural wells. The shallow aquifer in the Nipomo Mesa sand dunes is utilized by lower capacity domestic and agricultural wells. The uppermost groundwater zone beneath the SMR is unconfined and based on groundwater monitoring data occurs at elevations ranging from approximately 40 to 50 feet above mean sea level (amsl). As per Trihydro well monitoring reports on Geotracker (ID SL203121248),

depths to groundwater range from 23 feet at the southernmost end of the site (well MW-32R) to about 90 feet at the north end of the site (well MW-56). Deeper and more permeable sections of the Paso Robles Formation form the second groundwater zone and are located 384 and 200 feet below ground surface. The shallow and deep aquifers underlying the SMR are separated by relatively low hydraulic conductivity layers that act as confining layers in the NMMA (NMMA TG 2023).

**Figure 4.10-3 Santa Maria Groundwater Basin and Management Areas**




Source: NMMA TG 2023; County 2015

The SMR has historically obtained all of its water from on-site groundwater wells. Water is primarily used for cooling, boiler feed for steam production, and process use such as removing coke from the coke drums.

The Santa Maria Groundwater Basin has been the subject of extensive litigation due to depression in groundwater elevations within the Basin and on the Nipomo Mesa. The County's Water Resources Advisory Committee has determined that overdraft in the Nipomo Mesa either currently exists or is imminent. Based on the Judgment after Trial of the Santa Maria Groundwater Litigation, Phillips 66 has rights to the reasonable and beneficial use of groundwater without limitation, except in the event of a Severe Water Shortage Condition, in which case water rights would be limited to no more than 110 percent of the highest amount it previously used in a single year.

As previously discussed in Section 2.3.5, Existing Water Use, water use data for the SMR are reported annually in the NMMA Annual Report for this adjudicated basin. Annual reports for the 14-year period 2008 through 2022 are available online at: https://ncsd.ca.gov/resources/reports-by-subject/#nmma. As noted in the six most recent annual reports, the calendar year groundwater production for the SMR has been consistent at 1,100 acre-feet per year (AFY). Refer to Table 3-3 of the 2017 report, and Table 3-4 of the 2018, 2019, 2020, 2021, and 2022 reports.

As noted in Section 4.2.3 of the 2022 report (submitted April 2023):

> *The P66 refinery expects future production to be similar to recent years' production amounts of approximately 1,100 AFY.*

This volume is equivalent to approximately 358 million gallons per year (at 325,800 gallons per acre-foot) or an average of 982,000 gallons per day.

#### 4.10.1.4 Groundwater Quality

One of the main threats to groundwater in the NMMA is the potential for seawater intrusion in the coastal portions of the aquifer. Evaluating seawater intrusion risk depends on knowledge of the groundwater levels, depth of the aquifers, structural geology/stratigraphy, and the location of the seawater-freshwater interface. The potential for seawater intrusion is minimized when there is sufficient subsurface groundwater flow toward the ocean, which can be monitored using groundwater elevations to determine the offshore gradient. If the onshore aquifers are pumped in excess of replenishment, the groundwater flow direction could reverse, and seawater intrusion could eventually occur (NMMA TG 2023). However, a substantial lag time may be present between excessive pumping-induced groundwater gradient reversal and seawater intrusion into the freshwater aquifer.

A series of coastal sentry wells are monitored regularly for seawater intrusion and reported publicly. To date, there has been no increase in chloride concentrations (indicative of seawater intrusion) in the coastal sentry wells. The 2022 NMMA report concluded that there is no evidence of seawater intrusion in the NMMA portion of the Santa Maria Groundwater Basin (NMMA TG 2023).

Groundwater quality monitoring has identified localized areas of the NMMA with nitrate concentrations greater than drinking water standards. Nitrate contamination can occur beneath agricultural lands as a result of leaching fertilizer-rich soil into underlying groundwater. In addition, one of the Phillips 66 wells reported a high (1,000 mg/l) total dissolved solids (TDS) concentration, which exceeds secondary drinking water standards. However, the well is only used for industrial processing. Chloride and TDS concentrations in groundwater samples from shallow dune sand wells have exhibited elevated nitrate concentrations or increasing salinity (NMMA TG 2023; Carollo Engineers 2012).

As discussed in Chapter 2.0, Project Description, and discussed in more detail in Section 4.9, Hazards and Hazardous Materials, soil and groundwater have historically been contaminated as a result of releases in several areas of the SMR. Phillips 66 is currently coordinating its investigation and remediation programs with the Central Coast Water Board.

The Slop Oil Line Release impacted both soil and groundwater (Figure 2-10). The release was discovered in April 2016 and subsequent investigations discovered that a light non-aqueous phase liquid (LNAPL) plume covers approximately 3.7 acres beneath the central portion of the SMR. The cleanup activities are performed under Central Coast Water Board oversight (GeoTracker Case #SL203121248). Manual extraction of LNAPL was conducted as an interim remediation measure. A long-term Hydrocarbon Recovery System, referred to as the SMR Groundwater Remediation Project (GWRP), was installed and the system was brought online in April 2023 as part of the Slop Oil Line Release remediation activities. Central Coast Water Board staff will continue to oversee implementation of the Slop Oil Line Release remediation activities and the post-remediation groundwater monitoring activities and will determine when the cleanup is complete. The SMR GWRP consists of 12 recovery wells, seven monitoring wells, a 15-horsepower air compressor, and a 1,380-barrel aboveground holding tank.

Based on groundwater sampling, with the exception of a small area around a runoff pond, referred to as the "BC-4 area" (Figure 2-10), groundwater beneath the former carbon plant and coke pile area had minimal to non-detectable concentrations of contaminants. Beneath the BC-4 area, biogeochemical processes were potentially causing low pH in groundwater that periodically mobilized metals in soil, raising metal concentrations in groundwater.

As discussed in Chapter 2.0, Project Description, the SMR conducts a site-wide groundwater monitoring program (Monitoring and Reporting Program [MRP] No. R3-2008-0700) that has been in place for over two decades. Data is collected semiannually, with monitoring reports viewable through GeoTracker (Case #SL203121248) (SWRCB 2023b). MRP No. R3-2008-0070 was revised by the Central Coast Water Board and issued on March 28, 2023. Based on the most recent ten years of groundwater data, with the exception of periodic impacts on groundwater in the BC-4 area and groundwater impacted by the Slop Oil Line Release, there is limited evidence of groundwater impacts elsewhere beneath the site that necessitate remediation. However, the additional sitewide sampling performed as part of the Project may identify additional areas where groundwater impacts need to be investigated. Additionally, the extent of per- and polyfluoroalkyl substances (PFAS) identified in soil and groundwater during initial site investigation activities in 2022 have not been fully delineated.

## 4.10.2 Regulatory Setting

### 4.10.2.1 Federal Regulations

**Clean Water Act**

The Clean Water Act (CWA), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality (33 United States Code Section 1251 et seq.). The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The CWA establishes basic guidelines for regulating discharges of both point and non-point sources of pollutants into the waters of the United States. The CWA requires that states adopt water quality standards to protect public health, enhance the quality of water resources, and ensure implementation of the CWA. Commonly relevant sections of the act are as follows:

**Sections 303 and 304** provide for water quality standards, criteria, and guidelines. Under Section 303(d) of the CWA, the State of California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives. California is required to establish TMDLs for each pollutant/stressor. A TMDL defines how much of a specific pollutant/stressor a given water body can tolerate and still meet relevant water quality standards. Once a water body is placed on the Section 303(d) List of Water Quality Limited Segments, it remains on the list until a TMDL is adopted and the water quality standards are attained, or there is sufficient data to demonstrate that water quality standards have been met and delisting from the Section 303(d) list should take place.

**Section 401 (Water Quality Certification)** indicates that a federal agency may not issue a permit or license to conduct any activity that may result in any discharge into waters of the United States unless a Section 401 water quality certification is issued, verifying compliance with water quality requirements, or waiving such a certification. States where the discharge would originate are generally responsible for issuing water quality certifications. CWA Section 404 permits (see description below) are subject to Section 401 certification.

**Section 402 (National Pollutant Discharge Elimination System)** establishes the NPDES, a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the State Water Resources Control Board (SWRCB) and the nine RWQCBs, who have several programs that implement individual and general permits related to construction activities, stormwater runoff quality, and various kinds of non-stormwater discharges. The NPDES General Construction Permit is discussed in Section 4.10.2.2, State Regulations. In general, in California, a NDPES permit also provides waste discharge requirements, although waste discharge requirements can be issued for discharges that are not within the coverage of the Section 402 NPDES program.

**The Municipal Stormwater Permitting Program under CWA Section 402** regulates stormwater discharges from municipal separate storm sewer systems (MS4s). MS4 permits are issued in two phases: Phase I, for medium and large municipalities, and Phase II for small municipalities. The Phase II Small MS4 General Permit requires the discharger to develop and implement best management practices (BMPs) through a coordinated storm water program with the goal of reducing the discharge of pollutants to the maximum extent practicable, which is the performance standard specified in Section 402(p) of the CWA. See Section 4.10.2.3, Local Regulations, for the County's Stormwater Management Program.

**Section 404 (Discharge of Dredged or Fill Material into Waters of the United States)** establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is jointly administered by the U.S. Army Corps of Engineers (USACE) and U.S. EPA. A Section 401 water quality certification generally is necessary for a Section 404 permit.

Numerous agencies have responsibilities for administration and enforcement of the CWA. At the federal level, this includes the U.S EPA, USACE, and the major federal land management agencies such as the U.S. Forest Service and Bureau of Land Management. At the state level, with the exception of tribal lands, the California Environmental Protection Agency (CalEPA) and its sub-agencies, including the SWRCB and the nine RWQCBs, have been delegated primary

responsibility for administering and enforcing certain provisions of the CWA. The Central Coast Water Board is the state agency that implements the CWA and has the primary enforcement responsibility under the CWA for this project.

**Federal Antidegradation Policy**

The Federal Antidegradation Policy (40 Code of Federal Regulations 131.12), first included in U.S. EPA's regulations in 1983, is designed to protect water quality and water resources. The policy requires states to develop statewide antidegradation policies and identify methods for implementing those policies. State antidegradation policies and implementation measures must include the following provisions: (1) existing instream uses and the water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and (3) where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected. State permitting actions must be consistent with the Federal Antidegradation Policy.

### 4.10.2.2 State Regulations

**Porter–Cologne Water Quality Control Act**

The Porter–Cologne Water Quality Control Act (first codified in the California Water Code Section 13000 et seq. in 1969) is the primary water quality control law for California. Whereas the CWA applies to all waters of the United States, the Porter–Cologne Act applies to both waters of the state and federal waters within California, including but not limited to isolated wetlands and groundwater in addition to federal waters. The act requires a Report of Waste Discharge for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state. For discharges directly to surface water (waters of the United States) from a point source, a NPDES permit is required, which is issued under both state and federal law. For other types of discharges, such as waste discharges to land (e.g., spoils disposal and storage), erosion from soil disturbance, or discharges to waters of the state (e.g., groundwater and isolated wetlands), waste discharge requirements are issued exclusively under state law. Waste discharge requirements typically require many of the same BMPs and pollution control technologies as NPDES permits.

**California Antidegradation Policy**

The California Antidegradation Policy, otherwise known as the Statement of Policy with Respect to Maintaining High Quality Water in California, was adopted by the SWRCB (State Board Resolution No. 68-16) in 1968. Unlike the Federal Antidegradation Policy, the California Antidegradation Policy applies to all waters of the state, not just surface waters. The policy requires that, with limited exceptions, whenever the existing quality of a water body is better than the quality established in individual basin plans, such high-quality water must be maintained and discharges to that water body must not unreasonably affect any present or anticipated beneficial use of the water resource. As stated in the Central Coast Water Board Basin Plan (2019), "discharge of waste to high quality waters must apply best practicable treatment or control not

only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State."

**State Water Resources Control Board Resolution 92-49**

State Water Resources Control Board Resolution No. 92-49, Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304 (Resolution No. 92-49), sets forth the policies and procedures for investigation and cleanup and abatement of discharges of waste to the waters of the State. It requires cleanup to background levels unless background levels of water quality cannot be restored. If background levels cannot be restored, dischargers must clean up to the best water quality which is reasonable, and consider technological and economic feasibility. Any such alternative cleanup level shall: 1) be consistent with maximum benefit to the people of the state; 2) not unreasonably affect present and anticipated beneficial use of such water; and 3) not result in water quality less than that prescribed in the Water Quality Control Plans and Policies adopted by the State Water Resources Control Board and Regional Water Quality Control Boards.

**Water Quality Control Plan for the Central Coastal Basin**

The Porter–Cologne Water Quality Control Act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update water quality control plans (Basin Plans), in which beneficial uses and water quality objectives are established, and which include implementation programs and policies to achieve those objectives (California Water Code Sections 13240 through 13247). Of particular importance to the Project is the Basin Plan's water quality objective for turbidity, which states that an "increase in turbidity attributable to controllable water quality factors shall not exceed the following limits:

1. Where natural turbidity is between 0 and 50 nephelometric turbidity units (NTU), increases shall not exceed 20%;

2. Where natural turbidity is between 50 and 100 NTU, increases shall not exceed 10 NTU; or

3. Where natural turbidity is greater than 100 NTU, increases shall not exceed 10%" (Central Coast Water Board 2019).

Another important part of the Basin Plan that applies to the Project includes the Spills, Leaks, Investigations, and Cleanup Program (Site Cleanup Program) which was established to allow Regional Boards to address water quality problems and potential problems resulting from discharges not covered by other State programs. Investigations proceed as described in State Board Resolution 92-49 referenced above.

**Construction General Permit (SWRCB Order No. 2009-0009-DWQ, as Amended)**

For stormwater discharges associated with construction activity in the State of California, the SWRCB has adopted and administers the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) to avoid and minimize water quality impacts attributable to such activities. The Construction General Permit applies to all projects in which construction activity disturbs one acre or more of soil. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling and excavation. One of the Construction General Permit requirements

is the development and implementation of a stormwater pollution prevention plan (SWPPP), which would specify water quality BMPs also designed to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the site. Routine inspection of all BMPs is required under the provisions of the Construction General Permit, and the SWPPP must be prepared and implemented by qualified individuals as defined by the SWRCB.

To receive coverage under the Construction General Permit, the project proponent must submit a Notice of Intent and permit registration documents to the SWRCB and applicable RWQCB through the Water Boards Stormwater Multiple Application & Report Tracking System (SMARTS). Permit registration documents include completing a construction site risk assessment to determine appropriate coverage level; detailed site maps showing disturbance area, drainage area, and BMP types/locations; the SWPPP; and, where applicable, post-construction water balance calculations and active treatment systems design documentation. These documents may also be subject to review by the Central Coast Water Board's Stormwater Program to ensure that they meet all requirements of the Construction General Permit.

**Sustainable Groundwater Management Act**

In 2014, California enacted the "Sustainable Groundwater Management Act" (California Water Code Sections 10720-10737.8 et seq.) to bring the state's groundwater basins into a more sustainable regime of pumping and recharge. The legislation provides for the sustainable management of groundwater through the formation of local groundwater sustainability agencies and the development and implementation of Groundwater Sustainability Plans (GSPs). GSPs were required to be submitted to the State Department of Water Resources (DWR) by January 31, 2020, for all basins designated as high- or medium-priority basins and basins that are subject to critical conditions of overdraft. GSPs were required to be submitted to the DWR by January 31, 2022, for all other high- or medium-priority basins. As previously discussed in Section 4.10.1.3, Groundwater Supply, the Santa Maria Groundwater Basin is an adjudicated basin and is subject to the Judgment after Trial of the Santa Maria Groundwater Litigation. As a result, the Sustainable Groundwater Management Act is not applicable to the Project area.

### 4.10.2.3 Local Regulations

**County of San Luis Obispo**

The County of San Luis Obispo (County) Department of Planning and Building administers state and federal pollution prevention policies for stormwater runoff, verifying that appropriate stormwater permits and plans are in place prior to the commencement of construction. The Department of Planning and Building are also required to track the long-term operation and maintenance of post-construction stormwater control measures installed within the County's Stormwater Management Area. The Central Coast Post-Construction Requirements (Resolution R-3-2013-0032) order the County to establish operation and maintenance plans with private stormwater system owners. The County records plans that comply with the requirements, which document the existence of all structures and require maintenance and operation in perpetuity by any future owners.

The County Water Resources Division is the County's management authority to ensure sustainable water uses, reliable water supplies, and better water quality. The Water Resources Division has

incorporated the Integrated Regional Water Management Plan, which is a collaborative effort to manage all aspects of water resources in the region with statewide water planning efforts.

### 4.10.3 Thresholds of Significance

The following significance criteria for hydrology and water quality have been derived from the State California Environmental Quality Act (CEQA) Guidelines (Appendix G, Environmental Checklist Form, Section IX), as well as the County's Environmental Checklist. Impacts of the Project would be considered significant and would require mitigation if the Project would:

a. Violate any water quality standards, discharge into surface waters, or otherwise alter surface water quality (e.g., turbidity, sediment, temperature, dissolved oxygen, etc.);

b. Change the quality of groundwater (e.g., saltwater intrusion, nitrogen-loading, site contamination, etc.);

c. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide additional sources of polluted runoff;

d. Change rates of soil absorption, or amount or direction of surface runoff;

e. Change the drainage patterns where substantial on- or off-site sedimentation/erosion or flooding may occur;

f. Involve activities within the 100-year flood zone;

g. Change the quantity or movement of available surface or ground water;

h. Adversely affect a community water service provider; or

i. Expose people to a risk of loss, injury or death involving flooding (e.g., dam failure, etc.), or inundation by seiche, tsunami or mudflow.

### 4.10.4 Impact Assessment Methodology

Potential direct and indirect Project impacts related to hydrology and water quality were evaluated against the thresholds of significance listed in Section 4.10.3 and are discussed below. The impact analysis evaluates potential Project impacts during all phases of the Project.

### 4.10.5 Project-Specific Impacts and Mitigation Measures

| Impact # | Impact Description | Residual Impact |
|---|---|---|
| HWQ.1 | Threshold a): Would the Project demolition, soil remediation, and grading potentially violate water quality standards, discharge into surface waters, or otherwise alter surface water quality (e.g., turbidity, sediment, temperature, dissolved oxygen, etc.)? | Class II |

The Project would include demolishing existing aboveground and some belowground facilities where remediation is required and would also leave any essential infrastructure or utilities required

to be kept in place by regulatory authorities, and features identified to remain for potential use by subsequent site occupants, including the existing wastewater treatment system ocean outfall pipeline. Excavations for removal of foundations, pipelines, utilities, and other facilities would result in soil disturbance and temporary soil stockpiling, pending off-site disposal or reuse on site. Similarly, soil remediation would involve soil excavations and temporary soil stockpiling, pending sampling and analysis to determine appropriate off-site disposal options. Where excavation occurs on existing vegetated areas, minor scarification, regrading, and revegetation would be required to return existing open areas to their natural topography and to provide proper drainage, which would also result in soil disturbance.

No physical work is planned on the wastewater treatment system ocean outfall pipeline extending outside the SMR fence line as part of the Project. Phillips 66 is not proposing to remove the outfall line at this time; therefore, no ground disturbance would occur along the outfall alignment to the shore, other than continuing routine inspection and maintenance. Disposition of the outfall would ultimately be determined by the California State Lands Commission.

Asphalt surfaces would be retained, as practical, during aboveground demolition in each area, thus reducing areas of soil disturbance. Most hardscapes would also remain (or be reinstalled) after the completion of belowground demolition and remediation. Equipment, demolition debris, and waste materials would be staged within the various SMR work areas and existing primary staging area (Figure 2-6). In addition to the primary designated laydown areas, smaller areas would be used throughout the site for temporary storage and staging of materials and equipment. Demolition staging and support areas may be moved as the work progresses. Any staging areas established in unpaved areas would result in soil disturbance. Vegetation disturbance within the fence line is anticipated to be limited to isolated locations on the periphery of the site, such as the fence line perimeter areas where surface emulsion would be removed, and most of the coke areas, resulting in exposure of sediments to wind and water erosion.

As discussed for impact GEO.3 (see Section 4.7, Geology and Soils), in the absence of proper soil management, each of these soil disturbing activities could result in wind and water erosion, and associated off-site sedimentation of downstream water bodies, including Oso Flaco Creek, located approximately 0.6 mile southwest of the Project site, and Little Oso Flaco Lake (Figure 4.10-1). Oso Flaco Creek and its tributary Little Oso Flaco Creek are mostly channelized and generally flow year-round, supported by irrigation tailwater runoff. However, because ground disturbance would be greater than 1.0-acre, Project soil disturbing activities would be completed in accordance with the Construction General Permit (CGP), which includes a standard SWPPP and associated BMPs, to be implemented for sediment and erosion control during site demolition, soil remediation, excavation backfilling/recontouring, and re-hardening. Applicable BMPs may include surface roughening, mulching, and installation of silt fences and straw bale barriers to reduce erosion and sedimentation rates during vegetation establishment. Sediment control structures would be inspected and maintained until vegetation becomes adequately established.

In addition, Project demolition, soil remediation, excavation backfilling/recontouring, and re-hardening could result in incidental spills of petroleum products or other contaminants that could adversely affect water quality from demolition equipment, excavation and grading equipment, cleaning solvents, and demolition debris. Any of these contaminants would potentially impair local surface water runoff. Soil remediation would involve temporary stockpiling of excavated soil

pending contaminant characterization and off-site disposal. In the absence of proper soil and debris stockpile management, precipitation could result in leaching of petroleum hydrocarbons, per-and polyfluoralkyl substances (PFAS), and other chemicals from the soil and debris, which in turn could potentially impair local surface water runoff.

Impacted soils and any other impacted materials would be segregated from non-impacted materials. Clean soils would be segregated from waste materials and side-cast at the excavation site for backfilling, or the soil may be stockpiled for use as fill in another functional area. Debris would be managed as it is generated to minimize storm water runoff. Incidental spills within the demolition/remediation area would generally be confined to the Project site, as the existing drainage primarily flows toward a stormwater basin/evaporation pond located in Area 5. Stormwater from southern portions of the site, such as Area 6 (Coke area) that does not flow into the Area 5 stormwater basin/evaporation pond, would have limited hydrologic connections with Little Oso Flaco Creek. The undulating dune topography has created localized, internally draining basins. In addition, on-site soils are excessively drained, with a high capacity to vertically transmit water. Due to the high infiltration rates, most of the precipitation on the dune deposits percolates into the soil with minimal runoff, flooding, or ponding, which limit the potential for runoff to flow from the Project site to Little Oso Flaco Creek. However, in the absence of an Oil/Hazardous Material Spill Contingency/Soil Management Plan, incidental spills of petroleum products or other contaminants could adversely impact surface water and groundwater quality. Impacts would be potentially significant.

Post demolition and remediation, the Project site would be a combination of existing paved road, other hardscape, and areas revegetated after ground disturbance. Restoration would involve plantings and revegetation to achieve long-term dust control and minimize potential erosion and sedimentation. The Project is expected to result in an increase in vegetated area (to 49 percent of the site from 31 percent of the site due to the removal of coke and revegetation of the coke area in Area 6). Portions of the existing SMR where hardscape would be removed in order to access subsurface infrastructure or impacted soil would have hardscapes replaced. Impervious surfaces and revegetation would prevent long-term erosion of sediments and associated sedimentation of Little Oso Flaco Creek and Oso Flaco Lake.

Following demolition and remediation activities, construction SWPPP BMPs would be maintained, as appropriate, through site stabilization and restoration. The Construction SWPPP would include an Operation, Monitoring, and Maintenance (OM&M) Plan to monitor and maintain BMP effectiveness. The OM&M Plan would consist of monitoring by a Qualified Storm Water Practitioner (QSP), or trained delegate, until the Notice of Termination for coverage under the Construction General Permit is accepted (i.e., when the Construction General Permit parameters for site stabilization are achieved).

The OM&M Plan would describe the expected types and frequency of maintenance activities that would be implemented to ensure that stormwater features effectively convey stormwater runoff throughout the site. Maintenance activities may include, but are not limited to, removal of sediment from conveyance swales, repair of riprap, maintenance of fiber rolls, and maintenance of the perimeter security fence. Maintenance of the erosion control features established in the OM&M Plan should not be required after the site vegetation is fully established. Permanent stormwater management features (i.e., swales, culverts, stormwater basins) would be similar to existing

features. In addition, final site contours would be similar to existing conditions and would be configured such that site drainage continues to be retained on site, with limited off-site runoff. Stormwater drainage features would convey on-site flows in a non-erosive manner, using accepted methods of hydrologic and hydraulic analysis.

This Project would result in a in the same level of impervious areas as the existing site, which would result in similar stormwater runoff and associated water quality impacts due to erosion and incidental spills of petroleum products or other contaminants.

### Mitigation Measures

*See impact HAZ.2 and mitigation measure HAZ.2-1 (Section 4.9, Hazards and Hazardous Materials).*

### Residual Impacts

Impact HAZ.2 (Section 4.9, Hazards and Hazardous Materials) mitigation measure HAZ.2-1 would require development of an Oil/Hazardous Material Spill Contingency Plan and would ensure that adequate spill response equipment is at the SMR and that spills are cleaned up quickly, which would reduce impacts to water quality. Implementing mitigation measure HAZ.2-1, along with the SWPPP and proposed stockpile management measures within the SMR site, would reduce spill-related impacts to surface and groundwater quality to **less than significant with mitigation (Class II).**

| Impact # | Impact Description | Residual Impact |
|---|---|---|
| HWQ.2 | Threshold b): Would the Project change the quality of groundwater (e.g., saltwater intrusion, nitrogen-loading, etc.)? | Class III |

A 2022 NMMA report concluded that there is no evidence of seawater intrusion in the NMMA portion of the Santa Maria Groundwater Basin. Groundwater remediation would not be completed as part of the Project. Therefore, no groundwater extraction wells, which could potentially increase the possibility for seawater intrusion by drawing saline waters toward the site, would be installed and/or operated as part of the Project. As a result, the potential for saltwater intrusion would not increase as a result of the Project.

Groundwater quality monitoring has identified localized areas of the NMMA with nitrate concentrations greater than drinking water standards. In addition, one of the Phillips 66 wells reported a high (1,000 mg/l) TDS concentration, which exceeds secondary drinking water standards. However, the well is only used for industrial processing. Chloride and TDS concentrations in groundwater samples from shallow dune sand wells have exhibited elevated nitrate concentrations or increasing salinity. The Project would not contribute to an increase in TDS and nitrate concentrations in groundwater beneath the site.

As previously discussed in Chapter 2.0, Project Description, and discussed in more detail in Section 4.9, Hazards and Hazardous Materials, soil and groundwater have historically been contaminated as a result of releases in several areas of the SMR. Phillips 66 is currently coordinating its investigation and remediation programs with the Central Coast Water Board. Groundwater remediation associated with the Slop Oil Line Release is being completed

independent of the Project. Manual extraction of LNAPL is currently being conducted as an interim remediation measure under Central Coast Water Board oversight. In addition, a long-term Hydrocarbon Recovery System, referred to as the SMR GWRP, is currently being installed. Central Coast Water Board staff will oversee implementation of the Slop Oil Line remediation activities and the post-remediation groundwater monitoring activities and will determine when the cleanup is complete. The Project would not contribute to increased petroleum hydrocarbon concentrations in groundwater beneath the site. Conversely, the Project includes extensive soil remediation, as required by regulatory requirements, which would remove a portion of the source material of groundwater contamination beneath the site. With a reduction of contaminated soil beneath the site, percolation of precipitation through the highly permeable soils and leaching of the petroleum impacted soils into groundwater would not occur. As a result, impacts would be **less than significant (Class III)** impacts would occur.

| Impact # | Impact Description | Residual Impact |
|---|---|---|
| HWQ.3 | Threshold c): Would the Project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide additional sources of polluted runoff? | Class III |

Following demolition and soil remediation in a given area, the work site would be backfilled to the pre-excavation contour. The disturbed site would be backfilled with clean soil from a borrow site within the Coke Storage Area (Area 6 of Figure 2-3) and other available material, such as aggregate from crushed concrete or asphalt. Areas of existing hardscape would be re-hardened with aggregate, concrete slurry, emulsion, or comparable methods, to stabilize the site and preserve the pre-existing hardscape surface area and contour. As a result, the amount of impervious surfaces would remain unchanged with respect to existing conditions, resulting in no increase in stormwater runoff. As discussed for impact HWQ.1, the preliminary grading plan final site contour is configured to retain post-construction site drainage on site and to convey on-site flows in a non-erosive manner that prevents potential off-site stormwater (and related water quality) impacts. Final site contouring would be configured such that site drainage continues to be retained on site with the evaporation pond in Area 5 remaining, with limited off-site runoff. The preliminary grading plan finish grade contour would provide basins to retain stormwater within the work sub-areas and within the overall Project site consistent with current drainage patterns. Drainage infrastructure would be designed such that stormwater runoff occurs in a non-erosive manner that prevents potential off-site stormwater (and related water quality) impacts. Therefore, impacts would be **less than significant (Class III).**

| Impact # | Impact Description | Residual Impact |
|---|---|---|
| HWQ.4 | Threshold d): Would the Project change rates of soil absorption or the amount or direction of surface runoff? | Class III |

As discussed for impact HWQ.3, final site contouring would be configured such that stormwater runoff patterns would be similar to existing conditions such that site drainage continues to be retained on site, with limited off-site runoff. In addition, as previously discussed, post-remediation

impervious surfaces would be similar to existing conditions, resulting in no change in rates of soil absorption. Impacts would be **less than significant (Class III).**

| Impact # | Impact Description | Residual Impact |
|---|---|---|
| HWQ.5 | Threshold e): Would the Project change the drainage patterns where substantial on- or off-site sedimentation/erosion or flooding may occur? | Class III |

As discussed for impacts HWQ.3 and HWQ.4, following demolition and soil remediation, the final site configuration would be similar to existing conditions, and existing drainage patterns, impervious surfaces, soil absorption, and surface runoff patterns would generally be retained. The preliminary grading plan final site contour is configured to retain post-construction site drainage on site and to convey on-site flows in a non-erosive manner that prevents potential off-site stormwater (and related water quality) impacts. Impacts would be **less than significant (Class III).**

| Impact # | Impact Description | Residual Impact |
|---|---|---|
| HWQ.6 | Threshold f): Would the Project involve activities within the 100-year flood zone? | Class III |

The Project site is located outside the 100-year Flood Hazard Zone (Figure 4.10-2). Therefore, the Project would not involve activities within the 100-year flood zone. Impacts would be **less than significant (Class III).**

| Impact # | Impact Description | Phase | Residual Impact |
|---|---|---|---|
| HWQ.7 | Thresholds g and h): Would the Project change the quantity or movement of available surface or ground water? Would the Project adversely affect a community water service provider? | Construction | Class IV |

As noted in the six most recent Annual Reports for the adjudicated NMMA of the Santa Maria Groundwater Basin, the calendar year groundwater production for the SMR has been consistent at 1,100 AFY. As noted in Section 4.2.3 of the 2022 report:

> *The P66 refinery expects future production to be similar to recent years' production amounts of approximately 1,100 AFY.*

This volume is equivalent to approximately 358 million gallons per year (at 325,800 gallons per acre-foot) or an average of 982,000 gallons per day.

The proposed belowground demolition and remediation work would require two on-site water trucks of 2,000-gallon capacity. A conservative estimate for water during this period is 40,000 gallons per day, primarily for dust control (see Section 4.3, Air Quality). This volume is adequate to cover one acre per day of actively working area. Dust control required for remediation-related grading would likely use similar quantities of water. This anticipated water demand would be less than four percent of the recent years' water demand of 982,000 gallons per day. Because on-site

water would be supplied by groundwater from the NMMA, a Project-related decrease in groundwater extraction would result in **beneficial (Class IV)** impacts.

| Impact # | Impact Description | Residual Impact |
|---|---|---|
| HWQ.8 | Threshold i): Would the Project expose people to a risk of loss, injury or death involving flooding (e.g., dam failure, etc.), or inundation by seiche, tsunami or mudflow? | Class III |

As described for impact HWQ.6, the Project site is located outside the 100-year Flood Hazard Zone. Similarly, the Project site is not located within a dam inundation area. The site is not located adjacent to an enclosed body of water and would therefore not be susceptible to inundation by seiche. As discussed in Section 4.7, Geology and Soils, the Project site would also not be susceptible to inundation by tsunami. Impacts would be **less than significant (Class III).**

### 4.10.6 Mitigation Measure Impacts to Other Issue Areas

As no additional mitigation measures are proposed for hydrology and water quality, there would not be any impacts to other issue areas from mitigation measures.

### 4.10.7 Cumulative Impacts

The Project would not include any new construction. Therefore, cumulative projects involving construction, including California Department of Transportation (Caltrans) roadway projects (see Table 3.1), and various northern Santa Barbara County projects (see Table 3.1), would have no cumulative impact regarding hydrology and water quality.

Soil remediation for cumulative projects at the SMR (NIWS site) has already been completed; therefore, potential erosion-related impacts at these SMR remediation projects would not overlap temporally with potential erosion and water quality impacts associated with the Project. Similarly, potential future removal of off-site facilities would potentially cause erosion- and water quality-related impacts in the future but would not coincide in location, with potential erosion- and water quality-related impacts associated with the Project.

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