3.7 Hazards and Hazardous Materials

3.7.1 Introduction

This section evaluates the potential for the proposed project to result in adverse impacts associated with hazards or hazardous materials. The analysis is based on review of available hazards and hazardous materials reports, websites, and maps of the project area and vicinity, including reports and information posted on websites by the State Water Resources Control Board (SWRCB), the Department of Toxic Substances Control (DTSC), and the Division of Oil, Gas, and Geothermal Resources (DOGGR), as well as information gathered from project-specific investigations conducted for various project components. The relevant regulatory requirements are also discussed, as are the methodology and thresholds used to determine whether the proposed project would result in significant impacts. This section analyzes the potential for both project-level and cumulative environmental impacts.

Data used in this section includes information obtained from the Phase I and II environmental site assessments (ESA) prepared for the respective individual sites that comprise the project site (Rincon 2015a [Appendix F1], 2015b [Appendix F2]; AEC 2016a [Appendix F3], 2016b [Appendix F4]), the sampling results and recommendations for the individual sites within the project site (AEC 2017b [Appendix F5], 2017c [Appendix F6], 2017d [Appendix F7], 2017e [Appendix F8]), the Soil and Groundwater Assessment for the Pumpkin Patch Site (AEC 2016c [Appendix E4]), the First Semiannual Groundwater Monitoring Report (AEC 2017a [Appendix G4]), the Low Impact Development Plan (LID Plan) for the proposed project (Wilson Mikami 2017a [Appendix G2]), and the Public Safety element of the City of Long Beach General Plan (1975).

3.7.2 Environmental Setting

The study area for evaluation of hazards and hazardous materials impacts includes the four individual sites that compose the project site (the Synergy Oil Field, City Property, Pumpkin Patch, and Los Cerritos Wetlands Authority [LCWA] sites; see Figure 2-2, Project Site and Local Vicinity), along with nearby properties with the potential to affect the proposed project. In addition, the larger project vicinity up to 0.25 mile from project site is considered relative to proximity to schools and up to 2 miles relative to proximity to airports.

3.7.2.1 Historical and Present Land Uses in the Project Vicinity

Various past and current land uses associated with the use, generation, or disposal of hazardous materials exist in the project vicinity, including the ongoing production of oil and natural gas, other industrial and commercial uses such as gasoline service stations, and historical agricultural use. In general, these land uses have the potential to have contributed to surface and subsurface contamination as described below:

- **Oil and Natural Gas Production**—Oil and natural gas production in the vicinity began as early as 1921. Oil production at each of the four individual sites is discussed further below. Oil field production typically includes the extraction, storage, and transportation of oil and natural gas; and the reinjection of produced water back into the production zone. The maintenance of equipment requires the use of oils and greases, solvents, paints, and thinners. The four individual sites of the proposed project have never been used for petroleum refining and no active refineries are located in the immediate vicinity. Oil production for each of the four individual sites is discussed further below.
• **Commercial/Industrial Uses**—Commercial and industrial land uses include former and current gasoline service stations, and other facilities that typically involve the use and storage of fuel, lubricants and oil, solvents, and other hazardous materials. Facilities with known releases of hazardous materials that have affected soil or groundwater are discussed below under the heading Hazardous Materials at Nearby Sites.

• **Landfills**—Several of the individual sites that compose the project site have been used in the past as landfills. Depending on the nature of the waste materials disposed of in the landfills, the timing of the landfilling operations (early landfills were typically lightly regulated and unlined), and the level of compliance with regulations, the landfilled waste materials may have included hazardous materials or have generated hazardous materials as the buried waste decomposed; however, based upon preliminary investigations these landfills appear to have been used for limited periods of time for primarily municipal and construction wastes.

• **Agricultural Uses**—Portions of the Los Cerritos wetlands area, which includes portions of the individual sites, were used for raising cattle and beets in the 1800s and early 1900s. Historical agricultural land uses may have left behind residual levels of fertilizers, pesticides, and herbicides in soils. In addition, fuels, oils, lubricants, and cleaning solvents for farm equipment maintenance may have been released during use or storage on the prior agricultural areas; however, considering the length of time since agricultural use was conducted on these individual sites, it is unlikely that residual chemicals associated with agricultural use would be present and natural attenuation would be expected to have degraded most, if not all, of the chemicals down to inert and nonhazardous compounds.

### 3.7.2.2 Hazardous Materials at the Four Individual Sites

This section assesses the potential for hazardous materials to be present in soil and groundwater at the four individual sites and in the project vicinity as a result of past and present land uses, and documented releases of hazardous materials. The discussion of past and present uses of hazardous materials and documented releases is based on a review of environmental assessments and hazardous materials investigation reports prepared for the proposed project, regulatory agency databases, and hazardous materials investigation reports available on regulatory agencies’ websites, and site reconnaissance. In addition to the Phase I and II ESAs conducted or in process for the four individual sites, the following regulatory agency databases of hazardous materials sites that are compiled pursuant to Government Code Section 65962.5 were reviewed for information: the SWRCB GeoTracker database and the DTSC EnviroStor database.

**Synergy Oil Field Site**

A Phase I ESA was conducted for the Synergy Oil Field site to identify recognized environmental conditions (Rincon 2015a). The Phase I report also summarized the results of previous assessments, investigations, and remediation activities. The Synergy Oil Field site is listed on the GeoTracker and EnviroStor websites for the landfill sites and polychlorinated biphenyl (PCB) cleanup; the Phase I ESA included discussion of other spills and cleanups not listed on GeoTracker or EnviroStor websites. The following summarizes the information and is based on the Rincon Phase I ESA unless otherwise cited (Rincon 2015a). See Appendix F1 for the Phase I ESA for the Synergy Oil Field site. More recent soil investigations are discussed further in the 2016 and 2017 Soil Investigations section beginning on page 3.7-6.

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57 A recognized environmental condition is defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.
Oil Production and Associated Infrastructure

The Synergy Oil Field site currently consists of an active oil field and vacant land, the northern part of which is wetland habitat along the Los Cerritos Channel. The site includes numerous active (producing), idle, and plugged (abandoned or destroyed) oil and natural gas production wells, water injection wells, a network of piping and roads, a field office building, vapor recovery equipment, tank battery areas, two sheds, and numerous transformers. The type, status, and location of all wells on all four individual sites are listed in Table 2-1, Oil Wells by Site, and shown in Figure 2-3, Existing Oil Wells on the Project Site, in Chapter 2, Project Description. Historically, it was a common practice during the drilling of oil wells to excavate earthen sumps that would contain the produced oil, water, and drilling fluids (AEC 2016a). The drilling mud would have been backfilled within the sump following drilling and production, and left in place. An unknown number of these backfilled sumps are expected to be present on the Synergy Oil Field site. The Phase I ESA noted that staining was observed on and in the vicinity of some of the producing and idle wells and in the vicinity of the transformers that were observed on site.

Subsurface geologic materials sometimes contain naturally occurring radioactive materials, referred to in the oil industry as Naturally Occurring Radioactive Material (NORM) (USGS 1999). This can occur due to the presence of the radioactive forms of radium, radon, and uranium, all of which occur naturally with low levels of radioactivity. The cited USGS study noted that the level of radioactivity in scale in California oil production sources tends to be at background or marginally detectable (i.e., imperceptible or trace levels). There is the potential for concentrations of dissolved NORM constituents may result in scale in pipes and storage tanks that handle. This scale is referred to as a type of “diffuse NORM waste” and can have low levels of radioactivity above background levels. During operations, oil processing facilities routinely remove scale to the extent feasible from pipelines and tanks (API 2014). After operations when the pipeline is removed, the pipeline segments are tested for radioactivity and managed accordingly.

Documented Spill/Release Incidents

Four spill/release incidents of oil or grease were documented between 2006 and 2010 on the Synergy Oil Field (and/or City Property) site; all of these spills were reportedly cleaned up with the oversight and approval of regulatory agencies, as summarized below:

- On March 28, 2006, an unknown oil material (10 barrels) mixed with produced water (30 barrels) spilled onto soil from a punctured aboveground storage tank (AST) in a tank farm. Remedial action included a cleanup crew on site physically removing the spilled material.
- In July 2007, an internal flow line broke resulting in the discharge of crude oil and produced water (approximately 1 barrel) onto the ground.
- On February 4, 2010, an unknown amount of pipe grease was released. The area was cleaned up and was witnessed by an EPA coordinator.
- On February 15, 2010, an unknown amount of crude oil was released from a pinhole leak on the production line of an oil well that resulted in the release of oil onto off-site private property. In response, the line was clamped and booms were placed to contain the oil.

58 The production of oil actually produces much more water than oil. This is called produced water, which is returned to the production zone using injection wells to prevent land subsidence. For current production on the Synergy Oil Field site, typically less than 5 percent of the pumped fluid is oil and remainder is water (Rincon 2015).

59 NORM consists of materials, usually industrial wastes or by-products enriched with radioactive elements found in the environment.
The Phase 1 ESA also noted that various other older site investigations and cleanups were conducted from 1992 through 2004 to assess the extent and concentrations of petroleum hydrocarbons in soil across the site. The combined result of the various investigations indicated that released petroleum hydrocarbons were predominantly composed of heavier hydrocarbons with carbon chain lengths of greater than C_{36}. This means the majority of the molecules in the residual oil in the soil have 36 or more carbon atoms in each molecule; gasoline is in the range of C_4 to C_{12} and diesel in the range of C_8 to C_{24}. The hydrocarbon range heavier than C_{36} includes heavier, less mobile hydrocarbons such as heavy fuel oils, lubricating oils, asphalts, pitch, and waxes and related compounds. Recent soil investigations conducted in 2016 and 2017 further tested soil, as discussed below in the 2016 and 2017 Soil Investigations section.

**Closed On-Site Landfill**

This landfill is identified as the Studebaker/Loynes Disposal Site or City Dump and Salvage #4, and has a closed operational status. This landfill was located on a narrow strip in the northeastern portion of the Synergy Oil Field site, as shown in Figure 3.7-1, Hazardous Materials Sites. The landfill was a Class II landfill permitted to accept Class II waste including household and commercial refuse such as cans, metals, paper products, lawn clippings, sod, shrubs, garbage, market refuse, ashes, and inert solid materials such as rock, gravel, asphalt, earth, brick, glass, plaster products, rubber, and street sweepings. No reported liquid or hazardous wastes were deposited at the site and maximum depth to refuse is estimated to be up to 25 feet. The waste was placed in a previously existing depression area, compacted, and covered with new soil in conformance with slope and final cover requirements. Approximately 160,000 cubic yards of waste materials were landfilled during the 1960s. The landfill was closed in mid-April 1980.

In addition, the former LA County Flood Control Dump may have extended onto the southwestern corner of the Synergy Oil Field site, as shown in Figure 3.7-1. The records are unclear as the precise location and extent. This possible landfill was reportedly used to dispose of vegetation growing along the banks of the San Gabriel River. No hazardous materials are known to have been disposed of at this location.

**PCB Removal**

The historical records indicate that there had been a release of PCBs at transformer locations on the Synergy Oil Field and City Property sites. To address the releases, several site assessments and remedial excavations were performed in 2009 and 2010. The U.S. Environmental Protection Agency (USEPA) directed that soils having PCB concentrations above 1 milligram per kilogram (mg/kg) be removed and disposed of off site. One of the transformer locations on the Synergy Oil Field site required remediation and was excavated to approximately 3 feet below ground surface (bgs). Two excavations approximately 10 feet wide by 10 feet long by 3 feet deep were excavated and the material removed for off-site disposal. The USEPA issued a No Further Action letter for the PCB remedial action on February 24, 2010.

**Asbestos-Containing Materials and Lead-Based Paint**

A 2003 survey of the on-site structures indicated that asbestos-containing materials (ACM) and lead-based paint (LBP) had been identified in the office building, north shed, and south shed areas. In addition, tank batteries and pipelines may have ACM insulation or LBP (AEC 2017c).
Figure 3.7-1
Hazardous Materials Sites

SOURCE: Glenn Lukos Associates
2016 and 2017 Soil Investigations

Based on the results of the Phase I ESA, additional soil testing was conducted in December 2016, February 2017, and April 2017 (AEC 2017b, see Appendix F5). The sample locations are shown in Figure 3.7-2, Sample Locations—Synergy Oil Field and City Property Sites. Note that some of the sample locations have multiple sample locations clustered around an initial sample location. The clustered sample locations are step out locations, selected because the initial sample results detected chemicals at concentrations above screening levels (see Regulatory Framework for discussion of screening levels). As shown in Figure 3.7-2, of the 16 sample locations, nine are within the northern 76.52-acre area of the Synergy Oil Field site, six are within the Synergy Oil Field area currently producing oil, and one is on the City Property site (discussed in the City Property section further below). The samples were tested for total petroleum hydrocarbons (TPH) in the gasoline, diesel, and oil range; volatile organic compounds (VOCs); and metals. Not all samples were analyzed for all chemicals; the selection of analytical tests depended on the sample location, surrounding land use, and previous testing results.

Within the Synergy Oil Field area currently producing oil, the sample locations were placed near storage tank batteries (HA-3 through HA-7) and the equipment maintenance and storage area (HA-8). The testing results were mostly below detection levels or at low concentrations below screening levels. Elevated concentrations of TPH and other chemicals were detected for some of the samples collected at sample locations at HA-3 and HA-5 near the locations of the storage tanks. Some of the detected concentrations exceeded screening levels for TPH in the gasoline and diesel range, naphthalene, and arsenic. Note that the DTSC established a regional background arsenic concentration of 12 mg/kg in soil used as screening criteria for sites in Southern California (Chernoff et al. 2008); all of the arsenic concentrations are within background levels. The concentrations of TPH and naphthalene are above screening levels. Based on the analytical results, AEC has recommended that the affected soil the areas around sample locations HA-3 and HA-5 be excavated and disposed at a landfill permitted to accept the soil. The lateral limits of the excavation and the volume of soil to be removed would depend on the results of additional sampling proposed to define the extent of the affected area. In addition, visible free phase hydrocarbons (undissolved fuel and/or oil) was observed floating on groundwater in the HA-5 borehole.

Within the northern 76.52-acre area, the sample locations were placed in areas outside of the active oil producing area. The testing results were mostly below detection levels or at low concentrations below screening levels. Elevated concentrations of TPH and other chemicals were detected for some of the samples collected at sample locations at HA-9 and HA-12 along Steamshovel Slough. Some of the detected concentrations exceeded screening levels for TPH in the diesel range, lead, and arsenic. As previously discussed, the DTSC established a regional background arsenic concentration of 12 mg/kg in soil and all of the arsenic concentrations are within background levels. The concentrations of TPH and lead are above screening levels. The lead sample at sample location HA-9 was tested for soluble lead and the result exceeded the soluble level that defines a material as hazardous waste. Based on the analytical results, AEC has recommended that the affected soil the areas around sample locations HA-9 be excavated and disposed at a landfill permitted to accept the soil. The lateral limits of the excavation and the volume of soil to be removed would depend on the results of additional sampling proposed to define the extent of the affected area. Although one of the samples collected at sample location HA-12 had TPH in the diesel range above screening levels, the extent was limited to the one sample and no remediation was recommended.
Figure 3.7-2
Sample Locations – Synergy Oil Field and City Property Sites
**City Property Site**

A Phase I ESA was conducted for the City Property site to identify recognized environmental conditions (Rincon 2015b). The Phase I report also summarized the results of previous assessments, investigations, and remediation activities. The City Property site is listed on the GeoTracker and/or EnviroStor websites for the landfill sites and PCB cleanup; the Phase I ESA included discussion of other spills and cleanups not listed on GeoTracker or EnviroStor websites. The following summarizes the information and is based on the 2015 Rincon Phase I ESA unless otherwise cited. The Phase I ESA for the City Property site can be found in Appendix F2.

**Oil Production and Associated Infrastructure**

As summarized in Table 2-1 and shown in Figure 2-3, this site has numerous active, idle, and plugged oil wells. As previously discussed for the Synergy Oil Field site, it is assumed that some of the wells may have backfilled mud pits adjacent the wells.

**Documented Spill/Release Incidents**

Spills and/or releases documented between 2006 and 2010 are discussed above (see Synergy Oil Field site information above); all of these spills were reportedly cleaned up with the oversight and approval of regulatory agencies, as summarized below.

**PCB Removal**

Investigations and cleanups for the release of PCBs at transformer locations on the City Property site are discussed above (see Synergy Oil Field site information above). The USEPA issued a No Further Action letter for the PCB remedial action on February 24, 2010.

**2016 and 2017 Soil Investigations**

As a part of the previously discussed 2016 and 2017 soil investigations conducted on the Synergy Oil Field site, one soil sample was collected at the northeast corner of the City Property site (HA-16 shown in Figure 3.7-2) (AEC 2017b). The sample was tested for TPH in the gasoline, diesel, and oil range; lead; and arsenic. The testing results were either below detection levels (TPH-gasoline) or at low concentrations below screening levels (all other chemicals) (see Appendix F5). Similar to the other testing results, arsenic was detected above screening levels but below regional background levels. Additional testing has been proposed for the area around the two storage tanks in the southern part of the City Property site (see Figure 3.7-2) (AEC 2017d).

**Pumpkin Patch Site**

A Phase I ESA was conducted for the Pumpkin Patch site to identify recognized environmental conditions (AEC 2016a). The Phase I report also summarized the results of previous soil and groundwater testing. The following assessment results are from the Phase I ESA unless otherwise cited. The Phase I report for the Pumpkin Patch site can be found in Appendix F3 of this Draft EIR.

The western two-thirds of the Pumpkin Patch site consists of perimeter-fenced level graded open ground that is used for seasonal pumpkin and Christmas tree sales during the fall and winter months. The eastern one-third of the Pumpkin Patch site has one active oil well with a pumpjack type pumping unit (also called a horsehead,
rocking horse, and other names) and surface and subsurface pipelines for oil delivery (see Table 2-1 and Figure 2-3).

**Oil Production and Associated Infrastructure**

Oil production from this site dates to the 1920s and is part of the Seal Beach Oil Field. As listed in Table 2-1 and shown in Figure 2-3, the Pumpkin Patch site has one active and one plugged oil well. As previously discussed, backfilled earthen sumps are anticipated to be adjacent to some wells that would contain produced oil and drilling mud. The Phase I ESA review of 1928 and 1938 aerial photographs indicated within the central-eastern portion of the site two side-by-side sumps adjacent to the drilling derrick. The two sumps and the derrick were removed by 1947. Future grading may encounter crude oil and/or drilling fluids in former sumps in this area.

**Closed Landfill**

The site was also previously operated as the City Dump and Salvage Landfill #2 in the western two-thirds of the site; the extent and depth of the landfilled material is shown in Figure 3.5-4, Landfill Area and Monitoring Wells on Pumpkin Patch Site, in Section 3.5, *Geology, Seismicity, and Soils*. In September 1960, City Dump and Salvage received a permit from the County of Los Angeles, Industrial Waste Division, to accept household and construction waste in the eastern half of the site at a minimum of at least 300 feet from Pacific Coast Highway (PCH). The following waste was permitted for acceptance:

- Non-water soluble, non-decomposable inert solids;
- Ordinary household and commercial refuse, including decomposable organic refuse and scrap metal; and
- Garbage and market refuse.

The disposal of liquids, semi-liquids, and hazardous waste was not permitted. The landfill commenced waste acceptance operations at the site in mid-1960 and ceased operations in early 1961 after filling the “trench” landfill to its permitted capacity.

The disposal permit allowed for the excavation of a trench to below the groundwater table and the subsequent filling with refuse. Final cover of the landfill was completed by May 16, 1961.

Various investigations have been conducted beginning in 1987 to delineate the extent of the landfill, and to characterize the nature and extent of chemicals associated with both the landfill and the oil production. The combined investigations indicate the landfill is rectangular-shaped, encompasses the eastern half of the site, and that the refuse in the central portion of the burial area extends to a depth of 30 feet bgs. The refuse in the landfill consists of newspaper, plastic, metal, wood, glass, plant debris, rubber tubes and tires, and green waste.

Soil and groundwater investigation was initiated in July 2016 and included the installation of five groundwater monitoring wells, along with the sampling and analysis of soil and groundwater samples (AEC 2016c). In April 2017, installation of an additional groundwater monitoring well was approved and will soon be installed (AEC 2017a). The well locations are shown in Figure 3.5-4 in Section 3.5, *Geology, Seismicity, and Soils*. The depth to groundwater was measured at 13.76 to 15.65 feet bgs, which fluctuates with the tides, is primarily derived from sea water intrusion, and does not constitute a source of drinking water.

The soil samples were analyzed for TPH, VOCs, polynuclear aromatic hydrocarbons (PNAs or PAHs), Title 22 metals (arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum,
nickel, selenium, silver, thallium, vanadium, and zinc), and PCBs. The soil analytical results identified numerous detections of TPH as gasoline, diesel and oil, along with various VOCs in the borings for Wells AEC-1 and AEC-2; these two locations are within the former landfill trench. In addition, the shallow soil collected from the boring for Well AEC-3 indicated the presence of crude oil and the soil sample exhibited a crude oil odor leading the investigator to believe that the boring was in or near the former oil well sump associated with Oil Well “Bixby A” 11. The soil sample in the boring for Wells AEC-2 at 20 feet bgs was the only soil sample to exceed an industrial environmental screening level (ESL)\(^60\) with diesel at 2,000 mg/kg. The ESL for diesel is 1,100 mg/kg.

The groundwater samples were analyzed for TPH, VOCs, PNAs, Title 22 metals, PCBs, and water quality parameters of chloride, sulfate, and total dissolved solids (TDS) (AEC 2016c, 2017a). The groundwater analytical results identified numerous detections of TPH as gasoline, diesel and oil, along with various VOCs in Wells AEC-1 and AEC-2. As previously discussed, these two locations are within the former landfill trench and are expected to have the most and highest detections of chemicals. The results from Well AEC-1 exceeded industrial land use ESLs for gasoline and diesel, the VOCs 1,4-dichlorobenzene, benzene, ethylbenzene, naphthalene, and tertiary butyl alcohol (TBA; a gasoline additive) and Aroclor-1242 and 1258 (PCB compounds). Wells AEC-5 and EW-1\(^61\) did not exhibit any TPH, VOC, semivolatile organic compound (SVOC), and/or PCB detections. Analytical results from AEC-3 and AEC-4 exhibited trace to non-detectable concentrations of TPH and VOCs; non-detectable concentrations of SVOC; and no detection of PCBs. The chloride, sulfate, and TDS concentrations from all groundwater wells exceeded their respective secondary maximum contaminant levels (SMCLs) of 250 mg/L, 250 mg/L, and 50 mg/L, respectively.

The landfill continues to be monitored under the requirements of General Order No. R4-2002-022 for post closure maintenance of closed, inactive, or abandoned landfills (LARWQCB 2002).

**LCWA Site**

A Phase I ESA was conducted for the LCWA site to identify recognized environmental conditions (AEC 2016b). The Phase I report also summarized the results of a previous Phase I and II ESAs. The following assessment results are from the Phase I ESA unless otherwise cited. The Phase I Report for the LCWA site can be found in Appendix F4 of this Draft EIR.

**Recent Land Use**

The LCWA site consists of a level grade, hard packed dirt and gravel pad with a perimeter chain-link fence. An off-site earthen berm borders the northern and eastern borders of the site and provides containment for the adjacent large volume crude oil ASTs that are also located to the north and east of the LCWA site. At the time of the Phase I site inspection, concrete K-Rails, two locked metal “sea train” type storage containers, several roll-off type metal containers containing dirt and cement/asphalt construction debris, and concrete wash-out containers were located throughout the site. Stockpiles of waste dirt and construction debris were observed throughout the site and it was reported that the subject site had been built up with approximately 20 feet of undocumented fill soil that was brought on site over a long period previous to 1973.

\(^60\) Although the AEC report did not provide a source for the ESL, it is assumed to be from the San Francisco Bay RWQCB ESLs, screening levels that are commonly used throughout the state to screen analytical results and assess whether further action is needed. Note that ESLs do not necessarily represent cleanup action levels but are rather used for preliminary screening to assess whether further action is needed.

\(^61\) Well EW-1 has been an existing well on site since 1987.
A large stockpile of plastic traffic barricades was located along the northeast corner of the site and an outdoor workspace was located near the steel containers within the northwest corner of the site. Visible within this area were 55-gallon drums, as well as smaller metal and plastic containers and miscellaneous scrap metal and construction waste including wood, concrete and scrap metal. Several 55-gallon drums of “Spec Strip 100 VOC”, which prevents bonding of concrete to forms and form liners, were located on wooden pallets; this material is used as a “non-stick” agent for off-site construction projects. A large amount of windblown household waste was also observed along the southern and western perimeter of the site adjacent to the chain-link fence. Possible drainage features were additionally observed on site but did not appear to be in working condition at the time of the Phase I ESA.

**Oil Production and Associated Infrastructure**

The LCWA site is within the Seal Beach Oil Field. Historical aerial photographs, topographic maps, and DOGGR Map 132 indicates one abandoned oil well along the southern edge of the site (CalResources “Bryant” 9) and numerous active and abandoned oil wells off site to the west (see Table 2-1 and Figure 2-3). Otherwise, the site has remained undeveloped and no other permanent structures are known to have existed.

**Dump Pit**

A previous 2004 Phase II report, included in the Phase I ESA, described an area in the central-western portion of the LCWA site as a “dump pit” previously used for dumping waste cement and asphalt debris prior to 2004. The location of the dump pit is shown in Figure 3.7-3, Sample Locations—Los Cerritos Wetlands Authority (LCWA) Site, but the areal extent of the pit is uncertain. During the Phase II investigation, a solid-stem auger dropped approximately 5 feet in an area where the buried concrete debris had created a void space. A visual inspection inside the annular space indicated a small cavern in the shallow subsurface.

The 2004 chemical testing of soil indicated soil with elevated concentrations of arsenic lead, nickel, and vanadium. Soil gas concentrations for VOCs did not exceed the conservative shallow soil gas ESLs for the commercial/industrial land use scenario published by the San Francisco Bay Area RWQCB. Hydrogen sulfide gas was not detected in the 10 soil gas samples collected at the site. Methane concentrations in soil gas samples were several orders of magnitude below the lower explosive limit (LEL) of 5 percent (50,000 parts per million [ppm]). No VOCs or SVOCs were detected in groundwater samples collected at the LCWA site.

In light of elevated concentrations of arsenic, lead, nickel and vanadium in soil at two locations identified during the 2004 investigation, additional soil testing was conducted in June 2017 at two locations proximal to earlier sampling locations within the central portion of the site (AEC 2017e). The results indicated that the metals concentrations were below screening levels, arsenic concentrations were all below regional background levels, and no further investigation or remediation is needed at the LCWA site.

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62 As discussed in Section 3.7.3, Regulatory Framework, other regions within California also use the San Francisco Bay Area RWQCB ESLs.
Sample Locations—Los Cerritos Wetlands Authority (LCWA) Site

Legend:
- SB Soil Boring
- GW Soil Gas
- DP Debris Pit
- SG Soil Gas
- BG Background Sample

Not to scale

Sampling location (2017)

SOURCE: AEC 2017e; CH2M, 2004
3.7.2.3 Hazardous Materials at Nearby Sites

The following regulatory agency databases of hazardous materials sites that are compiled pursuant to Government Code Section 65962.5 were reviewed to identify documented releases of hazardous materials in soil and groundwater within 0.25 mile (1,320 feet) of the four individual sites: the SWRCB GeoTracker and DTSC EnviroStor website databases. The relevant individual site documents are cited below. A 0.25-mile search radius from the project area was selected because sites beyond this distance would be unlikely to affect the four individual sites due to the typically limited migration of shallow groundwater contaminant plumes from leaking underground storage tank (LUST) cases.

Open environmental cases and their distance from project components are summarized below in **Table 3.7-1**, Environmental Cases Identified within 0.25 Mile of the Project Area. The location of environmental cases identified within this area is shown in Figure 3.7-1. LUST sites and other sites that have been closed by the regulatory agency are not discussed because site closure indicates that the regulatory agency considers such sites to pose a low threat to human health and groundwater quality. In addition, sites listed with operational permits are not listed unless the website indicates active investigation and cleanup in response to releases. The landfills are discussed above.

<table>
<thead>
<tr>
<th>Site Name/Address</th>
<th>Approximate Distance and Direction from Project Area</th>
<th>Status and Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Termo Oil Site</td>
<td>Adjacent and northwest of Synergy Oil Field site</td>
<td>Active—Site Assessment</td>
</tr>
<tr>
<td>Former Exxon #7-3047</td>
<td>East corner of Pacific Coast Highway and Westminster Avenue; just south of Synergy Oil Field site</td>
<td>Active—Groundwater remediation in progress</td>
</tr>
<tr>
<td>Former Tosco—76 Station #5379</td>
<td>South corner of Highway 1 and Westminster Avenue; just south of Synergy Oil Field site</td>
<td>Active—Groundwater remediation in progress</td>
</tr>
</tbody>
</table>

**Table 3.7-1 Environmental Cases Identified within 0.25 Mile of the Project Area**

**Termo Oil Site**

The Termo Oil Site is an active oil production site adjacent to the northwest of the Synergy Oil Field site. The site has been used for the production of oil since the 1920s and currently has three active oil production wells, a tank farm, and associated infrastructure (Arcadis 2017). The site has been undergoing soil, soil gas, and groundwater investigations to characterize the nature and extent of petroleum hydrocarbons since 1991, primarily associated with former oil sumps adjacent to wells. In 1998, soil excavation, dewatering, and land treatment was conducted to treat contaminated soil and remove oily water. Groundwater monitoring was conducted from 1997 to 1999 to confirm successful groundwater treatment and subsequent sampling indicates low to non-detectable petroleum hydrocarbon levels below action levels. Subsequent soil sampling in 2003 indicated several localized areas with residual petroleum-impacted soil above RSLs. The site owner has proposed additional soil gas, soil, and groundwater sampling to further evaluate the extent of soil contamination.

**Former Exxon #7-3047**

The former Exxon Station #7-3047, now called the Circle K Store, is located at 6401 Pacific Coast Highway, south of the Synergy Oil Field site and is an active gasoline service station (Blaes 2016). The station had a release of gasoline and is currently undergoing monitoring and cleanup. Liquid phase gasoline was removed from various on-site wells between 1988 and 2012, after which liquid phase gasoline has not been observed.
floating on groundwater in any of the wells. A vapor extraction system operated at the station from 1998 to 2006 to further remove gasoline from the subsurface. Air sparge wells have recently been installed and the station has applied for permits to operate the system to further remove the released gasoline. Air sparge wells bubble air into groundwater to transfer the gasoline components from groundwater to air, which is then pumped out of the subsurface and treated by a soil vapor extraction and treatment system. The September 2016 groundwater monitoring results current extent of gasoline in groundwater is largely confined to the immediate station property.

**Former Tosco—76 Station #5379**

The former Tosco—76 Station #5379, is located at 6280 East 2nd Street, south of the Synergy Oil Field site and is an active gasoline service station (AECOM 2016). The station had a release of gasoline and previously underwent soil and groundwater cleanup. The August 2016 groundwater monitoring results indicate that the current extent of gasoline in groundwater is confined to the immediate station property. The concentrations of gasoline and its constituents in groundwater are low enough that the station owner has requested site closure through the LARWQCB’s low-threat closure program.

### 3.7.2.4 Nearby Airports

The Los Alamitos Army Airfield is located about 2.7 miles northeast of the Synergy Oil Field site. The Long Beach Airport is located about 3.2 miles northwest of the Synergy Oil Field site. The Seal Beach Naval Weapons Station is located 1.5 miles south of the City site. No public or private airports are located within 2 miles of the four individual sites. The Boeing Seal Beach complex, located about 1 mile east of the project site, has a rooftop helicopter pad; however, a helicopter pad would not have the flight path restrictions that planes and jets have. Therefore, this helicopter pad is not considered further.

### 3.7.2.5 Nearby Schools

The nearest school is the Rosie the Riveter Charter High School, located about 0.30 mile north of the Synergy Oil Field site at 690 North Studebaker Road. No schools are located within 0.25 mile of the project.

### 3.7.2.6 Wildfire Hazards

California Department of Forestry and Fire Protection (CAL FIRE) maps identify fire hazard severity zones in state and local responsibility areas for fire protection. The four individual sites are not located within or near a very high or high fire hazard severity zone (CAL FIRE 2007, 2011).

### 3.7.3 Regulatory Framework

The primary project activities that have the potential for resulting in potential impacts with respect to hazards and hazardous materials consist of the cleanup of the site. Portions of the site may contain amounts of regulated materials from past oil drilling and production operations, requiring special treatment and disposal techniques; removal of landfill material that may be present on site; the use of regulated materials in the long-term oil production activities; and the potential for leaks and other hazards from the equipment and oil field facilities to be used as part of the ongoing oil production operations. For the most part, the majority of these activities are heavily regulated by existing State and local laws and regulations. The discussion below
identifies the numerous federal, State and local laws and regulations that will govern the proposed activities, and how those regulations serve to avoid or minimize potentially significant effects.

### 3.7.3.1 Federal

**Comprehensive Environmental Response, Compensation, and Liability Act, and the Superfund Amendments and Reauthorization Act of 1986**

The Comprehensive Environmental Response, Compensation, and Liability Act, also known as Superfund or CERCLA, provides for the response and cleanup of hazardous substances that may endanger public health or the environment. The Superfund Amendments and Reauthorization Act (SARA) amended Superfund to increase state involvement and required Superfund actions to consider state environmental laws and regulations. Relevant to this project, SARA also established a regulatory program for the Emergency Planning and Community Right-to-Know Act. The applicable part of SARA for the proposed project is Title III, otherwise known as the Emergency Planning and Community Right-To-Know Act of 1986. Title III requires states to establish a process for developing local chemical emergency preparedness programs and to receive and disseminate information on hazardous substances present at facilities in local communities. The law provides primarily for planning, reporting, and notification concerning hazardous substances. Key provisions require notification when extremely hazardous substances are present above their threshold planning quantities, immediate notification to the local emergency planning committee and the state emergency response commission when a hazardous material is released in excess of its reportable quantity, and that material safety data sheets for all hazardous materials or a list of all hazardous materials be submitted to the state and local emergency planning agencies and local fire department.


Implementation of the Resource Conservation and Recovery Act (RCRA) and the Toxic Substances Control Act (TSCA) of 1976 resulted in the creation of a major federal hazardous waste regulatory program that is administered by USEPA. USEPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended by the associated Hazardous and Solid Waste Amendments (HSWA), which affirmed and extended the concept of regulating hazardous wastes from generation through disposal. HSWA specifically prohibits the use of certain techniques for the disposal of some hazardous wastes. Under RCRA, individual states may implement their own hazardous waste programs instead of RCRA, as long as the state program is at least as stringent as the federal RCRA requirements. USEPA approved California’s program to implement federal hazardous waste regulations on August 1, 1992.

**Clean Water Act of 1972 as amended by the Oil Pollution Act of 1990**

Under the authority of the Clean Water Act (CWA), as amended by the Oil Pollution Act, USEPA adopted, implements, and enforces the Oil Pollution Prevention regulations of 40 Code of Federal Regulations (CFR) Parts 109–114. The regulations establish requirements for preventing, preparing for, and responding to oil discharges at specific non-transportation-related facilities that have a reasonable expectation of an oil discharge into or upon navigable Waters of the US or adjoining shorelines. The regulations also establish procedures, methods, and equipment requirements, in addition to the Spill Prevention, Control, and Countermeasure (SPCC) plan. Onshore oil well drilling/production facilities are subject to SPCC rule if a single oil container has a storage capacity equal to or greater than 55 gallons, the total aboveground oil storage
capacity exceeds 1,320 gallons, or the underground oil storage capacity exceeds 42,000 gallons and, due to its location, the facility could reasonably be expected to discharge oil into or upon the navigable Waters of the U.S. Typically, any facility that could not reasonably be expected to have a discharge due to the facility’s location is not subject to the regulations. That applicability determination must be based solely upon considering the geographical and location aspects of the facility, such as proximity to navigable waters or adjoining shorelines, land contour, and drainage. The determination cannot be based in whole or part on manmade features (e.g., dikes or equipment) that may restrain, contain, or otherwise prevent a discharge. The SPCC plans covered in these regulatory programs apply to oil storage and transportation facilities and terminals, tank farms, bulk plants, oil refineries, and production facilities, as follows:

- Part 109 establishes the minimum criteria for developing oil-removal contingency plans for certain inland navigable waters by state, local, and regional agencies in consultation with the regulated community, i.e., oil facilities.
- Part 110 prohibits discharge of oil such that applicable water quality standards would be violated, or that would cause a film or sheen upon or in the water. These regulations were updated in 1987 to adequately reflect the intent of Congress in CWA Section 311(b)(3) and (4), specifically incorporating the provision “in such quantities as may be harmful.”
- Part 112 deals with oil spill prevention and preparation of SPCC plans. These regulations establish procedures, methods, and equipment requirements to prevent the discharge of oil from onshore and offshore facilities into or upon the navigable waters of the United States. These regulations apply only to non-transportation-related facilities. One of the requirements of the SPCC is that storage tanks be equipped with secondary containment systems to prevent oil spills from migrating into soil, groundwater, or surface water.
- Part 113 established financial liability limits; however, these limits were preempted by the Oil Pollution Act of 1990.
- Part 114 provides civil penalties for violations of the oil spill regulations.

**Clean Air Act**

The federal Clean Air Act (CAA) is a comprehensive law that regulates air emissions from mobile and stationary sources. The law authorized USEPA to establish National Ambient Air Quality Standards and to regulate the emissions of hazardous air pollutants. Notably, CAA Section 112(r) requires facilities that store a threshold quantity or greater of listed regulated substances to develop a risk management plan, including hazard assessments and response programs to prevent accidental releases of listed chemicals.


The U.S. Department of Transportation (USDOT), in conjunction with USEPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to transportation of hazardous materials. The Hazardous Materials Transportation Act of 1974 directs the USDOT to establish criteria and regulations regarding the safe storage and transportation of hazardous materials. CFR 49, 171–180, regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials.
Hazardous Liquid Pipeline Safety Act of 1979 and Transportation of Hazardous Liquids by Pipeline

The Department of Transportation Office of Pipeline Safety is responsible for enforcement and implementation of regulations pertaining to the minimum requirements for materials, design, fabrication, assembly, construction, operation, inspection, testing, and maintenance of pipelines transporting hazardous liquids including petroleum products. The regulations within 49 CFR 195 include the following:

- Part 195.30 incorporates many of the applicable national safety standards of the American Petroleum Institute (API), American Society of Mechanical Engineers (ASME), American National Standards Institute (ANSI), and American Society for Testing and Materials (ASTM).
- Part 195.50 requires an accident report by telephone and in writing for each failure in a pipeline system in which there is a release of the hazardous liquid or carbon dioxide (CO₂).
- Part 195.100 includes minimum design requirements for new pipeline systems including for the temperature environment; variations in pressure; internal design pressure for pipe specifications; external pressure and external loads; and new and used pipe, valves, fittings and flanges.
- Part 195.200 provides minimum pipeline construction requirements for standards such as compliance, inspections, welding, siting and routing, bending, welding and welders, inspection and nondestructive testing of welds, external corrosion and cathodic protection, installing in-ditch and covering, clearances and crossings, valves, pumping, breakout tanks, and construction records.
- Part 195.300 provides minimum requirements for pressure testing of steel pipes (including test pressures and duration, test medium, and records), and
- Part 195.400 provides minimum requirements for operating and maintaining pipeline systems constructed with steel pipeline.

Occupational Safety and Health Act of 1970

The Occupational Safety and Health Act was passed to address employee safety in the workplace. The act created the Occupational Safety and Health Administration (OSHA), whose mission is to ensure the safety and health of America’s workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. The OSHA staff establishes and enforces protective standards and reaches out to employers and employees through technical assistance and consultation programs. Some OSHA regulations contain standards related to hazardous materials handling, including workplace conditions, employee protections requirements, first aid, and fire protection. The regulations in 29 CFR et seq. include the following:

- Part 1910.38 requires facilities to have an emergency action plan to ensure the safe response to emergencies.
- Part 1910.119 contains requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals, which may result in toxic, fire, or explosion hazards.
- Part 1910.1200 ensures that the hazards of all chemicals produced or imported are classified, and that information concerning the classified hazards is transmitted to employers and employees. The transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, safety data sheets, and employee training.
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SECTION 3.7 Hazards and Hazardous Materials

3.7.3.2 State

Division of Oil, Gas, and Geothermal Resources

All California oil and gas wells (development and prospect wells), enhanced-recovery wells, water-disposal wells, service wells (i.e., structure, observation, temperature observation wells), core-holes, and gas-storage wells, onshore and offshore (within 3 nautical miles of the coastline), located on State and private lands, are permitted, drilled, operated, maintained, plugged, and abandoned under requirements and procedures administered by the Department of Conservation’s DOGGR.

Regulations pertaining to oil and natural gas production are summarized in the DOGGR Publication No. PRC10, *California Statutes and Regulations for Conservation of Oil, Gas, & Geothermal Resources*, dated January 2017. Regulations for the installation and abandonment of oil and natural gas wells are also in 14 CCR 1712 through 1724.10. Environmental protection regulations for oil and natural gas well installations, operations, and abandonments are in 14 CCR 1750 through 1789.

Additionally, DOGGR publishes instruction manuals related to the oil drilling. Instruction Manual M06 pertains to the testing of oil and gas wells and explains the formation tester mechanism, engineering principles, testing methods, and result analyses. Instruction Manual M07 pertains to blowout prevention equipment (BOPE) and explains the functions and operating characteristics of BOPE for oil, gas, and geothermal wells drilled in California.

DOGGR requires written approval prior to changing the condition of any well (e.g., making an “idle” well “active,” or plugging and abandoning a well). For new wells or alteration of existing wells, approval depends on protection of subsurface hydrocarbons and fresh waters; protection of the environment; utilization of adequate BOPE; and utilizing approved drilling and cementing techniques.

California Pipeline Safety Act of 1981

The California Pipeline Safety Act of 1981, codified in Chapter 5.5, Sections 50001–51298.5, applies to pipelines that carry hazardous liquids (e.g., crude oil) and authorizes the State Fire Marshal to implement the federal Hazardous Liquid Pipeline Safety Act, as summarized above. This act imposes additional specific safety requirements on intrastate pipelines carrying hazardous liquids, including a time schedule for conformance to federal regulations, hydrostatic testing requirements, pipeline maps, contingency plans, and pipeline incident reporting.

NPDES Construction General Permit

The National Pollutant and Discharge Elimination System (NPDES) Construction General Permit is applicable to this project. Details of the Construction General Permit are provided in Section 3.5, *Geology, Seismicity, and Soils*.

Aboveground Petroleum Storage Act

Health and Safety Code Sections 25270 to 25270.13 ensure compliance with the federal CWA. The law applies to facilities that operate a petroleum AST with a capacity greater than 660 gallons or combined ASTs capacity greater than 1,320 gallons or oil-filled equipment where there is a reasonable possibility that the tank(s) or equipment may discharge oil in “harmful quantities” into navigable waters or adjoining shore lands. If a facility falls under these criteria, it must prepare an SPCC plan.
**Hazardous Materials Release Response Plans and Inventory Act**

The Hazardous Materials Release Response Plans and Inventory Act of 1985, codified in Health and Safety Code, Sections 25500 et seq., also known as the Business Plan Act, requires businesses using hazardous materials to prepare a Hazardous Materials Business Plan (HMBP) that describes their facilities, inventories, emergency response plans, and training programs. HMBPs contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed. This code and the related regulations in 19 California Code of Regulations (CCR) Sections 2620 et seq. require local governments to regulate local business storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases. Those using and storing hazardous materials are required to submit a HMBP to their local Certified Unified Program Agency (CUPA) and to report releases to their CUPA and the State Office of Emergency Services. The California Office of Emergency Services is responsible for implementing the accident prevention and emergency response programs established under the Act and implementing regulations.

**Hazardous Waste Control Act**

The Hazardous Waste Control Act of 1972, codified in Health and Safety Code Sections 25100 et seq., created the State hazardous waste management program, which is similar to but more stringent than the federal RCRA program. The Act is implemented by regulations contained in CCR Title 26, which describes the following required aspects for the proper management of hazardous waste: identification and classification; generation and transportation; design and permitting of recycling treatment, storage and disposal facilities; operation of facilities and staff training; and closure of facilities and liability requirements. These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the DTSC.

**Unified Hazardous Waste and Hazardous Materials Management Regulatory Program**

The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program), codified in Health and Safety Code Sections 25404 et seq., requires the administrative consolidation of six hazardous materials and waste programs (Program Elements) under one agency, a CUPA. The following Program Elements are consolidated under the Unified Program:

- Hazardous Waste Generator and On-Site Hazardous Waste Treatment Programs (a.k.a. Tiered Permitting);
- Aboveground Petroleum Storage Tanks and Spill Prevention Control and Countermeasure Plans (SPCCs);
- Hazardous Materials Release Response Plans and Inventory Program (a.k.a. Hazardous Materials Disclosure or “Community-Right-To-Know”);
- California Accidental Release Prevention Program;
- Underground Storage Tank (UST) Program; and
- Uniform Fire Code Plans and Inventory Requirements.

The Unified Program is intended to provide relief to businesses complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs. The Unified Program is
implemented at the local government level by CUPAs. Most CUPAs have been established as a function of a local environmental health or fire department. The Long Beach/Signal Hill Joint Powers Authority CUPA has oversight of the Long Beach CUPA.

**California Occupational Safety and Health Act**

The California Occupational Safety and Health Act of 1973, codified in California Labor Code, Sections 6300 et seq., addresses California employee working conditions, enables the enforcement of workplace standards, and provides for advancements in the field of occupational health and safety. The act also created the California Occupational Safety and Health Administration (Cal OSHA), the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal OSHA’s standards are generally more stringent than federal regulations. Under Cal OSHA standards, the employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337–340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

**License to Transport Hazardous Materials**

A valid Hazardous Materials Transportation License, issued by the California Highway Patrol, is required by the State of California Vehicle Code Section 32000.5 for transportation of hazardous materials shipments for which the display of placards is required by State regulations; or hazardous materials shipments of more than 500 pounds, which would require placards if shipping greater amounts in the same manner.

Additional requirements on the transportation of explosives, inhalation hazards, and radioactive materials are enforced by the California Highway Patrol under the authority of the State Vehicle Code Sections 32100–33002. Transportation of explosives generally requires consistency with additional rules and regulations for routing, safe stopping distances, and inspection stops (Title 14, CCR, Chapter 6, Article 1, Sections 1150–1152.10). Inhalation hazards face similar, more restrictive rules and regulations (Title 13, CCR, Chapter 6, Article 2.5, Sections 1157–1157.8).

**Utility Notification Requirements**

The regulations in 8 CCR Section 1541 require excavators to determine the approximate locations of subsurface installations, such as sewer, telephone, fuel, electric, and water lines (or any other subsurface installations that may reasonably be encountered during excavation work) prior to opening an excavation. The California Government Code (Sections 4216 et seq.) requires owners and operators of underground utilities to become members of and participate in a regional notification center. According to Section 4216.1, operators of subsurface installations who are members of, participate in, and share in the costs of a regional notification center, such as Underground Services Alert of Southern California, more commonly referred to as DigAlert, are in compliance with this section of the code. DigAlert receives planned excavation reports from public and private excavators and transmits those reports to all participating members that may have underground facilities at the location of excavation. Members will mark or stake their facilities, provide information, or give clearance to dig.

**Hazardous Materials Storage and Handling**

The California Fire Code (Chapter 27) and 24 CCR, Part 9, Sections 2700 et seq. includes specific requirements for the safe storage and handling of hazardous materials. These requirements reduce the potential for a release of hazardous materials and for mixing of incompatible chemicals, and specify the following
specific design features to reduce the potential for a release of hazardous materials that could affect public health or the environment:

- Separation of incompatible materials with a noncombustible partition, or appropriate distance separation;
- Spill control in all storage, handling, and dispensing areas; or
- Separate secondary containment for each chemical storage system. The secondary containment must hold the entire contents of the tank, plus the volume of water needed to supply the fire suppression system for a period of 20 minutes in the event of a catastrophic spill.

California Fire Code (Chapter 14) addresses fire safety during construction and demolition and includes requirements for smoking, waste disposal, cutting and welding, fire protection equipment, fire reporting, access for firefighting.

**Screening Levels for Hazardous Materials in Soil, Soil Gas, or Groundwater**

The USEPA RSLs\(^{63}\) and San Francisco Bay Area RWQCB ESLs are guidelines used to evaluate the potential risk associated with chemicals found in soil or groundwater where a release of hazardous materials has occurred. Screening levels have been established for both residential and commercial/industrial land uses, and for construction workers. Residential screening levels are the most restrictive; soil with chemical concentrations below these levels generally would not require remediation and would be suitable for unrestricted uses if disposed of off site. Commercial/industrial screening levels are generally less restrictive than residential screening levels because they are based on potential worker exposure to hazardous materials in the soil (and these are generally less than residential exposures). Screening levels for construction workers are also less restrictive than for commercial/industrial workers because construction workers are only exposed to the chemical of concern during the duration of construction, while industrial workers are assumed to be exposed over a working lifetime.

TTLCs and Soluble Threshold Limit Concentrations (STLCs) are chemical-specific concentrations used to define whether a material is a hazardous, designated, or nonhazardous waste. TTLCs and STLCs are listed in CCR Title 22, Chapter 11, Article 3, Section 66261. TTLCs and STLCs are used as acceptance criteria for landfills. For example, waste materials with chemical concentrations above TTLCs or STLCs must be sent to Class I disposal facilities, may be sent to Class II disposal facilities depending on the waste material, and may not be sent to Class III disposal facilities.

**Screening Levels for NORM**

There currently exist no federal or California regulations that specifically address the handling and disposal of oil-field NORM wastes (USGS 1999). Texas, Louisiana, New Mexico, and Mississippi have enacted specific NORM regulations; NORM regulations or modifications to general radiation protection statutes are under consideration in California; however, McKittrick Landfill is permitted by California to accept NORM waste. Its Waste Discharge Requirements permit it to accept radioactive materials that do not requiring state or federal license and regulation, which includes unregulated low-level radioactive materials such as NORM (Kern County 2013). Materials with NORM at a 13 microroentgens per hour (µR/hr) readings or higher are considered to be NORM (2017).

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\(^{63}\) RSLs were previously referred to as Preliminary Remediation Goals (PRG), cited in older investigation reports.
California Construction Safety Orders for Lead

CCR Title 8, Section 1532.1, Lead, establishes the requirements for any construction worker who may be exposed to lead during demolition or salvage, removal or encapsulation, new construction, and cleanup activities. The construction safety orders establish an action level of 30 micrograms of lead per cubic meter (μg/m³) of air calculated over an 8-hour time-weighted average without regard for the use of a respirator, meaning this is the limit where safety protocols must be initiated, such as use of a respirator. Under no circumstances may a worker be exposed to 50 μg/m³ over an 8-hour weighted period. These regulations require implementation of engineering and work practice controls such as respiratory protection, protective clothing, housekeeping, hygiene practices, and signage requirements to meet worker exposure limits. Medical monitoring and training requirements are also identified.

3.7.3.3 Local

South Coast Air Quality Management District Rule 1403 (Asbestos)

Rule 1403, Asbestos Emissions from Demolition/Renovation Activities, specifies work practices to limit asbestos emissions from building demolition and renovation activities including the removal and disturbance of ACM. This rule is generally designed to protect workers conducting demolition or renovation activities from exposure to asbestos emissions. Rule 1403 requires surveys of any facility being demolished or renovated for the presence of all friable and Class I and Class II non-friable ACM and provides the definition of those classes. Rule 1403 establishes notification procedures, removal procedures, handling operations, and warning label requirements. Approved procedures for ACM removal to protect surrounding uses and people identified in Rule 1403 include HEPA filtration, the glovebag method, wetting, and some methods of dry removal.

Long Beach Storm Water Management Program

This City of Long Beach Program reinforces the Construction General Permit Stormwater Pollution Prevention Plan (SWPPP) requirements for projects disturbing more than an acre, and lists minimum requirements to be met at every construction site regardless of the construction site’s size. The Long Beach Storm Water Management Program is noted but discussed in detail in Section 3.5.3, Regulatory Framework, in Section 3.5, Geology, Seismicity, and Soils.

Long Beach MS4 Permit

The City of Long Beach is covered under the Long Beach MS4 Permit: Waste Discharge Requirements for Municipal Separate Storm Sewer System Discharges from the City of Long Beach; Order No. R4-2014-0024 (LARWQCB 2014). The Long Beach MS4 Permit is discussed in detail in Section 3.5.3.

Long Beach Low Impact Development Manual

The City adopted LID regulations for the purpose of encouraging the beneficial use of rainwater and urban runoff; reducing stormwater/urban runoff while improving water quality; reducing off-site runoff and providing increased groundwater recharge; reducing erosion and hydrologic impacts downstream; and enhancing the recreational and aesthetic values in our communities (City of Long Beach 2013). The LID Manual is discussed in Section 3.5.3.
**Long Beach Municipal Code**

**Title 8. Health and Safety**

**Chapter 8.85: Underground and Aboveground Storage Tanks.** This chapter designates the Long Beach/Signal Hill CUPA as the local agency responsible for enforcing regulations pertaining to underground and aboveground storage tanks regulations within the City.

**Chapter 8.86: Hazardous Materials Release Response Plans and Inventory.** This chapter designates the Long Beach/Signal Hill CUPA as the local agency responsible for enforcing regulations regarding Hazardous Materials Release Response Plans within the City.

**Chapter 8.87: Hazardous Waste Control.** This chapter designates the Long Beach/Signal Hill CUPA as the local agency responsible for enforcing regulations regarding hazardous waste control within the City.

**Chapter 8.88: Hazardous Materials Cleanup.** This chapter reinforces the requirements for site characterization and remediation for hazardous materials spills, and requires characterization and remediation permits be acquired from the Health Officer of the City of Long Beach and any deputy Health Officer or designee. The Health Officer shall determine the compliance with the hazardous waste control laws by responsible parties.

**Chapter 8.96: Storm water and Runoff Pollution Control.** This chapter reinforces the requirements of the Federal Clean Water Act and the State Porter Cologne Act (including Construction General Permit requirements) within the City.

**Title 12. Oil Production Regulations**

**Chapter 12.12.050: Drilling Permit—Application Contents.** This chapter describes the requirements for oil well drilling permits, which include setbacks from specific facilities, drilling procedures, operations procedures, and a certification that the means or method by which liquid spills will be removed from diked areas or catchment basins will conform to the regulations of the DOGGR.

**Chapter 12.16: Well Locations.** This chapter describes the various setback requirements from specific facilities, schools, and roads.

**Chapter 12.16.050: Consolidated Drill Site Plans.** This chapter describes locations exemption to encourage the consolidation of oil drilling surface facilities to make additional land available for non-oil production land uses.

**Chapter 12.36.010: Abandonment Procedure.** This chapter describes the permit requirements for well abandonment, including compliance with DOGGR regulations, the removal of all unused equipment, the cleaning out of all sumps, cellars, and ditches of all oil, oil residue, drilling fluid, and rubbish removed therefrom and the sumps, cellars, and ditches leveled or filled, all in accordance with the DOGGR regulations. Where such sumps, cellars, and ditches are lined with concrete, permittee shall cause the walls and bottoms to be broken up and removed and shall cause the premises to be cleaned and graded and left entirely free of oil, rotary mud, oil-soaked earth, asphalt, tar, concrete, litter, debris, and other substances, and left in a clean and neat condition, all to the satisfaction of the DOGGR.

**City of Long Beach General Plan**

The City of Long Beach General Plan contains a Public Safety Element and Conservation Element, which are applicable to this project. The relevant portions of the General Plan are discussed in Section 3.5.3.
Southeast Area Development and Improvement Plan and Southeast Area Specific Plan

The individual sites are located in the Southeast Area Development and Improvement Plan (SEADIP) area. This plan is in the process of revision. In July 2016, the City of Long Beach circulated a draft of the Southeast Area Specific Plan (SEASP), and includes re-designating land uses for the project site. The SEADIP does not contain standards relative to hazardous materials use or storage; however, the SEASP contains standards relevant to hazards and hazardous materials which apply to this project. Chapter 5, Section 5.10, Wetland Buffers, and Chapter 8, Section 8.1.2, Storm Drains, of the SEASP are discussed in Section 3.5.3. Chapter 5, Section 5.11, Coastal Act Compliance, has not formerly been addressed and is explained below.

Chapter 5, Development Standards, Section 5.11, Coastal Act Compliance—Protection from Oil Spills or Hazardous Substances (Section 30232)

The SEASP allows for ongoing oil drilling and production and consolidation of wells that comply with Title 12, Oil and Gas Production, of the LBMC and also California Coastal Act Section 30262, Oil and Gas Development. These regulations include provisions that help to protect against the spillage of crude oil, gas, petroleum products, or hazardous substances in relation to any development or transportation of such materials as well as requiring effective containment and cleanup facilities and procedures for accidental spills that do occur.

3.7.4 Analysis of Impacts

This section describes the impact analysis relating to hazards and hazardous materials for the proposed project. It describes the methods and applicable thresholds used to determine the impacts of the proposed project.

3.7.4.1 Significance Criteria

CEQA Guidelines Appendix G provides that a project would have a significant hazards and hazardous materials impact if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area;
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;
Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

It was determined in the NOP/IS (see Appendix A) that the proposed project would have no impact related to the project site being located within an airport land use plan, within 2 miles of a public airport, public use airport, or private airstrip that would be a safety hazard for people residing or working in the project area. The nearest public airport is the Long Beach Airport, located approximately 3.2 miles northwest of the project site. In addition, the Los Alamitos Army Airfield is located about 2.7 miles northeast of the Synergy Oil Field site. Based on these considerations, these topics will not be discussed further in the EIR.

### 3.7.4.2 Methodology

The evaluation of hazards and hazardous materials is based on the components and actions for the proposed project, as described in Chapter 2, Project Description. Hazards and hazardous materials information for the project area was derived from various sources and compiled in this chapter to develop a comprehensive understanding of the potential constraints and hazards associated with project construction and operations. Information sources include site-specific Phase I ESAs (Rincon 2015a, 2015b; AEC 2016a, 2016b), additional soil testing (AEC 2016c, 2017a, 2017b, 2017c, 2017d, 2017e), findings resulting from regulatory agency database searches, review of hazardous materials investigation reports, site reconnaissance, applicable regulations and guidelines, and proposed project construction and operations. Significant impacts would occur if the location or activities of project components resulted in conflicts with known hazardous materials sites.

As described in more detail below, the analysis of hazards and hazardous materials impacts in this section takes into account the various existing federal, State, and local regulations that apply to hazards and hazardous materials. Through compliance with the existing regulations, the project applicant would be required to use, transport, store, and dispose of hazardous materials using procedures that would avoid hazards or reduce the potential for hazardous materials incidents.

For purposes of this analysis, construction activities would include the excavation or drilling of soils and rock; removal of some existing oil production facilities (wells, piping, and associated infrastructure); construction of oil production facilities (wells, pipelines, and associated infrastructure), aboveground structures including the office buildings, trail, parking lot, driveway improvements, and restored habitat; and the relocation of the existing Synergy office building and repurposing it as a visitors center. These construction activities would occur at various times across the entire project site. Additionally, it may be necessary to remove the landfill under the Pumpkin Patch site. Ongoing testing may indicate that contaminants require removal in order to safely construct the proposed oil facilities and to ensure that the surrounding areas are not impacted by the contaminated materials. Should landfill removal be necessary, the landfill materials would be removed prior to construction of the buildings and oil production facilities on the site. Operations activities would include the operational phases of the office buildings, oil production facilities, trail, visitors center, parking lot, and restored habitat.

As stated in Chapter 1, Introduction, on April 28, 2016, the City sent an NOP to responsible, trustee, and federal agencies, as well as to organizations and individuals potentially interested in the project to identify the relevant environmental issues that should be addressed in the EIR. Two comment letters inquired about the use of fracking to install oil production wells. However, the project proposal does not identify the use of fracking techniques, and will operate consistent with all federal and State regulations regarding fracking. Therefore, the
topic of fracking is not considered further. One comment letter expressed concerns about toxins in soil from previous uses, which is analyzed in this section. No other issues related to hazards or hazardous materials were identified in the comments that were received.

3.7.4.3 Impact Evaluation

Impact HAZ-1: The project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal, or reasonable foreseeable upset and accident conditions that release hazardous materials. (Less than Significant)

Demolition and Building Relocation

The project includes the demolition and removal of all oil storage tanks and 95 percent of all pipelines. In addition, the existing Synergy office building would be relocated to the southwest corner of the site and repurposed for use as a visitor center. The following discussion analyzes anticipated hazardous materials issues.

ACM and LBP

The tanks, pipelines, and existing office building may contain ACM and/or LBP. If these materials are disturbed during the demolition and/or relocation, they could pose a respiratory risk to workers during construction and later on to the public during operations if the ACM and/or LBP materials were disturbed and became airborne posing a respiratory risk; however, as discussed above in the Regulatory Framework, the management of ACM and LBP in building materials is regulated by the South Coast Air Quality Management District under Rule 1403 for the removal and/or renovation of ACM and under 8 CCR 1532.1 for LBP. If the ACM and/or LBP is to be disturbed or removed, the regulations would require the preparation of an ACM Management Plan and/or a LBP Management Plan, depending on which materials are to be disturbed. The management options include measures to avoid disturbance, implement stabilization measures, or remove the materials. The project applicant would be required to retain a state-licensed Asbestos-Containing Material (ACM) and/or Lead-Based Paint (LBP) contractor to prepare and implement the management plan(s). With compliance with existing regulations, the impacts would be reduced to a less-than-significant level.

Pipelines

Pipelines would be removed from service, cleaned, and disposed of per DOGGR and DTSC requirements. The pipelines to be demolished would be marked in the field and permanently isolated with blind flanges from sections of the system that would continue operating. All removed pipelines would be tested for NORM, and any NORM pipeline identified would be segregated from other materials for handling and disposal at the McKittrick Landfill in McKittrick, California, which is permitted to accept NORM materials. Any fluids within the pipelines would be flushed into vacuum trucks. The flushing areas where the pipes would be remediated would have spill prevention methods implemented (temporary containment, plastic sheeting, containers, etc.) to contain residual fluid. Once the aboveground pipelines are emptied of residual fluids, they would be cut into smaller sections for recycling or disposal. Spill containment equipment would be placed at all the cut points and the pipes will be capped prior to removal. Plastic tarps would be laid beneath the pipelines prior to removal to collect any pieces of the pipe that may be dislodged during the removal process to prevent them from falling into the wetlands. The pipe would be placed onto a flatbed truck and then hauled to on-site storage bins for subsequent removal off site. With compliance with existing regulations, policies, and industry standards, and with utilization of adequate spill containment equipment and practices, potential impacts associated with pipeline removal due to leaked fluids would be reduced to a less-than-significant level.
Aboveground Storage Tanks

ASTs would be removed from service, cleaned, demolished, and the material disposed of per regulatory DOGGR and DTSC requirements. Tanks to be removed would be permanently isolated from all facility piping using blind flanges. As with pipelines, the storage tanks would be tested for NORM and managed as previously described. All instrumentation and appurtenances associated with the tanks would be removed and connections capped. During demolition, tracked excavators fitted with equipment for cutting the tank would be used. The structural steel of the tank would be removed all the way to the tank foundation. Cut steel would be placed onto trucks, then within on-site storage bins, and ultimately the material would be hauled off as scrap metal. A concrete slab or ring type foundation would be excavated and broken up by an excavator and placed into storage bins for disposal at a permitted site. Any liners would be removed and disposed of at a permitted facility. Removal of tank foundations (or pipelines) could involve excavation of contaminated soil. With compliance with existing regulations, the impacts would be reduced to a less-than-significant level.

Petroleum Hydrocarbon Affected Soil

As discussed in Section 3.7.2, Environmental Setting, previous investigations indicate that some of the soil on the Synergy Oil Field and City Property sites around the storage tank farms and near the Steamshovel Slough have soils with elevated concentrations of diesel and gasoline range TPH, lead, and naphthalene.

For remediation of the affected areas around the tank farm locations on the Synergy Oil Field site, an excavator would remove impacted soils from the surface to a depth of approximately 6 to 7 feet bgs. The soil would be loaded into semi-end dump trucks and hauled to a disposal facility designed to accept such waste, likely the Simi Landfill in Simi Valley, California (see Section 3.17, Utilities and Service Systems, for landfill descriptions). It is estimated that approximately 24,000 tons of soil would be excavated from the combination of the HA-3 and HA-5 locations (AEC 2017b). Because the lateral limits of the petroleum hydrocarbon contamination have not been adequately defined, the volume of soil may be larger than currently estimated; however, the proposed manner of remediation would not change and if required would expand in volume and extent as needed.

Remediation of the area around sample location HA-9 site near Steamshovel Slough would be similar to the procedure described above; however, the excavated material would require disposal at the Waste Management at Kettleman Hills Landfill, in Kettleman City, California because of the lead concentration. It is estimated that approximately 200 tons of material would be excavated from this area.

Additional sampling is proposed for the City Property site to further identify areas where chemical concentrations exceed screening levels (AEC 2017d); however, the nature of the hydrocarbon-impacted soils on the City Property site is assumed to be consistent with the contamination identified above in areas around the three sites for which remediation is recommended on the Synergy Oil Field site. Similarly, remediation would involve excavating the hydrocarbon-impacted soils from the surface to a depth of approximately 6 to 7 feet bgs, direct loading of the soil into semi-end dump trucks and hauling to a facility designed to accept such waste (either the Simi Landfill for non-hazardous or designated waste, or the Waste Management Kettleman Hills Landfill for hazardous waste). The soil would be excavated to the lateral extent of contamination above screening levels described in Section 3.7.3, Regulatory Framework. With compliance with existing regulations, the impacts would be reduced to a less-than-significant level.
Impact Conclusion for Demolition and Building Relocation Activities

Given compliance with existing regulations, and remediation and/or monitoring as explained above, potential impacts from surface disturbing activities in areas of hydrocarbon-impacted soils would be reduced to a less-than-significant level.

Construction

Petroleum products, such as gasoline, diesel fuel, lubricants, and cleaning solvents would be utilized to fuel and maintain construction vehicles and equipment for construction of all project components. Additionally, coatings, adhesives, and paints could be used and handled on the individual sites. Despite the numerous protective and preventive measures, the routine use or reasonably foreseeable upset and accident conditions for the various hazardous materials that would be used during construction activities could result in inadvertent releases of small quantities of hazardous materials, which could adversely affect construction workers or the environment.

Construction activities are required to comply with numerous hazardous materials and storm water regulations designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner to protect worker safety, to reduce the potential for a release of construction-related fuels or other hazardous materials to affect storm water and downstream receiving water bodies, and to respond to accidental spills, if any. The numerous regulations discussed in Section 3.7.3, such as RCRA, HMBP, the Aboveground Petroleum Storage Act, the California Fire Code, and others would require measures for the safe transportation, storage, handling, and disposal of hazardous materials used for construction, including appropriate containers, secondary containment to contain a potential release. As discussed in Section 3.5, Geology, Seismicity, and Soils, the construction contractors would be required to prepare a SWPPP for construction activities according to the NPDES General Construction Permit requirements. The SWPPP would list the hazardous materials (including petroleum products) proposed for use during construction and describe spill prevention measures, equipment inspections, equipment and fuel storage, and protocols for responding immediately to spills. With compliance with existing regulations, properly storing any materials on site, and implementing proper containment, the impacts would be reduced to a less-than-significant level.

Well Plugging and Abandonment

The project includes the phased plugging and abandonment of 53 existing oil wells on the Synergy Oil Field, City Property, and Pumpkin Patch sites. A well is plugged by placing cement in the well-bore or casing at certain intervals. The purpose of the cement is to seal the wellbore or casing and prevent fluid from migrating between underground rock layers. Cement plugs are required to be placed across the oil or gas reservoir, across the base-of-fresh-water, and at the surface. Other cement plugs may be required at the bottom of a string of open casing, on top of tools that may become stuck down hole, on top of cut casing, or anywhere else where a cement plug may be needed. Also, the hole is filled with drilling mud to help prevent the migration of fluids.

Consistent with Public Resources Code (PRC) Section 3229, Division 3, before commencing any work to abandon any well, the operator shall file with DOGGR a written notice of intention to abandon the well, which may not proceed until approval is given by DOGGR. In addition to DOGGR regulations regarding the plugging and abandonment of oil wells, the operator is also required to comply with the California Department of Health Services regulations in Section 30346 of CCR Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 7. With compliance with existing regulations, impacts from well abandonment would be reduced to a less-than-significant level.
**Well Drilling and Operation**

The proposed production and injection wells would be drilled using oil well drilling techniques, as summarized in Chapter 2, *Project Description*, and detailed in the Oil Drilling and Production Overview white paper (BOMP 2017a). Drilling fluids, such as bentonite-water mix or a polymer-water mix, would be used to facilitate drilling and well construction to prevent the drilled materials from locking up the drill bit inside the boring. The drilling mud is in a closed system, circulating from mud tanks down the borehole and returning the cuttings to the mud tank. Conductor casing would be installed at shallower depths to seal off shallower aquifer zones and prevent fluids (drilling mud during construction or produced oil during operations) from entering shallower aquifers.

Once the drilling reaches the desired production zone, the driller would pump out the drilling mud and place the cuttings and drilling mud in a storage container for off-site hauling and disposal. Non-corrosive, environmentally inert, biodegradable additives might be used to keep the borehole open, prevent corrosion, increase mud weight, and prevent mud loss. In addition, all wells would be installed in well cellars designed to contain fluids, as described in the above-referenced Oil Drilling and Production Overview white paper.

During drilling, and initially during production for a period of time after a well has been drilled, there may be time periods and within zones of the reservoir where substantial pressures are encountered. Should a zone of high pressure be encountered during drilling, a pressurized release could occur. Risks associated with a drilling blowout would be associated with either a production or injection well.

Various features incorporated into the well design and the location and characteristics of the oil field reduce the risk of a well blowout. All wells would be equipped with BOPE, which are designed to prevent the uncontrolled flow of well bore fluids through the casing, by either containing the flow completely or by diverting it. Section 3219, Division 3, of the PRC states, in part, that operators must equip wells “with casings of sufficient strength, and with such other safety devices as may be necessary, in accordance with methods approved by the supervisor, and shall use every effort and endeavor effectually to prevent blowouts, explosions, and fires.” Additional requirements for casing and BOPE are provided by several sections of CCR Title 14, particularly Section 1722.5, “in establishing the BOPE requirements specified in the division’s approval of proposed operations.” Additionally, the project will include venting to flare and non-cascading shutdown systems. In addition, due to the long history of oil extraction from the various oil fields in Long Beach, the pressure in the reservoirs has decreased. Drilling will likely be in fault blocks that have already experienced some depletion which has resulted in decreasing the amount of pressure in the reservoir. Moreover, California reservoirs are known to not be abnormally pressured.

If none of the wells encounter a pressurized reservoir and with a functioning BOPE, potential impacts from drilling would be less than significant; however, and though very unlikely, if a pressurized reservoir were encountered, the BOPE system, and other safety measures employed during the drilling process, including operator training, will minimize the potential impacts from a well blowout scenario. Given these measures and the remote likelihood of occurrence given the characteristics of California reservoirs with decreased pressure, the potential impacts of a well blowout during drilling would be considered less than significant.

During the oil extraction process, oil, water, and natural gas are brought to the surface from the production formation. Once these components reach the surface, they are separated and processed. This project proposes to inject the produced water back in to the formation from which it came, injecting sufficient quantities of

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64 Bentonite is a form of clay, also called montmorillonite, commonly used in well drilling.
water to replace the volume of fluids extracted. This method of “voidage replacement” helps maintain underground pressures and serves to prevent subsidence, as discussed in Section 3.5, *Geology, Seismicity, and Soils*. The injected water is a mixture of produced water derived during the oil extraction process, and also water obtained from the source wells. Corrosion inhibitors, scale inhibitors, biocides, and/or oxygen scavengers may also be added to the water prior to injection. Water injection activities are heavily regulated by the DOGGR, under provisions of the PRC and the federal Safe Drinking Water Act. The project’s water injection wells (Class II injection wells) fall under the DOGGRs Underground Injection Control (UIC) program, which is monitored and audited by the USEPA. The main features of the UIC program include permitting, inspection, enforcement, mechanical integrity testing, plugging, and abandonment oversight, data management, and public outreach. With compliance with existing regulations, and inasmuch as the injected produced water would meet Class II standards, impacts would be reduced to a less-than-significant level.

**Operation**

As noted above, the operation of oil production and injection wells, pipelines, and associated infrastructure is regulated by DOGGR and other federal, state, and local regulations discussed above in Section 3.7.3.

**Pipeline and Utility Corridor**

The project involves the operation of an approximately 2,200-foot aboveground pipeline system and utility corridor through the City Property site connecting the Pumpkin Patch site to the LCWA site (see Figure 2-20, Aboveground Pipeline Corridor and Utility Corridor). This pipeline would be subject to federal regulations (49 CFR Part 192 and 49 CFR Part 195) that mandate hydrostatic testing of new, cathodically protected pipelines prior to placing the pipeline into operation. Such tests are designed to prove that the pipe, fittings, and weld sections would maintain mechanical integrity under pressure without failure or leakage.

Additionally, the connecting pipeline would be inspected in accordance with City of Long Beach Department of Transportation requirements and state and federal regulations to ensure the ongoing integrity of the pipeline. Other inspection and maintenance of the connecting pipeline may include the use of pigs, which are devices inserted into the pipeline. Pigs would be used as needed to clean and/or inspect the connecting pipeline and “smart pigs” would be used to detect corrosion or other damage that has affected the wall thickness or shape of the pipe. Also, emergency isolation valves and shutdown instrumentation would be regularly tested for set points and functionality.

Further, “distributed strain and temperature sensing” fiber optic lines would be installed to detect leaks. This technology would be able to detect leaks immediately upon occurrence, and would also detect any soil disturbances in the line. Additionally, seismic accelerometers at both the pipeline portions at the Pumpkin Patch and LCWA sites would be installed. If a seismic event is detected, valves shut according to a timed sequence to prevent pressure surges.

The pipeline would be treated to decrease the potential for corrosion. All lines would have a baked-on external epoxy coating (fusion bonded epoxy) which would protect the outside carbon steel from corrosion. Field welds would have an epoxy coating at each seam. All lines with corrosive material (wet gas, oil gathering, and water lines) would have an internal epoxy coating. Welded field connections would be joined with a specially designed welding insert ensuring the corrosive fluid does not come in contact with bare carbon steel. All coatings would be visually inspected prior to installation and after any field welds.
However, in spite of state of the art leak detection mechanisms, rigorous maintenance and pipeline treatments, there is a remote potential that the pipeline could either develop a leak, or the line could rupture. In the unlikely event that there is a leak or rupture of the oil pipeline, and under a worst-case scenario that assumes the pipeline is at maximum capacity, it is assumed that up to approximately 16,000 gallons could be released from the pipeline. This spill volume is a function of line fill and pumping rate for 5 minutes (the worst case timeframe before the automatic shutdown systems activate). Given the sensitive habitat surrounding the pipeline, failure to provide proper containment would result in a significant impact. Accordingly, an earthen berm up to approximately 18 inches high would be installed on each side of the pipeline and would be designed to contain the estimated spill volume in the unlikely event of a pipeline spill or rupture. With compliance with existing regulations and policies, and implementing proper containment, the impacts from operation of the pipeline due to a spill or rupture of the line would be reduced to a less-than-significant level.

Storage Tanks

The project includes the operation of two storage tanks on the Pumpkin Patch site (one 3,000-barrel “wet oil” tank and one 2,000-barrel “skim oil” tank) and four tanks on the LCWA site (one 28,000-barrel sales oil tank, one 5,000-barrel injection water tank, and two multi-use or “swing” tanks (each 14,000 barrels). The potential for tank leaks or rupture would be addressed by the project components described below.

Each tank would be fixed-roof and gas-blanketed. The fixed-roof, gas blanket design eliminates direct emissions from tanks by capturing tank vapors through a vapor recovery system. All tanks would be equipped with leak detection systems, overfill protection, instrumentation to monitor and control level, and instrumentation to monitor temperature and pressure. In addition to instrumented protection against over-pressurization, the tanks would also be provided with pressure relief valves. The tanks would also sit in secondary containment basins designed to hold the contents of the largest tank, plus a 25-year storm event.

All tanks would be designed in accordance with the API Standard for Welded Steel Tanks for Oil Storage (API-650), which is the industry standard. API-650 dictates tank design, fabrication, welding, inspection, and erection requirements and is widely used for tanks that are designed to internal pressures of 2.5 pounds per square inch (psi) or less and store products such as crude oil, gasoline, chemicals and produced water. Given compliance with industry standards, the utilization of leak detection systems and adequate containment, potential impacts from the leak or rupture of the tanks would be reduced to a less-than-significant level.

Oil Processing Facility

The project includes the operation of an oil processing facility. To address the potential of a process upset, the project would be equipped with computerized control, monitoring, and communication systems. In general, these systems would be designed to monitor and control all process equipment that would operate within the facility, and used to detect and prevent an upset or release of material.

Upon detection of a process upset, the operator would have the capability to shut down the affected systems. The operator console in the new office building would be staffed 24 hours a day. The Supervisory Control and Data Acquisition (SCADA) system would provide the ability to control systems operation from the

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65 One barrel equals 42 gallons.
66 SCADA is a control system that uses computers, networked data communications, and graphical user interfaces for high-level process supervisory management, along with other peripheral devices such as programmable logic controllers, discrete controllers, field sensors, and actuators to interface to the process plant.
Operations Building and respond to alarms that are initiated when operating conditions fall outside established parameters. The SCADA system would provide for a high degree of safety in the operation, allow for quick and technically sound responses to abnormal conditions, and simultaneously provide the basis for environmentally sensitive operating decisions. Equipment would typically be provided with independent automated shutdown instrumentation as well as remote indication with both pre-alarms and shutdowns, providing redundancy in safety systems. The SCADA system would have multiple levels of redundancy for critical operating components and applications, and has been designed to include cybersecurity measures. The building would be provided with an uninterruptible power supply and a diesel emergency generator to provide continuous power in the event of an external power failure. It would also be equipped with gas and fire detection systems and a fire suppression system.

The oil processing facilities would be subject to the Beach Oil Minerals Partners (BOMP, the Applicant) mechanical integrity requirements as well as federal regulation (29 CFR Section 1910.119), the federal OSHA process safety management of highly hazardous chemicals. The mechanical integrity requirements include regular internal, external and non-destructive testing of tanks, vessels and piping, and testing of relief devices with test records maintained both at the facilities and at the engineering office. In addition to the mechanical integrity requirements, normal preventative maintenance best practices would be performed for machinery and valves. With compliance with existing regulations, and implementation of the rigorous safety mechanisms and ongoing inspection and maintenance, impacts from long-term operation of the oil processing facility would be reduced to a less-than-significant level.

Microgrid and Natural Gas Turbine System

The project includes the operation of a microgrid and natural gas turbine system. Potential impacts include possible gas releases, upset conditions or fire at the facility. The turbines would be self-contained in an all-steel full length enclosure which would be weatherproof, insulated, sound-attenuated, and assembled to mount on the generator base frame. The enclosure incorporates a ventilation system, dust protection system, fire and gas detection and monitoring system, and a fire suppression system. The enclosure has a positive pressure to prevent the entry of potentially hazardous external atmospheres through the enclosure seams. A differential pressure switch is provided to indicate an alarm when low pressures are detected.

Fire and gas monitoring and detection are managed by a separate control system that interfaces with the main unit control system, and consists of a control unit, a local operating network and a number of sensors of different types that detect the presence of combustible gas, excessive heat, or flame. The detection of combustible gas concentrations above established levels generates an alarm or a package shutdown, as appropriate. The detection of fire or excessive heat results in the immediate shutdown of the package and activation of the fire suppression system, using CO₂ as the extinguishing agent.

The main controller is programmed to initiate when a hazardous condition is detected. For combustible gas, alarm and shutdown levels are preset and the corresponding commands are sent to the control system to respectively display an alarm or to shut the turbine down. If fire is detected, several actions occur simultaneously. A shutdown command is issued so that the control system shuts the turbine down. The package strobe lights, fire horn, and suppression system are activated. Depending on the suppression system design, commands are issued for primary release, extended release and, if applicable, subsequent release. Shutdown commands are transmitted to the control processor via the Ethernet interface, and also directly to the backup shutdown system.
All gas turbine systems would be designed in accordance with the API Standard for Gas Turbines for the Petroleum, Oil, and Gas Industry Services (API-616), which is the industry standard. API-616 covers the minimum requirements for open, simple, and regenerative-cycle combustion gas turbine units for services of mechanical drive, generator drive, or process gas generation. With compliance with existing regulations and industry standards, and implementation of the rigorous safety mechanisms and ongoing inspection and maintenance, impacts from long-term operation of the turbine system would be reduced to a less-than-significant level.

**Odorant**

Other possible upset scenarios associated with the gas operations include release or spill of the utilized odorant. As gas is typically odorless, a sulfur based odorant (mercaptan) is added to aid in leak detection. Mercaptan is colorless gas with a distinctive putrid smell. At very high concentrations, it is highly toxic and affects the central nervous system. Its penetrating odor provides warning at dangerous concentrations. All odorant will be properly stored on site and provided in secondary containment systems. Given adequate storage and containment, potential impacts from the release of odorant would be reduced to a less-than-significant level.

**General Office Building and Visitors Center**

The office building and visitors center would use small quantities of cleaning products and occasional paints, solvents, and thinners for routine maintenance. As previously discussed, the HMBP would require the materials be stored and labeled in appropriate containers. Therefore, impacts related to hazardous materials routine use or accidental release during operation would be less than significant.

**Mitigation Measures:** None required.

**Significance Determination:** Less than Significant.

**Impact HAZ-2:** The project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (No Impact)

**Construction and Operation**

As discussed in Section 3.7.2, there are no schools located within 0.25 mile of the project site. Therefore, there would be no impacts related to hazardous materials near schools.

**Mitigation Measures:** None required.

**Significance Determination:** No Impact.

**Impact HAZ-3:** The project would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment. (Less than Significant with Mitigation)

**Construction**

As discussed in Section 3.7.2, all four individual sites are listed on one or more hazardous materials lists for the presence of active, idle, or plugged oil wells; historical releases of petroleum or PCBs, and/or the presence...
of landfill materials. The construction activities could encounter hazardous materials associated with these issues, exposing workers or the environment to hazardous materials.

**Contaminated Soil**

Soil disturbance during construction on the Synergy Oil Field, City Property, and LCWA sites could encounter or further disperse residual contamination in soil and expose construction workers and the environment to hazardous materials. Potential impacts related to soil contamination during demolition and construction on the Synergy Oil Field and City Property sites is analyzed above in Impact HAZ-1. Potential impacts relative to the LCWA site are discussed below.

Based on the results of previous site investigations on the LCWA site, increased concentrations of arsenic, vanadium, lead, and nickel were identified in two locations, and additional soil sampling was conducted at two sites in the central portion of the project site. The analytical results for the four soil samples collected at the two sites in June 2017 were compared to the USEPA May 2016 Industrial-Use RSLs and also to the TTLC criteria (see Section 3.7.3). The metals of concern (arsenic, vanadium, lead, and nickel) did not exceed their comparative standard with the exception of arsenic.

The DTSC established a regional background arsenic concentration in soil that can be used as screening criteria for sites in Southern California (Chernoff et al. 2008). Data obtained for this study served as the model for the statistical derivation of background concentrations of arsenic. The statistical analysis resulted in determining an upper-bound background arsenic concentration of approximately 12 mg/kg.

The arsenic results of samples taken at the LCWA site ranged between 4.9 and 12 mg/kg. Although these results exceed their comparative RSL of 0.39 mg/kg, all samples analyzed were within the acceptable background range in California soils of 1 to 12 mg/kg and are therefore not subject to regulatory action.

Based on the absence of regulatory “actionable” concentrations of arsenic, lead, nickel and vanadium collected from “step-out” samples proximal to prior sample locations, the elevated results from previous investigations are determined to be an anomaly. Additionally, prior soil sampling (AEC 2004) conducted at bracketed depths around the samples exhibiting these anomalous results were within what can be considered normal “background” range. No further investigation and/or remediation is required, and no impacts are anticipated.

**Landfill Materials**

As discussed in the Environmental Setting, the Pumpkin Patch site has a buried closed landfill. The landfill materials would be located below the proposed location of the oil processing facility. Depending on the results of ongoing testing for contaminants, the landfill materials may need to be removed. If removed, there is a potential for hazardous materials to be encountered, which could expose workers and the environment to hazardous materials. Such risks could occur during excavation or drilling, stockpiling, handling, or transportation of soils or landfilled materials that have been contaminated by hazardous materials.

Impacts resulting from the potential release of or exposure to hazardous materials in soil, landfilled materials, and/or groundwater would be reduced to a less-than-significant level with implementation of Mitigation Measures HAZ-1, Health and Safety Plan, and HAZ-2, Soil, Landfill Materials, and Groundwater Management Plan. Mitigation Measure HAZ-1 would require that construction contractors prepare a health and safety plan in accordance with Cal OSHA regulations. The plan would provide hazard recognition and monitoring information, specify personal protective equipment for workers, outline construction measures to
reduce the potential for workers’ exposures to hazardous materials in soil, landfill materials, and groundwater, and describe procedures for handling accidental hazardous materials releases and unanticipated contamination. Mitigation Measure HAZ-2 would require construction contractors to prepare and implement a Soil, Landfilled Materials, and Groundwater Management Plan in compliance with all relevant environmental regulations for the management and disposal of excavated soil and groundwater. The plan would include describing soil, landfilled materials, and groundwater testing procedures to identify the appropriate reuse and/or disposal options, the containers to be used to transport the materials, and the proposed recycling or disposal facilities along with each facilities acceptance criteria. With implementation of Mitigation Measures HAZ-1 and HAZ-2, the potential for harmful exposure to hazardous materials present in soil, landfilled materials, or groundwater during construction would be reduced to a less-than-significant level.

As discussed above in Section 3.7.4.2, Methodology, it may be necessary to remove some or all of the buried landfill under the Pumpkin Patch. If determined necessary, this work would consist of the following phases: (1) remove the dry trash from the site and haul to a disposal facility (transfer station or landfill) depending on the acceptance criteria of the transfer station and landfills and (2) using excavation equipment with a dredging bucket, remove wet trash so the water would be allowed to drain within the confines of the excavation. Any residual water brought to the surface would be contained for transfer to an on-site liquid retention Baker-type tank; the collected water would be sampled and subsequently disposed at an approved off-site facility. The wet trash would be allowed to drain on a rack in the excavation pit before being hauled to a disposal site.

Analytical testing of the materials to be removed would characterize the waste as hazardous (Class I), designated (Class II), or nonhazardous (Class III), and identify the appropriate disposal location. Designated and nonhazardous waste would be hauled to a Class II or III disposal facility, and hazardous waste would be hauled to a Class I facility, likely the Kettleman Hills Landfill. It is assumed that approximately 63,000 cubic yards of waste would be exported, and approximately 45,000 cubic yards of clean dirt would be imported. With compliance with regulations, and with implementation of Mitigation Measures HAZ-1 and HAZ-2, the potential for harmful exposure to hazardous materials present in soil, landfilled materials, or groundwater during removal of the landfill would be reduced to a less-than-significant level.

**Operation**

Once the construction activities have been completed, the hazardous materials sites issues described above would have been addressed. The only remaining potential exposure would be due to accidents involving the oil production activities, previously addressed in Impact HAZ-1.

**Mitigation Measures**

**Mitigation Measure HAZ-1: Health and Safety Plan.** The construction contractor(s) shall prepare and implement site-specific Health and Safety Plans as required by and in accordance with 29 CFR 1910.120 to protect construction workers and the public during all excavation and grading activities. This Plan shall be submitted to the project applicant and the Long Beach Hazardous Materials Division for review prior to commencement of construction. The Health and Safety Plan shall include, but is not limited to, the following elements:

- Designation of a trained, experienced site safety and health supervisor who has the responsibility and authority to develop and implement the site Health and Safety Plan;
- A summary of all potential risks to construction workers and maximum exposure limits for all known and reasonably foreseeable site chemicals;
Specified personal protective equipment and decontamination procedures, if needed;

- Emergency procedures, including route to the nearest hospital; and

- Procedures to be followed in the event that evidence of potential soil or groundwater contamination (such as soil staining, noxious odors, debris or buried storage containers) is encountered. These procedures shall be in accordance with hazardous waste operations regulations and specifically include, but are not limited to, the following: immediately stopping work in the vicinity of the unknown hazardous materials release, notifying The Long Beach Hazardous Materials Division, the LARWQCB, and DOGGR, as appropriate, and retaining a qualified environmental firm to perform sampling and remediation.

**Mitigation Measure HAZ-2: Soil, Landfill Materials, and Groundwater Management Plan.** In support of the Health and Safety Plan described in Mitigation Measure HAZ-1, the contractor shall develop and implement a Soil, Landfilled Materials, and Groundwater Management Plan that includes a materials disposal plan specifying how the construction contractor will remove, handle, transport, and dispose of all excavated material in a safe, appropriate, and lawful manner. The Plan must identify protocols for soil and landfilled materials testing and disposal, identify the approved disposal site, and include written documentation that the disposal site can accept the waste. Contract specifications shall mandate full compliance with all applicable local, state, and federal regulations related to the identification, transportation, and disposal of hazardous materials, including those encountered in excavated soil or dewatering effluent.

As part of the Soil and Groundwater Management Plan, the contractor shall develop a groundwater dewatering control and disposal plan specifying how groundwater (dewatering effluent), if encountered, will be handled and disposed of in a safe, appropriate and lawful manner. The Plan must identify the locations at which groundwater dewatering is likely to be required, the test methods to analyze groundwater for hazardous materials, the appropriate treatment and/or disposal methods, and approved disposal site(s), including written documentation that the disposal site can accept the waste. The contractor may also discharge the effluent under an approved permit to a publicly owned treatment works, in accordance with any requirements the treatment works may have.

This Plan shall be submitted to the project applicant and Long Beach Hazardous Materials Division for review and approval prior to commencement of construction.

**Significance Determination:** Less than Significant with Mitigation.

**Impact HAZ-4: The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Less than Significant)**

**Construction**

The proposed project would not interfere with the designated agency’s responsibilities and reporting in the event of an emergency because no roads would be closed. All construction and operation activities, including well drilling, would occur within the four individual sites. In addition, construction of the oil pipeline that would run from the LCWA site to the City Property would use horizontal drilling techniques that would not require street closures because the pipeline and associated utilities would pass beneath the intersection of Studebaker Road and 2nd Street. Construction vehicles periodically transporting equipment and materials would use public roads but would not affect the carrying capacities of the roadways, as discussed in Section 3.15, *Transportation and Traffic*. Therefore, the impact to emergency response or emergency evacuation plans from construction traffic would be less than significant.
**Operation**

The project facilities would be protected by a firewater loop fed by a Long Beach Water Department (LBWD) water main. The main firewater loop line within the site would be continuously pressurized. The system would supply water to multiple hydrants, firewater monitors, and foam monitors located on the project site. Each fire hydrant would be equipped with a fire hose and nozzles. The local LBWD water main can provide adequate flow and pressure to the site with no additional need for firewater storage tank or pumps. The new office building would be provided with a sprinkler system in accordance with City requirements.

The turbine system enclosure is equipped with a CO₂ fire suppression system. On detection of fire, the detectors transmit an electrical signal via the fire control panel to activate the fire suppression system. On receipt of this signal, the discharge valves are activated, releasing the extinguishing agent into the enclosure. CO₂ pressure actuates the pressure trip operated dampers that close all vent openings. Additionally, CO₂ release control heads are also provided with manual release levers.

In addition to the BOPE on the wells, a foam system for fire suppression will be installed on the oil storage tanks to address the potential for fires involving these facilities.

With implementation of adequate fire detection and suppression systems, emergency response or emergency evacuation plans would not be likely be impacted due to project-related fires and potential impacts would be less than significant.

As analyzed in Impact HAZ-1, there is a potential for a pipeline spill or rupture on the City site. As any released fluids would remain within the containment system and not migrate off site, emergency response or emergency evacuation plans would not be likely be impacted due to pipeline spills and potential impacts would be less than significant.

In addition, the proposed project would not interfere with the designated agency responsibilities and reporting in the event of an emergency because no roads would be closed. All operation activities would occur within the four individual sites. The operation vehicles periodically transporting equipment and materials would use public roads but would not affect the carrying capacities of the roadways, as discussed in Section 3.15, Transportation and Traffic. Therefore, the impact to emergency response or emergency evacuation plans would be less than significant.

**Mitigation Measures:** None required.

**Significance Determination:** Less than Significant.

**Impact HAZ-5:** The project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. (No Impact)

**Construction and Operation**

As discussed in Section 3.7.2, the four individual sites are not located within very high or high fire hazard severity zone. Therefore, there would be no impact relative to wildland fires.

**Mitigation Measures:** None required.
Significance Determination: No Impact.

3.7.4.4 Cumulative Impacts

As discussed in Section 3.7.4, Analysis of Impacts, the proposed project would have no impact with respect to the use of hazardous materials within 0.25 mile of a school, the location of project components within 2 miles of an airport, interference with an adopted emergency response plan or emergency evacuation plan, or wildland fire hazards. Accordingly, the proposed project could not contribute to cumulative impacts related to these topics.

The geographic scope of analysis for cumulative hazards and hazardous materials impacts encompasses the four individual sites and nearby areas that could affect soil and groundwater conditions within the project area. The types of impacts are generally site-specific and depend on past, present, and future land uses and existing soil and groundwater conditions. The timeframe during which the proposed project could contribute to cumulative hazards and hazardous materials effects includes the construction and operations phases.

**Cumulative Impacts during Project Construction**

Significant cumulative impacts related to hazardous materials could occur if the incremental impacts of the proposed project combined with the incremental impacts of one or more projects identified in Table 3-1, List of Cumulative Projects, and shown in Figure 3-1, Approximate Locations of Cumulative Projects, to substantially increase risk to people or the environment would be exposed to hazardous materials. None of the cumulative projects geographically overlap the proposed project.

However, all of these cumulative projects would be subject to the same regulatory requirements discussed in Section 3.7.3, including the implementation of health and safety plans, soil and groundwater management plans, and ACM/LBP management plans, as needed. Cumulative projects involving the potential releases of hazardous materials also would be required to remediate their respective sites to the same established regulatory standards. This would be the case regardless of the number, frequency, or size of the release(s), or the residual amount of chemicals present in soil from previous spills. Therefore, while it is possible that the proposed project and cumulative projects could result in releases of hazardous materials at the same location and at the same time (e.g., two trucks carrying hazardous materials), the responsible party associated with each spill would be required to remediate site conditions to the same established regulatory standards. The residual less-than-significant effects of the proposed project that would remain after mitigation would not combine with the potential residual effects of cumulative projects to cause a potential significant cumulative impact because residual impacts would be highly site-specific. Accordingly, no significant cumulative impact with respect to the use of hazardous materials would result. Therefore, the proposed project would not cause or contribute to a cumulatively significant impact with respect to the use of hazardous materials during construction activities (less than significant).

**Cumulative Impacts during Project Operations**

Though the locations of oil production wells and pipelines would change, all oil will still be piped off and the transport would not be substantially changed. Therefore, this would not result in a significant change over existing conditions. In addition, the replacement of the older wells and pipelines with newer wells, pipelines, and associated equipment would result in a decrease in the potential for spills. Therefore, the proposed project
would not cause or contribute to a cumulatively significant impact with respect to the use of hazardous materials during operations (less than significant).

### 3.7.5 References


———. 2016b. *Phase I Environmental Site Assessment for LCWA Property, North of 2nd Street and East of Studebaker Road, County of Los Angeles, Long Beach, California, May.*

———. 2016c. *Soil and Groundwater Assessment for the Pumpkin Patch, 7001 East Pacific Coast Highway, County of Los Angeles, Long Beach, California, July.*


———. 2017b. *Sampling Description and Results and Mitigation Measures, LCWA Restoration and Oil Consolidation Project Area, E 2nd Street (Westminster Avenue) and Studebaker Road, Long Beach, California, May 31.*

———. 2017c. *Asbestos and Lead-Based Paint Sampling, Bixby Structure and Tank Batteries/Pipelines, Approximate 154-acre Synergy Oil Field Site, Westminster and Studebaker, Long Beach, California, June 8.*

———. 2017d. **Proposed Sampling Locations, Approximate 33-acre Synergy (City) Oil Field Site, Westminster and Studebaker, Long Beach, California, June 8.**

———. 2017e. **Sampling and Analytical Results, SB7 and SB8 Locations, Approximate 5-acre LCWA Site, Westminster and Studebaker, Long Beach, California, June 8.**

AECOM. 2016. *Third Quarter 2016 Semiannual Groundwater Monitoring Report and Response to Agency Correspondence, Former 76 Station No. 5379 (351712), 6280 East Second Street, Long Beach, California, October 13.*


Blaes Environmental. 2016. *Groundwater Monitoring and Remedial Progress Report, Second and Third Quarters 2016, Circle K Store #2211310 / Former ExxonMobil Station #7-3047, 6401 East Pacific Coast Highway, Long Beach, California 90803, November 6.*


———. 2011. FRAP, *Los Angeles County Very High Fire Hazard Severity Zones in LRA as Recommended by CAL FIRE, September*


Kern County. 2013. *Draft Environmental Impact Report SCH# 2012121062, Volume 1, Chapters 1 through 11, McKittrick Class II Landfill Expansion Project by Liquid Waste Management, Inc.*, July


