4.3 Hazards and Hazardous Materials

4.3.1 Introduction

This analysis addresses potential impacts associated with hazards and hazardous materials that could occur with implementation of the proposed Project.

Prior to the preparation of this Environmental Impact Report (EIR), an Initial Study (Appendix A of this EIR) was prepared using the California Environmental Quality Act (CEQA) Environmental Checklist Form to assess potential environmental impacts associated with hazards and hazardous materials. For several of these thresholds of significance, the Initial Study (IS) found that the proposed Project would result in "no impact" or a "less than significant impact", and thus, no further analysis of these topics in an EIR was required. The analysis that supports these conclusions is set forth in Appendix A of this EIR. Refinements have been made to the proposed Project to reflect additional information and coordination with the public and the FAA. The refinements do not represent a material change to the proposed Project that was described in the IS/NOP and do not change any of the conclusions in the IS. Therefore, recirculation of the IS/NOP is not required. The thresholds not addressed further include:

- Potential impacts from the handling of hazardous materials within a quarter mile of a school were evaluated and determined to have "No Impact" in the IS, as no schools exist or are proposed within one-quarter mile of the Project site.
- Potential impacts from hazardous materials sites compiled pursuant to California Government Code Section 65962.5 were also evaluated and determined to have "No Impact" as the site is not listed on any of these regulatory databases.
- Potential impacts to airport land use plans and private airstrips were evaluated and determined to have "No Impact" as the proposed Project would comply with applicable Federal Aviation Administration (FAA) regulations.
- The IS further evaluated whether the proposed Project could impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan and determined that the proposed Project would result in "No Impact".
- Lastly, the potential exposure of people or structures involving wildland fires was evaluated in the IS and found to have "No Impact" as the Project site is not within a City of Los Angeles Wildfire Hazard Area, as delineated in the Safety Element of the General Plan.[1]

4.3.2 Methodology

The determinations and assessments contained herein are based on information presented in:

- *Report of Screening-Level Sampling and Analyses of Selected Stockpiles: West Aircraft Maintenance Area* by Geosyntec Consultants, June 2013.
- *Jet Fuel Remedial Action Plan (RAP) Former Continental Airlines Aircraft Maintenance Facility,* by Haley and Aldrich, Inc., December 2012.

[1] City of Los Angeles Planning Department, Safety Element of the City of Los Angeles General Plan, Exhibit D, Selected Wildfire Hazard Areas In the City of Los Angeles, April 1996.

- *Fuel Facility Tank Removal Report: Mercury Air Center (aka Atlantic Aviation),* by Madison Environmental Group, October 2012.
- *Jet Fuel Plume Supplemental Characterization Completion Report, Continental Airlines Aircraft Maintenance Facility*, by Haley and Aldrich, Inc., April 2012.
- *Vacuum Enhanced Free Product Recovery System Performance and Semiannual Groundwater Monitoring Report, 1 July 2011 – 31 December 2011, Continental Airlines Aircraft Maintenance Facility*, by Haley and Aldrich, Inc., February 2012.
- *Report of Findings Environmental and Geotechnical Testing and Pavement Design Recommendations and Options for the Southwest RON Project*, by Kleinfelder, May 2011.
- *Draft Report of Findings Environmental and Geotechnical Testing and Pavement Design Recommendations and Options for the Southwest Remain Overnight (RON) Parking Apron Project,* by Kleinfelder, April 2011.
- Response to CDM Letter Report *HVOCs in Groundwater in the Vicinity of Continental Airlines Maintenance Facility*, March 31, 2006 by Environmental Data Solutions Group (EDSG), August 2007.
- *HVOCs in Groundwater in the Vicinity of Continental Airlines Maintenance Facility,* by CDM, March 2006.
- *2003/2004 HVOC Investigation for Continental Airlines,* by EDSG, October 2004.
- Los Angeles International Airport (LAX) Master Plan Final EIR, Chapter 4.24.3, *Safety*, April 2004.
- LAX Master Plan Final EIR, Chapter 4.23, *Hazardous Materials*, April 2004.
- LAX Master Plan Final EIR, Chapter 4.20, *Construction Impacts*, April 2004.
- *Soil Matrix, Soil Gas and Groundwater Free Product Investigation at Undeveloped Lot West of Continental Airlines Maintenance Facility,* by CDM, October 2003.
- LAX Master Plan Final EIR, Technical Report S-8, *Supplemental Hazardous Materials Technical Report,* June 2003.
- LAX Master Plan Final EIR, Technical Report 13, *Hazardous Materials Technical Report,* January 2001.
- *Report of Supplemental Soil Sampling of Taxiway 75 Stockpiled Soils – Los Angeles International Airport,* by CDM, June 1995.
- *Underground Tanks and Hazardous Substances (UTAHs) Program Review of Completion Report, Soil Treatment Project, Dated October 31, 1988, Prepared for Delta Airlines (LAX) by CDM, December 1988.*

Based on the findings of the above-referenced studies, the analysis presented below identifies recognized environmental conditions and assesses the potential for significant impacts associated with hazards or hazardous materials during construction and/or operation of the proposed Project. More specifically, impacts are assessed in relation to: the type of hazardous materials that would be transported, used, generated, or stored as a result of the proposed Project; the potential for accidents involving hazardous materials releases; worker exposure to hazards or hazardous materials; and, the ability of known disposal facilities to accommodate the volume of hazardous materials generated during the proposed Project's construction and operation. In assessing potential impacts, the analysis accounts for various regulatory requirements that would apply to the proposed Project, as well as applicable LAX Master Plan commitments and mitigation measures. Where potentially significant impacts are identified after

consideration of the above, mitigation measures are proposed where warranted and feasible to reduce or avoid significant impacts.

A description of existing conditions relative to hazardous materials usage and waste generation within the LAX Master Plan study area, and hazardous materials contamination and remediation is presented in Section 4.23, Hazardous Materials, of the LAX Master Plan Final EIR. This information is incorporated herein by reference. The Project site is located in the western portion of the airport, which is generally removed from most of the airport activity areas that involve hazards and hazardous materials. The following summarizes the types of hazardous materials found at LAX. The most common hazardous materials used and stored at the airport are fuels. The most common types of hazardous waste generated at the airport include waste oil and fuel, used solvents, and used maintenance fluids. Existing soil and groundwater contamination and remediation activities are located throughout the airport property. In addition, many of the buildings on the airport may contain hazardous building materials, such as asbestos, polychlorinated biphenyls (PCBs), and lead-based paints. Also, sulfuric acid, an acutely hazardous material, is used at the airport's Central Utility Plant (CUP) located in the Central Terminal Area. The conditions associated with the types of hazardous materials used and generated, ongoing remediation activities, and the potential for soil contamination, have not changed from those presented in the LAX Master Plan Final EIR in a manner that would alter the basic findings presented in this section of the EIR.

4.3.3 Existing Conditions

4.3.3.1 Regulatory Context

4.3.3.1.1 Hazardous Materials Management

Numerous federal, state, and local authorities regulate the transport, use, and storage of hazardous materials at the airport. A description of the general regulatory context as it applies to the conditions in the Project area and the potential impacts being assessed is provided below.

4.3.3.1.2 Federal and State Regulatory Overview

The Federal Resource Conservation and Recovery Act (RCRA) (42 United States Code Sections 6901-6992k) regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. Under RCRA regulations, hazardous wastes must be tracked from the time of generation to the point of disposal. At a minimum, each generator of hazardous waste must register and obtain a hazardous waste activity identification number. If hazardous wastes are stored for more than 90 days or treated or disposed at a facility, any treatment, storage, or disposal unit must be permitted under RCRA.

RCRA allows individual states to develop their own program for the regulation of hazardous waste as long as it is at least as stringent as RCRA. The State of California has developed the California Hazardous Waste Control Law (HWCL) (Health and Safety Code Section 25100 et seq. and 22 California Code of Regulations [CCR] Section 66260.1 et seq.) and the United States Environmental Protection Agency (USEPA) has authorized RCRA enforcement to the State of California. Primary authority for the statewide administration and enforcement of HWCL rests with California Environmental Protection Agency's Department of Toxic Substances Control (DTSC).

Release of Hazardous Materials

Releases of hazardous materials are subject to a complex set of reporting requirements, including, but not limited to, notification to the City of Los Angeles Fire Department (LAFD) and the state Office of Emergency Services (OES). Remediation of contamination is subject to stringent oversight by federal, state, county, and city agencies, depending on the nature of contamination. There are no contaminated sites at or near LAX that are subject to federal oversight. The LAFD oversees contamination resulting from leaking underground storage tanks (USTs). The Los Angeles Regional Water Quality Control Board (LARWQCB) has the authority to require remediation of sites where groundwater quality may be degraded by hazardous materials or substances, including releases from USTs or other sources. These agencies require that remediation continue until regulatory requirements are met and closure is granted. At this time, there is only one known release in the vicinity of the Project site under the continuing authority of the LARWQCB, which is a jet fuel free product recovery system comprised of groundwater wells to remove petroleum hydrocarbon free product jet fuel from the underlying groundwater. A detailed description of this recovery system is found below in Section 4.3.3.2.2 of this EIR.

Releases of hazardous materials during construction are also subject to Section 5.5 of the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP), *Procedure for the Management of Contaminated Materials Encountered During Construction* (the "Procedure") prepared for the LAX Master Plan Environmental Impact Statement (EIS)/EIR. The Procedure was approved in 2005 to facilitate implementation of LAX Master Plan Commitment HM-2, Handling of Contaminated Materials Encountered During Construction. The Procedure requires implementation of best management practices (BMPs) as part of the Stormwater Pollutant Prevention Plan (SWPPP) required by the LARWQCB during construction to contain any hazardous materials spills. The Procedure also requires the presence of sufficient trained hazardous waste operations and emergency response (HAZWOPER) trained personnel to initiate spill and release response, and contact proper regulatory agencies, such as the LAFD and OES.

Additionally, the Procedure provides detailed guidance for implementing LAX Master Plan Commitment HM-2, especially for projects involving excavation and grading of soils. The Procedure requires the preparation of detailed plans for handling previously unknown contaminated soil encountered during construction, as well as spills of hazardous materials or substances that may occur during construction. It also requires preparation of a detailed Health and Safety Plan, and provisions for testing and segregation of contaminated soils for proper disposal. LAX Master Plan Commitment HM-2 is presented in Section 4.3.5, below.

Exposure of Workers to Hazardous Materials

In the event that soil contamination is encountered during proposed Project development, the handling of that soil has the potential to expose workers to hazardous materials or substances. The South Coast Air Quality Management District (SCAQMD) regulates emissions associated with the excavation and remediation of certain contaminated soils through Rule 1166, Volatile Organic Compound Emissions from Decontamination of Soil. This rule requires development and approval of a mitigation plan, monitoring of volatile organic compound (VOC) concentrations, and implementation of the mitigation plan if VOC-contaminated soil is detected. Worker safety and health are also regulated by the federal Occupational Safety and Health Act (OSHA) of 1970 and the California Occupational Safety and Health Act (CalOSHA). OSHA and CalOSHA standards establish exposure limits for certain air contaminants. Exposure limits

define the maximum amount of hazardous airborne chemicals to which an employee may be exposed over specific periods. When administrative or engineering controls cannot achieve compliance with exposure limits, protective equipment or other protective measures must be used. Employers are also required to provide a written health and safety program, worker training, emergency response training, and medical surveillance.

Worker exposure to methane is regulated by OSHA under 29 Code of Federal Regulations Section 1910.146. This section regulates worker exposure to a "hazardous atmosphere" within confined spaces where the presence of flammable gas vapor or mist is in excess of 10 percent of the lower explosive limit. The CalOSHA program regulates worker exposure to airborne contaminants (such as hydrogen sulfide) during construction under Title 8, Section 5155, Airborne Contaminants, which establishes which compounds are considered a health risk, the exposure limits associated with such compounds, protective equipment, workplace monitoring, and medical surveillance required for compliance.

Methane

The Project site is located in the City of Los Angeles-designated Hyperion Field Methane Zone.[2] The Los Angeles Municipal Code (LAMC), Chapter IX, Article 1, Division 71, Section 91.7103, also known as the Los Angeles Methane Seepage Regulations, became effective March 29, 2003. Subsequent to the adoption of the Methane Seepage Regulations, the City of Los Angeles Department of Building Safety (LADBS) issued an Information Bulletin on November 30, 2004, requiring that a methane site investigation shall be performed onsite prior to any grading activities in designated methane zones. The Methane Seepage Regulations outline requirements for buildings and paved areas located in areas classified as being located either in a methane zone or a methane buffer zone. Requirements for new construction within such zones include methane gas sampling and, depending on the detected concentrations of methane and gas pressure at the site, installing a barrier (i.e., a membrane shield) between the building and underlying earth, installing a vent system(s) beneath the barrier and/or within the building, and installing a gas (methane) detection system as required by the LADBS. The Methane Seepage Regulations base the required methane mitigation system on the Site Design Level, with more involved mitigation systems required at the higher Site Design Levels. There are five site design levels based on the methane concentration at a project site. The Seepage Regulations also require that paved areas over 5,000 square feet in area and within 15 feet of an exterior wall of a building also be vented in accordance with the Methane Mitigation Standards. If the proposed development is an impervious membrane, such as a parking lot, that is not within 15 feet of a building, no measures are required. Achievement of the appropriate level of methane mitigation, if warranted, is reviewed and confirmed by the LADBS through the building permit process.

Oil Wells

With respect to oil wells, the California State Division of Oil, Gas, and Geothermal Resources (DOGGR) administers the regulatory program that oversees the drilling, operation, maintenance, plugging, and abandonment of oil, natural gas, and geothermal wells. The regulatory program emphasizes the wise development of oil, natural gas, and geothermal resources in the state through sound engineering practices that protect the environment,

[2] City of Los Angeles, Bureau of Engineering. Methane and Methane Buffer Zone Map. March 2004

prevent pollution, and ensure public safety.[3] DOGGR implements the regulations set forth in Section 3200 et seq., of the California Public Resources Code, including the review of construction site plans in areas of known, existing, or abandoned oil wells.

4.3.3.2 Existing Conditions

4.3.3.2.1 Site Geology and Hydrogeology

The Project site is underlain by the Older Dune Sand from ground surface to approximately 120 feet below ground surface (bgs). The Older Dune Sand is composed of fine to medium sand occasionally interbedded with sandy silt, clay, and gravel.[4]

The Older Dune Sand transitions into the Lakewood Formation at approximately 120 feet bgs. The Lakewood Formation consists of the Manhattan Beach Aquitard and the Gage Aquifer (also known as the "200-Foot Sand"). The Gage Aquifer consists of sand with occasional gravel and thin beds of silt and clay.

The San Pedro Formation underlies the Lakewood Formation and is thought to start approximately 200 feet bgs beneath the Project site. The San Pedro Formation includes the fine-grained El Segundo Member and the underlying Silverado Aquifer, which consists of fine to coarse-grained sands and gravels.

Groundwater is encountered beneath the Project site within the Older Dune Sand at approximately 100 to 105 feet bgs, and generally flows to the west at an approximate gradient of 0.0006 to 0.0008 feet per foot. Historically, groundwater flows to the northwest, west, and southwest at the Project site, and has generally risen over 3 feet since 1994. A groundwater divide, created by the West Coast Basin Barrier,[5] is located approximately 0.5 mile east of the Project site, near Sepulveda Boulevard. East of Sepulveda Boulevard, groundwater is observed to flow to the east.

4.3.3.2.2 Hazardous Materials

As discussed in the LAX Master Plan Final EIR, hazardous materials are currently utilized throughout the airport for the routine fueling and maintenance of airplanes as well as other activities that take place at LAX in association with terminals, cargo areas and ancillary facilities. The most common hazardous materials used are fuel and solvents, although lubricants, cleaners, paints, compressed gasses, peroxides, caustics, alcohols, and foams are also used. These materials are used for many activities, including aircraft fueling, maintenance, painting, and stripping; fuel storage; ground vehicle fueling; and aircraft maintenance. Hazardous materials generated during the maintenance of aircraft typically include materials such as oil, transmission, and hydraulic fluid. Hazardous materials are handled in accordance with applicable federal, state, and local regulations to prevent the release of these materials into the environment through a spill or other release. Hazardous wastes generated at LAX are removed by licensed waste haulers and transported for treatment, disposal, or recycling at off-site facilities. For the most part, hazardous wastes generated at LAX that are intended to be

---

3 DOGGR, Resources Summary. Available at http://www.conservation.ca.gov/dog/Pages/Index.aspx, Accessed December 18, 2012.

4 Haley & Aldrich, Inc. Jet Fuel Plume Supplemental Characterization Completion Report, Continental Airlines Aircraft Maintenance Facility, Los Angeles International Airport April 30, 2012.

5 The West Coast Basin Barrier consists of injection wells that inject fresh water into aquifers along the Santa Monica Bay to build up a line of pressure and thereby block saltwater intrusion into the aquifers from occurring.

recycled are sent to recycling facilities in Los Angeles County or elsewhere in the Los Angeles region. As discussed in detail below in Section 4.3.6.4, there are no known capacity constraints at these facilities.

Land Farming

Land farming is a bioremediation treatment process that is performed in bio-treatment cells to treat contaminated soils. Specifically, contaminated soils or sediments are stockpiled on top of plastic liners and periodically turned over (tilled) to aerate the mixture. Fertilizers are occasionally applied to speed the remediation process.

Portions of the Project site were utilized in land farming operations to remediate contaminated soils originating at the airport. Specifically, soils from other areas of LAX known to be impacted by petroleum hydrocarbons were imported to the Project site, stockpiled upon plastic sheeting, aerated, and fertilized to enhance biodegradation. Three separate land farming operations were undertaken on the Project site: one by United Airlines, one by LAXFUEL, and one by Delta Airlines.[6]

With respect to the United Airlines land farming effort, a work plan to treat contaminated soils excavated from the United Airlines Terminal at LAX was drafted by SCS Engineers in May 1987 and implemented over a three-month period in 1988.[7] According to the work plan, 1,000 cubic yards of soil were to be hauled to the Project site, where the soil would be treated over a one-acre treatment area. The petroleum-impacted soils were derived from leaking underground storage tank excavations. The soils were spread to an approximate depth of 8 to 12 inches, after which a commercial fertilizer was added to encourage growth of microorganisms that would biologically degrade the hydrocarbon compounds. The soils were also watered and mixed to maintain moisture and aerate the soils to further promote hydrocarbon compound degradation. Numerous regulatory agencies, including the LARWQCB, the California Department of Health Services, the SCAQMD, and the LAFD were contacted regarding the treatment program. Soil samples were taken before, during, and after implementation of the remediation program. The analytical results of the soil treatment program indicated that the treatment process was effective in reducing the concentration of petroleum hydrocarbons in the soils. The levels had been reduced such that they were no longer considered hazardous. Additionally, there was no indication that the soil treatment process affected the underlying soils.

A second land farming effort was completed on the Project site by LAXFUEL from 1993 to 1996. Soil treated at the LAXFUEL facility originated from several LAX locations, including the Bulk Fuel Storage Facility, Fuel Day Storage Facilities, Terminal Areas, and the former LAX Fire Drill Pit Area. A review of associated analytical results indicated detectable concentrations of total recoverable petroleum hydrocarbons (TRPH), total petroleum hydrocarbons (TPH) (predominantly jet fuel), benzene, toluene, ethylbenzene, and total xylenes. According to these records, none of the soil treated contained halogenated volatile organic compounds (HVOCs).[8]

---

6 Camp Dresser & McKee, Inc. Underground Tanks and Hazardous Substances (UTAHS) Program Review of "Completion Report, Soil Treatment Project" Dated October 31, 1988, Prepared for Delta Airlines(LAX) by Hekimian & Associates." December 30, 1988.

7 SCS Engineers. Report for Soil Treatment Program for United Airlines at Los Angeles International Airport. December 1988.

8 CDM. Subsurface Investigation at Soil Treatment Sites West of Continental Airlines Maintenance Facility. *pg 1-1.* June 2003.

The construction and operation of the LAXFUEL bioremediation facility was approved in a letter from the LARWQCB in November 1992. An area of approximately 420 feet by 440 feet was cleaned, grubbed and graded. The grading was done such that a slope of approximately one degree from west to east was created. The slope was terminated with a trench that was five feet wide, three feet deep and runs the length of the treatment cell. A polyvinyl chloride (PVC) liner was welded together on-site to form a single impervious sheet approximately 203 feet by 400 feet. The sheet was placed on top of the cleaned and graded area. At the edges, the liner was wrapped over straw bales to form a berm around the perimeter of the cell. The trench area was also covered with the liner and separated by a row of PVC wrapped straw bales to form a totally enclosed system. Construction of the land farming facility was completed on April 1, 1993. The hydrocarbon-impacted soil was inoculated with facultative anaerobic bacteria and treated with a nutrient solution. The soil was tilled and mixed using a skip loader with plow attachments at least twice a week. Adequate soil moisture was maintained by pumping water onto the cell at least three times a week. Approximately 2,000 cubic yards of treated soil was retained in the cell after each treatment process to act as a buffer between the PVC liner and the petroleum-impacted soil being newly placed at the facility. In a letter to Los Angeles World Airports (LAWA) dated June 28, 1996, LAXFUEL indicated that the remediation contractor advised them that the treatment of soil was completed on June 27, 1996, and that the LARWQCB reviewed the results of the soils samples from the treated stockpiles and certified that the soil could be reused.[9]

A third land farming effort was completed by Hekimian & Associates on behalf of Delta Airlines in 1988 to treat 2,000 cubic yards of contaminated soils from the Terminal 5 Expansion Project on the Project site. The work plan for this effort indicated that contaminated soils were to be placed in a bermed and lined pit where they would be mechanically agitated to enhance volitization of petroleum hydrocarbons. The soils were to be treated until the contamination level dropped below 100 parts per million (ppm) TPH.[10] Hekimian & Associates indicated that all contaminated soil was removed from the Project site by September 14, 1988, and approximately 720 cubic yards of treated soil was used as backfill for a tank excavation project at the Continental Airlines Maintenance lease.[11] An Underground Tanks and Hazardous Substances (UTAH) Program Review of the Delta Airlines land farming effort identified two concerns with the remediation activities. First, prior to treatment, contaminated soils were stockpiled near the land farm area with no impermeable material placed beneath the stockpiled soil. In addition, after stockpiling was completed, soil treatment was delayed two weeks for rain, and contaminants may have been driven into underlying soils. The second area of concern identified was in the screening of soils prior to removal from the treatment area. The summary of activities lists several dates when the "top layer of clean soil" was removed from the treatment area. However, there was no record of soil analysis showing the basis on which this determination was made and conflicting information is available. Nonetheless, investigations of the Project site subsequent to the Delta Airlines land farming effort, including the June 2013 site survey completed by Geosyntec and discussed, did not reveal any visual indicators (e.g., stained soils, soil depressions, stressed vegetation) that the Delta Airlines land farming effort resulted in a hazardous materials concern.

---

9 Letter correspondence from Lawrence M. McMahon, General Manager, LAXFUEL, to John Malloy, City of Los Angeles Department of Airports, June 28, 1996.

10 Camp Dresser & McKee, Inc. Underground Tanks and Hazardous Substances (UTAHS) Program Review of "Completion Report, Soil Treatment Project" Dated October 31, 1988, Prepared for Delta Airlines(LAX) by Hekimian & Associates." December 30, 1988.

11 Ibid.

In addition to the above conclusions, LAWA completed a soil gas investigation of the Project site in September 2003 to determine if former land farming activities had resulted in HVOC contamination to on-site subsurface soils. The work plan for this investigation originally consisted of 40 sampling locations, but was halted after 24 sampling locations returned no detectable contamination. Samples were taken at depths of 10, 25, and 40 bgs at each location. While this investigation focused on potential HVOC contamination, no other hazardous materials concerns with the previous land farming effort were identified.[12] Based on available information, as summarized above, there is no evidence to suggest that past land farming activities have resulted in contamination that poses a significant hazard at the Project site.

Stockpile Areas/Construction Staging

The Project site is currently used as a construction staging area that includes stockpiled soils and various materials excavated from previous and ongoing projects at LAX. A recent investigation performed by Geosyntec (June 2013) found no indication that the stockpiles contain hazardous materials requiring special handling and disposal/treatment at a Class I landfill (i.e., a hazardous waste landfill). Rather, all stockpiled materials may be disposed of at a Class III municipal solid waste (MSW) landfill.

Figure 4.3-1 delineates the locations of stockpiles evaluated at the Project site. Geosyntec sampled Stockpile Areas #2A, #2B, and #3 at 18 locations for the presence of TPH in the full-carbon range (C4–C44), TPH in the gasoline range (C4–C12), TPH in the diesel range (C13–C22), TPH in the oil fractions range (C23–C44), metals, and VOCs. These three materials (i.e., TPH, metals, VOCs) were considered the most likely constituents of concern (COC) based on the origin of the stockpiled materials and previous sampling efforts. Additionally, one sample was taken from Area #1, near the location of stained soil and two drums with hazard waste placards. No evidence of hazardous materials was found at Area #1 and no asbestos containing materials was observed on the surface of any of the stockpiles.[13] Stockpile Area #2C was previously surveyed by Kleinfelder & Associates and the results of this survey effort were incorporated into the Geosyntec investigation. Stockpile Areas #2C, #5, #6A, and #6B have been determined by LAWA to contain no hazardous materials and as part of ongoing use of the Project site as a construction staging area are expected to be removed/disposed of as part of another project. As such, they would not be present during implementation of the proposed Project. Stockpile Area #4 and Stockpile Areas #6C through #6I were no longer present by the June 2013 field investigations, being previously removed as part of the ongoing construction staging efforts.

With regard to TPH, the sampling results were compared to the contamination thresholds established in LARWQCB Order No. R4-2011-0052 to determine if stockpiled materials are suitable for disposal at a MSW landfill. If contaminant levels exceed the threshold for disposal at a MSW landfill, they are considered hazardous waste under Chapter 11 of the California

---

12 CDM. HVOCs in Groundwater in the Vicinity of the Continental Airlines Maintenance Facility, Los Angeles International Airport, California, pg. 5. March 31,2006.

13 The stained area and two drums with hazardous waste placards were observed during a February 27, 2013 site visit. As part of the normal course of activities associated with the use of the Project site for temporary construction staging and stockpiling of materials, the stained area and two drums were removed contemporaneously by others during Geosyntec's April 2013 field efforts. Based on LAWA's *Procedure for the Management of Contaminated Materials Encountered During Construction* (refer to Section 4.3.5, LAX Master Plan commitment HM-2 for details on LAWA's handling of hazardous materials), LAWA cleaned and handled the stained area following BMPs and industry practices for handling and disposal of dried asphalt emulsion. In addition, the two drums were disposed of as non-RCRA waste at an US Ecology facility.

Code of Regulations, Title 22, and must be disposed of at a lined Class I landfill. Two disposal options are available at MSW landfills based on the following thresholds (i.e., maximum allowable contaminant concentrations):

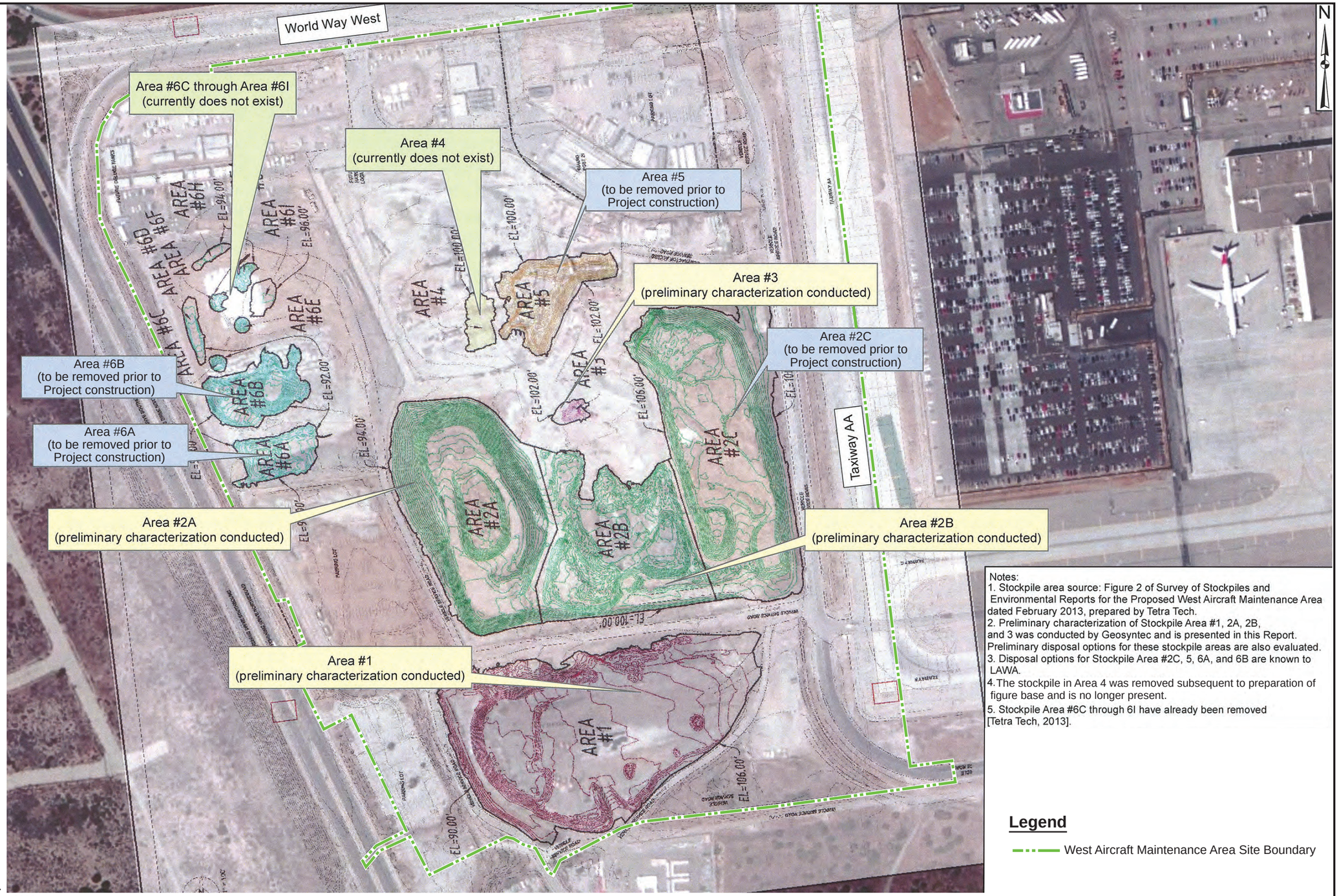
- Unrestricted use (i.e., disposal) of contaminated soil at any portion of an active MSW landfill:
  - 10 milligrams per kilogram (mg/kg) for TPH gasoline (C4–C12) or TPH diesel (C13–C22); and
  - 500 mg/kg in the heavier hydrocarbon (C23 or greater) carbon-chain range.
- Disposal of contaminated soil to unlined MSW landfill (with restricted use):
  - 500 mg/kg for TPH gasoline (C4–C12);
  - 1,000 mg/kg for TPH diesel (C13–C22); and
  - 50,000 mg/kg for a full chain TPH (C4–C44) concentrations.

Sampling of the existing stockpiled materials found TPH (diesel) at a concentration of 26 mg/kg in the northern portion of Area #2B. This concentration is well below the aforementioned threshold of 1,000 mg/kg. No other sampling locations contained TPH (diesel) above detection limits. TPH (full chain) was detected in all stockpile areas above its detection limit, at a range of 12 to 7,400 mg/kg. Portions of Stockpile Areas #1 and #2B contained TPH (full chain) at concentrations exceeding 500 mg/kg, primarily in the C23–C44 range, which is typical of asphalt, oil, or grease. At a maximum of 7,400 mg/kg, TPH (full chain) was also well below the aforementioned threshold of 50,000 mg/kg. As a result, stockpiled materials are acceptable for disposal at a MSW landfill with respect to TPH concentrations.

With regard to metals, as recommended by LARWQCB Order No. R4-2011-0052, the sampling results were compared to both USEPA Regional Screening Levels (RSLs) and California Human Health Screening Levels (CHHSLs) for residential sites, which is applicable for disposal at MSW landfills. Detectable concentrations of 13 metallic elements were present in the samples analyzed, 12 of which were at concentrations below the RSL and CHHSLs for residential sites. The one exception was arsenic, which was found in stockpiled soils at concentrations ranging from 1.43–5.15 mg/kg. Although higher than the established RSLs and CHHLS, these concentrations are within the background level range typically found in California soils (i.e., between 0.6–11.0 mg/kg). Additionally, the detected concentrations of arsenic are below the California Total Threshold Limit Concentration (TTLC) and Soluble Threshold Limit Concentration (STLC), and thus, do not classify the stockpiled soils as a hazardous material.[14] As a result, stockpiled materials are acceptable for disposal at a MSW landfill with respect to metal concentrations.

With regard to VOCs, sampling results were compared to USEPA Region 9 RSLs for residential sites, which is applicable for disposal at MSW landfills. Detectable concentrations of VOCs were present in 2 samples. In Area #1, xylene was detected at 2.2 micrograms per kilogram (µg/kg), while tetrachloroethene and trichloroethene were detected at concentrations of 2.6 µg/kg and 14 µg/kg, respectively. In Stockpile Area #2C, VOCs were detected in two samples at concentrations of 48 and 60 µg/kg. Toluene was detected in one sample at Area #2C at a concentration of 3.2 µg/kg. Each of these detections is below the RSL for residential sites, and therefore, acceptable for disposal at a MSW landfill.

[14] CCR Title 22 identifies any material that exceeds the TTLC threshold as hazardous and its disposal at a Class III MSW is prohibited under LARWQCB Order No. R4-2011-0052. The STLC is a test that mimics what happens to a material as it is exposed to normal climatic conditions over time. If the TTLC test results do not exceed 10 times the STLC limit, then no further analysis is normally required.



Notes:
1. Stockpile area source: Figure 2 of Survey of Stockpiles and Environmental Reports for the Proposed West Aircraft Maintenance Area dated February 2013, prepared by Tetra Tech.
2. Preliminary characterization of Stockpile Area #1, 2A, 2B, and 3 was conducted by Geosyntec and is presented in this Report. Preliminary disposal options for these stockpile areas are also evaluated.
3. Disposal options for Stockpile Area #2C, 5, 6A, and 6B are known to LAWA.
4. The stockpile in Area 4 was removed subsequent to preparation of figure base and is no longer present.
5. Stockpile Area #6C through 6I have already been removed [Tetra Tech, 2013].

Legend

West Aircraft Maintenance Area Site Boundary

Source: Geosyntec Consultants, 2013.
Prepared by: PCR Services Corporation, 2013.

West Aircraft Maintenance Area Project Draft EIR	**Location of Existing Soils Stockpiles**	Figure **4.3-1**

This page left intentionally blank.

In summary, the June 2013 Geosyntec investigation indicates that existing soils stockpiles contain detectable concentrations of TPH, metals, and VOCs; however, these constituents were not present in quantities that would quantify the samples as hazardous waste. With the exception of Area #2B, all sampled materials qualify for unrestricted disposal at Class III MSW landfills. Materials stockpiled at Area #2B meet the criteria for restricted disposal at a MSW landfill because the TPH (diesel) levels of 26 mg/kg exceed the concentration threshold for disposal at a MSW landfill (10 mg/kg), but fall below levels classifying them as hazardous waste and requiring disposal at a Class I hazardous materials landfill (1,000 mg/kg).

Oil Wells

The online database search of the DOGGR Regional Wildcat Map showed that the Project site is located in the Former Hyperion Oilfield. The Former Hyperion Oilfield Map suggests that there may be two abandoned/plugged oil wells on the Project site and four other abandoned/plugged oil wells south and east of the Project site.[15] These abandoned/plugged oil wells are owned by Chevron USA, Inc. and are included in their Six Companies Fee lease. Based on the limited information shown on the DOGGR maps, it is assumed, but not certain, that the oil wells have been abandoned or plugged.

Methane Zone

The online database search conducted for the proposed development site showed that the proposed Project is within the Hyperion Field Methane Zone.[16] The presence of subsurface methane gas is common within former oil production areas and other locations where organic material is present in the soil. Methane is generated by the biodegradation of organic matter in the absence of oxygen. Methane is not toxic; however, it is combustible and potentially explosive at concentrations above 50,000 ppm in the presence of oxygen. While non-pressurized methane is normally not problematic, if the gas accumulates to high concentrations and becomes pressurized, detectable levels may enter the interior of a structure through cracks or other penetrations present in the floor slabs. The LADBS information bulletin dated November 30, 2004, requires that methane site investigation should be performed onsite prior to any grading activities for projects located within City of Los Angeles designated methane zones. The results of the methane site testing are required to be included in the application for building permits. The results of this investigation would inform building and parking apron design in accordance with LAMC Section 91.7101 (Methane Seepage Regulations). Any recommendations contained therein would be incorporated during proposed Project construction to prevent hazards associated with methane release into the environment.

Jet Fuel Plume (Continental Airlines ACMX)

As discussed above and in the LAX Master Plan Final EIR, activities at the former Continental Airlines Aircraft Maintenance area (ACMX) resulted in a subsurface jet fuel plume in the vicinity of the Project site. The Continental Airlines[17] ACMX is situated at 7300 World Way West, located east of the Project site across Taxiway AA in the western portion of LAX. The free-phase jet fuel plume in the southwest portion of the former Continental Airlines ACMX was first

---

15 Information presented by DOGGR varies in accuracy, scale, and origin, and may represent the approximate location of former abandoned oil wells.

16 City of Los Angeles, Bureau of Engineering. Methane and Methane Buffer Zone Map. March 2004

17 As of 2010, Continental Airlines is a part of United Continental Holdings.

discovered in 1988 with the removal of USTs at the former maintenance facility. Subsequent environmental investigations determined that this jet fuel plume originated from leaking fuel hydrant lines, USTs, and fuel distribution lines at the Continental Airlines ACMX facility, and that the jet fuel plume was moving westward from its point of origin (towards the Project site).

Subsequent to these investigations, a full-scale vacuum-enhanced free product system (VEFPR) system was selected to remove recoverable jet fuel from beneath the ACMX facility to the maximum extent practicable. The selection of this technology and the design of the VEFPR system were approved by the LARWQCB in 2002 and 2003, respectively, as well as by LAWA. The installation of the VEFPR system was completed by EDSG in November 2007 under the oversight of the LARWQCB.

The VEFPR system originally included 221 recovery wells spaced on a 60-foot spacing grid. The VEFPR system also includes 36 operating groundwater monitoring wells, including three that are located west of Taxiway AA on the Project site (i.e., Wells CMW-31, CMW-32, CMW-33). The VEFPR is designed to operate in conformance with the following criteria:

- The optimized operation of the VEFPR system is greater than 90 percent uptime;
- The jet fuel recovery rates at individual recovery wells are greater than 5 percent of the initial recovery rates (95 percent recovery) and at least one gallon per minute (gpm).

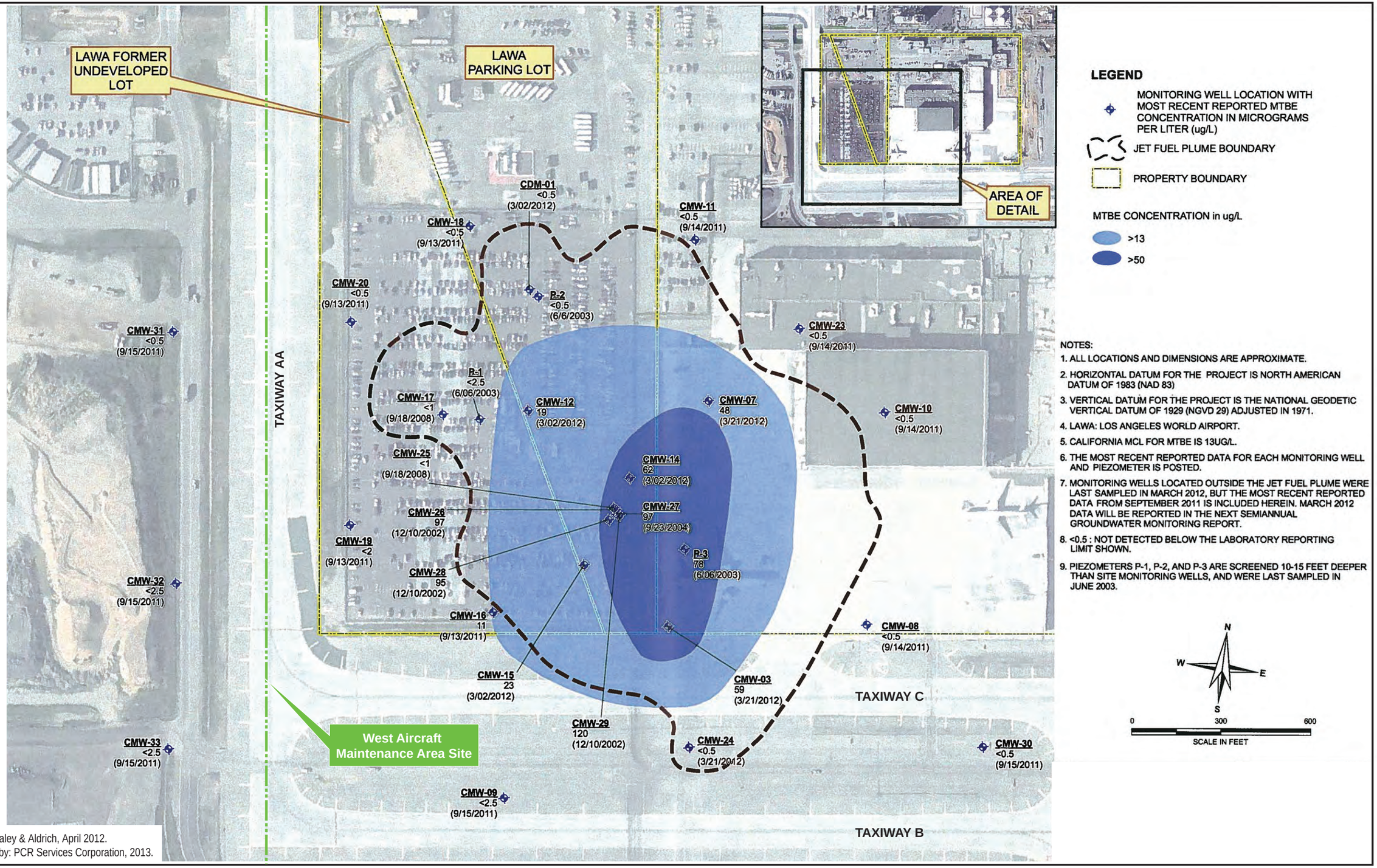
Using these criteria, once the recovery rate at an individual recovery well falls below 5 percent, or one gallon per day, active operation of that recovery well is suspended and the well is removed from the gauging program. As stated in the most recent quarterly report, active operations at 101 recovery wells have been suspended after meeting the above criteria. The most recent VEFPR semi-annual report confirms that the lateral extent of the jet fuel plume is stable and does not encroach into the Project site, and although continued remediation is required to remove free phase jet fuel to the criteria level established above, the lateral extent of the plume is not expanding. The location and extent of the jet fuel plume is depicted in **Figure 4.3-2**. The location of the VEFPR groundwater remediation wells is depicted in **Figure 4.3-3**. As shown therein, Groundwater Monitoring Wells CMW-31, CMW-32, and CMW-33 are within the boundaries of the Project site.

HVOC Plume

Groundwater east and south of the Project site is known to be contaminated with HVOCs.[18] The source of this HVOC contamination was originally thought to be the leaking USTs at the former Continental Airlines ACMX. However, other investigations into the source of the HVOC contamination have concluded that the HVOC plume could be originating from a different source. For instance, recent investigations have found that upgradient concentrations of the HVOC tetrachloroethene (PCE) have increased to historically high concentrations at monitoring wells upgradient (east) of the Continental Airlines ACMX, and the concentration of the HVOC cis-1,2-Dicholorthene (cis-1,2-DCE) has also steadily increased in concentrations to historical maximums at monitoring wells upgradient (southeast) of the Continental Airlines ACMX.[19] These findings indicate that there may be multiple sources of HVOC contamination in the vicinity of the Project site and additional study is likely required to determine the source of the

[18] Environmental Data Solutions Group, LLC. Response to CDM Letter Report "HVOCs in Groundwater in the Vicinity of the Continental Airlines Maintenance Facility." August 29, 2007.

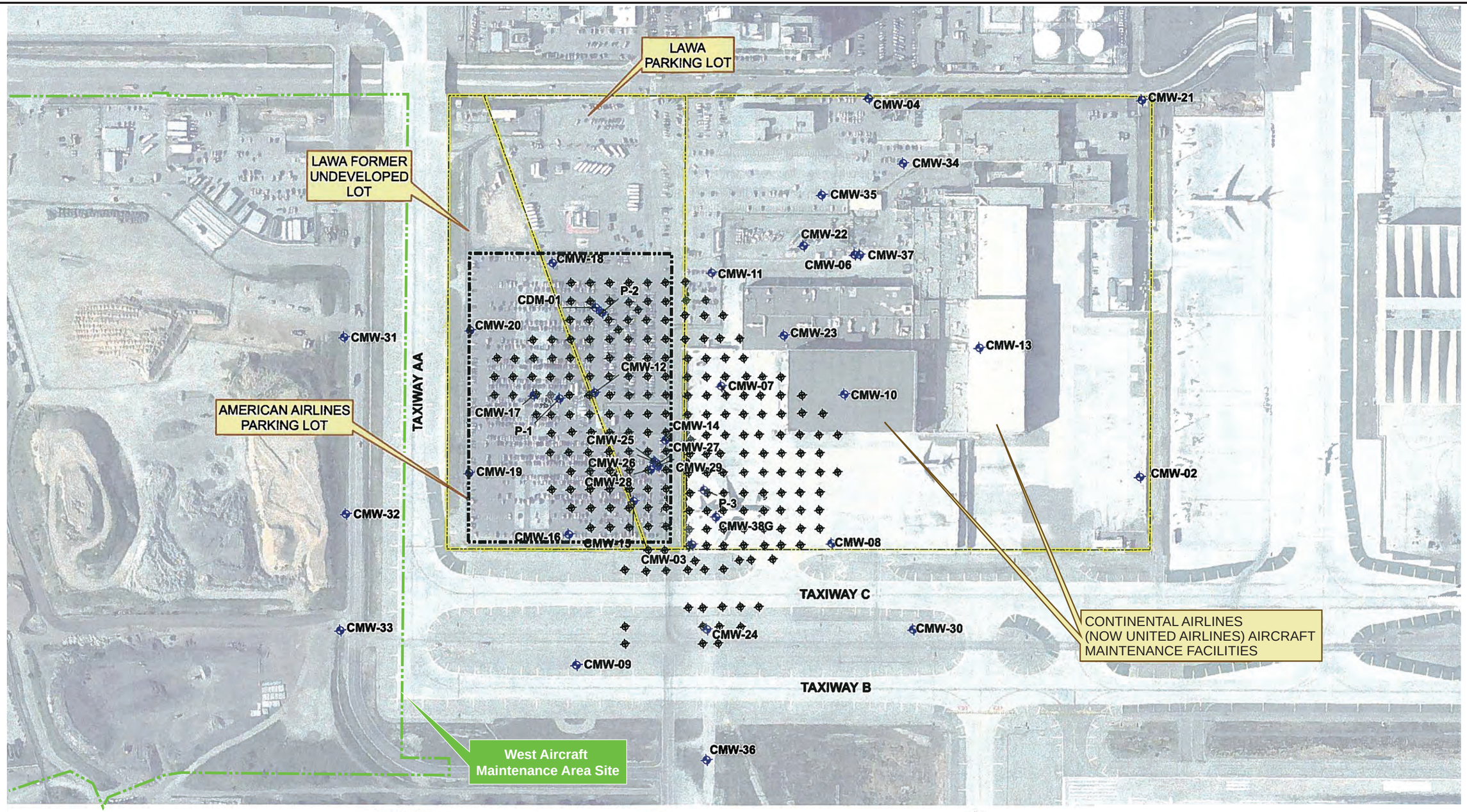
[19] Haley & Aldrich, Inc. Vacuum Enhanced Free Product Recovery System Performance and Semi-Annual Groundwater Monitoring Report, 1 July 2011 – 31 December 2011, Continental Airlines Aircraft Maintenance Facility, 7300 World Way West, Los Angeles, California (SCP File 0349A; Site ID 1841200). February 2012.



Source: Haley & Aldrich, April 2012.
Prepared by: PCR Services Corporation, 2013.

West Aircraft Maintenance Area Project Draft EIR	**Location and Extent of Free-Phase Jet Fuel Plume**	Figure **4.3-2**

This page left intentionally blank.



Source: Haley & Aldrich, April 2012.
Prepared by: PCR Services Corporation, 2013.

West Aircraft Maintenance Area Project Draft EIR	**Existing Groundwater Recovery and Monitoring Wells**	Figure **4.3-3**

This page left intentionally blank.

HVOC plume. Although the lateral extent of the HVOC plume has not been fully delineated and is disputed by various parties, there is reason to suspect that delectable levels of HVOCs occur at the eastern edge of the Project site in the vicinity of the Monitoring Well CMW-33, at a depth of approximately 90 bgs.[20] No HVOCs or soil off-gassing was detected in shallow soils (i.e. up to 40 bgs) at the Project site.[21] Because the lateral extent, source, and precise makeup of HVOCs have not been agreed upon, no remediation program has been proposed for the HVOC plume.

4.3.4 Thresholds of Significance

Based on thresholds of significance established by the LAX Master Plan EIS/EIR which are consistent with those found in the *L.A. CEQA Thresholds Guide*, a significant hazardous materials impact would occur if the direct and indirect changes in the environment that may be caused by the proposed Project would result in one or more of the following future conditions:

- An unauthorized and uncontrolled release of a hazardous material that created a hazard to the public or the environment.
- Exposure of workers to hazardous materials in excess of OSHA permissible exposure limits.
- Contamination of soil or groundwater or prevention of clean up of sites that are currently undergoing soil or groundwater remediation.
- An exceedance in the capacity of regional treatment, storage, and disposal facilities due to project related increases in hazardous waste generation.

4.3.5 Applicable LAX Master Plan Commitments and Mitigation Measures

As part of the LAX Master Plan, two commitments pertaining to hazards and hazardous materials were adopted by the LAX Master Plan's MMRP. The two commitments are identified below.

HM-1. Ensure Continued Implementation of Existing Remediation Efforts.

- Prior to initiating construction of a Master Plan component, LAWA will conduct a pre-construction evaluation to determine if the proposed construction will interfere with existing soil or groundwater remediation efforts. For sites currently on LAX property, LAWA will work with tenants to ensure that, to the extent possible, remediation is complete prior to the construction. If remediation must be interrupted to allow for Master Plan-related construction, LAWA will notify and obtain approval from the regulatory agency with jurisdiction, as required, and will evaluate whether new or increased monitoring will be necessary. If it is determined that contamination has migrated during construction, temporary measures will be taken to stop the migration. As soon as practicable following completion of construction in the area, remediation will be reinstated, if required by the Regional Water Quality Control Board (RWQCB) or another

[20] Environmental Data Solutions Group, LLC. 2003/2004 HVOC Investigation Report: Continental Airlines Aircraft Maintenance Facility Los Angeles International Airport, 7300 World Way West, Los Angeles, California. pg. 3-6. October 2004.

[21] Ibid.

agency with jurisdiction. In such cases, LAWA will coordinate the design of the Master Plan component and the re-design of the remediation systems to ensure that they are compatible and to ensure that the proposed remediation system is comparable to the system currently in place. If it is determined during the pre-construction evaluation that construction will preclude reinstatement of the remediation effort, LAWA will obtain approval to initiate construction from the agency with jurisdiction.

- For properties to be acquired as part of the LAX Master Plan, LAWA will evaluate the status of all existing soil and groundwater remediation efforts. As part of this evaluation, LAWA will assess the projected time required to complete the remediation activities and will coordinate with the land owner and the agency with jurisdiction to ensure that remediation is completed prior to scheduled demolition and construction activities, if possible. In cases where remediation cannot be completed prior to demolition and construction activities, LAWA will undertake the same steps required above, namely, an evaluation of the need to conduct monitoring; implementation of temporary measures to stop migration, if required; and reinstatement of remediation following completion of construction, if required.

HM-2. Handling of Contaminated Materials Encountered During Construction.

- Prior to the initiation of construction, LAWA will develop a program to coordinate all efforts associated with the handling of contaminated materials encountered during construction. The intent of this program will be to ensure that all contaminated soils and/or groundwater encountered during construction are handled in accordance with all applicable regulations. As part of this program, LAWA will identify the nature and extent of contamination in all areas where excavation, grading, and pile-driving activities are to be performed. LAWA will notify the appropriate regulatory agency when contamination has been identified. If warranted by the extent of the contamination, as determined by the regulatory agency with jurisdiction, LAWA will conduct remediation prior to initiation of construction. Otherwise, LAWA will incorporate provisions for the identification, segregation, handling and disposal of contaminated materials within the construction bid documents. In addition, LAWA will include a provision in all construction bid documents requiring all construction contractors to prepare site-specific Health and Safety Plans prior to the initiation of grading or excavation. Each Health and Safety Plan would include, at a minimum, identification/description of the following: site description and features; site map; site history; waste types encountered; waste characteristics; hazards of concern; disposal methods and practices; hazardous material summary; hazard evaluation; required protective equipment; decontamination procedures; emergency contacts; hospital map and contingency plan.

  In the event that any threshold of significance listed in the Hazardous Materials section of the EIS/EIR for the LAX Master Plan is exceeded due to the discovery of soil or groundwater contaminated by hazardous materials or if previously unknown contaminants are discovered during construction or a spill occurs during construction, LAWA will notify the lead agency(ies) with jurisdiction and take immediate and effective measures to ensure the health and safety of the public and workers and to protect the environment, including, as necessary and appropriate, stopping work in the affected area until the appropriate agency has been notified.

  Note: Subsequent to the approval of the LAX Master Plan, LAWA adopted the *Procedure for the Management of Contaminated Materials Encountered During Construction* for application to all LAX Master Plan projects. The Procedure,

which is discussed in detail in Section 4.3.3.1, above, provides further guidance for implementing LAX Master Plan Commitment HM-2, especially for projects involving excavation and grading of soils.

4.3.6 Impact Analysis

The proposed Project includes the development of features to consolidate, relocate, and modernize existing aircraft maintenance facilities at LAX. The proposed Project would remove or relocate existing on-site uses, including the existing soil stockpiles (an estimated 295,000 cubic yards that would be exported for off-site re-use or disposal), and develop the Project site with a concrete aircraft apron, hangars and aircraft maintenance areas, and an aircraft wash rack. Existing on-site construction staging activities and associated equipment would be relocated to other existing staging areas located to the south of Westchester Parkway and west of Lincoln Boulevard, however, staging for development of the proposed Project would occur on-site. Stockpiled soil and construction rubble stockpiles existing within and immediately adjacent to the Project site would be re-used on-site as backfill material and/or exported off-site for reuse or disposal, as appropriate. Although fuel dispensing of aircraft by tanker truck could occur on the apron area of the Project site, no fuel storage would occur on the Project site.

The following analysis evaluates the environmental impacts of the proposed Project related to hazards and hazardous materials. An evaluation of the potential for the proposed Project to impact water quality (through contamination or release) is found in Section 4.4, *Hydrology and Water Quality*.

4.3.6.1 Release of Hazardous Materials

4.3.6.1.1 Construction

Stockpile Areas and Potentially Contaminated Soils

As discussed above, Area #2B contains TPH (diesel) at a concentration of 26 mg/kg and all stockpiled soils contain TPH (full chain) typical of asphalt, oil, or grease at concentrations ranging from 12 to 7,400 mg/kg. Detectable concentrations of 13 metallic elements were present in all stockpiled soils, 12 of which were at concentrations below the RSL and CHHSLs for residential sites. Arsenic concentrations were above the RSL and CHHSLs for residential sites, but were within the background range for California soils and below the California TTLC and STLC limits. Further, Area #1 contains concentrations of xylene (2.2 µg/kg), tetrachloroethene (2.6 µg/kg), and trichloroethene (14 µg/kg) below the RSL for residential sites. Area #2C also contains concentrations of VOCs (at 48 and 60 µg/kg in two samples) and toluene (3.2 µg/kg) below the RSL for residential sites. As a result, based on recent sampling efforts, the stockpiled soils do not appear to contain contaminants at levels which would qualify them as Class I hazardous materials. Nonetheless, the stockpiled materials are not homogeneous in nature and there is the potential that concentrations of contaminants may differ from sampling locations.

The on-site stockpile areas would be removed during construction, and would be re-used on-site as backfill material and/or exported for reuse or for off-site disposal at a regional MSW landfill. In the event there are hazardous materials within the stockpiles that were undetected during the recent investigation and are encountered during future excavation activities,

construction activities, including the removal of stockpile areas and ground-disturbing activities, would be conducted in accordance with applicable federal, state, and local regulations, including LAWA's Procedure which complies with LAX Master Plan Commitment HM-2, and LAWA's BMPs.

Specifically, in the event that previously undetected hazardous materials are discovered during construction, the Procedure includes detailed plans for handling previously unknown contaminated soil encountered during construction. The Procedure also requires, among other things, the identification of the nature and extent of contamination in all areas where excavation, grading, and pile-driving activities are to be performed up to the level of exposed soil; and the characterization of areas where contaminated soils are encountered through preparation of Site Sampling and Analyses Plans and a Soil Stockpile Characterization. This requirement was satisfied by the June 2013 Geosyntec *Screening-Level Sampling and Analyses of Selected Stockpiles Report*, the results of which are discussed above. Moreover, the Procedure requires the preparation of a site-specific Health and Safety Plan that incorporates OSHA and CalOSHA regulations, as well as FAA and LAWA health and safety requirements in order to minimize the risk of injury to site workers and the general public; trained HAZWOPER personnel to be on site during construction; as well as specific procedures for handling such materials, identifying risks, and monitoring site conditions; and implementation of BMPs and spill prevention and control measures to prevent spills. Lastly, the Procedure outlines emergency response procedures and notification requirements in the event of a spill.

In the event that Project-related excavation unexpectedly encounters VOC-contaminated soil, the continuation of such excavation would be carried out in accordance with SCAQMD Rule 1166. Any hazardous materials found at the Project site that would be transported off-site would be done by licensed operators in accordance with all applicable federal, state, and local regulations. These regulations include the transportation provisions of the RCRA and Section 5.7.3 of the Procedure, which requires Contractors to utilize only hazardous waste service vendors and transporters approved by LAWA for the handling and transportation of hazardous materials.

Compliance with the Procedure, LAWA's BMPs, and applicable regulations would ensure that construction would not result in an unauthorized release of hazardous materials through the use or transport of these materials that would create a hazard to the public or the environment. In the absence of any known hazardous materials within the existing soil stockpiles and the requirements of LAWA's existing Procedure related to unexpectedly encountering hazardous materials during construction, as well as with other existing regulatory requirements described above, no significant impacts related to hazards and hazardous materials would occur.

Oil Wells

As discussed above, the DOGGR Regional Wildcat Map showed that the Project site is located in the Former Hyperion Oilfield and there may be two abandoned/plugged oil wells on the Project site and four more in the general vicinity of the Project site. DOGGR implements the regulations set forth in Section 3200 et seq., of the Public Resources Code, including the review of construction site plans in areas of known, existing, or abandoned oil wells. Specifically, compliance with Section 3229, Division 3, of the Public Resources Code requires that prior to commencing any work to abandon any well, the owner or operator shall file with DOGGR a written notice of intention to abandon the well (DOGGR form OG108). Abandonment cannot proceed until compliance with DOGGR requirements is completed. As such, the DOGGR would review the proposed Project's construction plans since the Project site is located within the

Former Hyperion Oilfield, and is suspected to contain abandoned oil wells. Nonetheless, as the locations of abandoned/plugged oil wells on the Project site are not known and the wells might not have been properly abandoned/plugged, impacts associated with these wells are considered significant. Therefore, Mitigation Measure MM-HAZ (WAMA)-1 is recommended below.

Mitigation Measure MM-HAZ (WAMA)-1 requires that additional research and a magnetometer survey shall be undertaken to confirm the location of abandoned/plugged wells as provided by the DOGGR and to determine if they were abandoned per the current regulations. The mitigation also requires proper abandonment per DOGGR authority and a survey to determine if any further action is required to mitigate the risk posed by these abandoned wells. Additionally, if portions of the former oil wells are determined to be disturbed by Project excavation and construction activities, the LAFD would also be provided an opportunity to investigate the oil wells encountered and make a determination as to whether re-abandonment would be required. Any re-abandonment activities required during construction would occur in accordance with DOGGR regulations set forth in Section 3200 et seq., of the Public Resources Code. Therefore, with the implementation of Mitigation Measure MM-HAZ (WAMA)-1, impacts would be reduced to a less than significant level.

Methane

The Project site is located within a City-designated methane zone. In accordance with City requirements, a methane site investigation would be performed at the Project site prior to any grading activities to determine whether elevated concentrations of methane are present. In the event elevated concentrations of methane are present, grading or construction activities on-site could pose a potential to encounter methane that could result in a possible hazard. Prior to construction, the construction Contractor would be required by LAWA and the City of Los Angeles Department of Building and Safety to prepare a Health and Safety Plan. The Health and Safety Plan shall comply with OSHA Safety and Health Standards (29 Code of Federal Regulations 1910.120) and CalOSHA requirements (described below in Section 4.3.6.2.1) shall address, as appropriate, safety requirements that would serve to avoid significant impacts in the event that elevated levels of these soil gases are encountered during grading and construction. The OSHA and CalOSHA requirements include air monitoring to be conducted during all subsurface work activities. Should potentially elevated levels of soil gases be encountered during subsurface work activities, the Health and Safety Plan would provide for the immediate implementation of appropriate safety measures. Based on such monitoring and safety provisions, grading and construction activities associated with development on-site are not expected to substantially expose workers or nearby residents to elevated levels of methane. Therefore, construction impacts related to methane would be less than significant and no mitigation is required.

4.3.6.1.2 Operation

Handling of Hazardous Materials

As the maintenance activities that would occur on the Project site already occur on the airport in the same general area, the consolidation of these activities under the proposed Project would not increase the chances of a spill or release of substances that could result in contamination of soil or groundwater. The types of hazardous materials used during maintenance operations are anticipated to be similar to those currently used, such as motor oils, transmission fluids,

cleaning solvents, and similar wastes. Although fuel dispensing of aircraft by tanker truck could occur on the apron area of the Project site, no fuel storage would occur on the Project site. As discussed in the LAX Master Plan Final EIR, LAWA has procedures already in place to reduce hazardous materials-related incidents and spills. If a spill were to occur, emergency response procedures would be implemented to contain and clean up the spill. These regulations and provisions are in place so potential spills and releases would not create a hazard to the public or the environment, and would not result in contamination of soil or groundwater. For instance, maintenance operations on the Project site would be required to follow the regulations set forth in RCRA, the Emergency Planning and Community Right-to-Know Act, OSHA, federal and state UST regulations, and LAFD regulations. These regulations encompass storage and handling, as well as worker training and emergency response. In addition, the existing LAWA SWPPP includes measures to prevent spills and to respond to spills that do occur. Therefore, impacts with respect to the handling of hazardous materials would not create a hazard to the public or the environment and impacts would be less than significant.

Methane

The Project site is located in a City-designated methane zone. In accordance with City requirements, a methane site investigation would be performed at the Project site prior to any grading activities to determine whether elevated concentrations of methane are present and, if so, to identify the appropriate level of methane safety measures to incorporate into the final site design and construction specifications. Review and confirmation of the sufficiency of the proposed methane safety measures, if warranted, would occur by LADBS through the building permit process. Based on adherence to existing City regulations and requirements, implementation of the proposed Project would not result in a significant impact related to methane.

4.3.6.2 Exposure of Workers to Hazardous Materials

4.3.6.2.1 Construction

As discussed above, contaminated soils could be unexpectedly encountered during grading and excavation; however, compliance with the Procedure currently in place by LAWA sets forth appropriate procedures and requirements for the identification and handling of excavated contaminated materials. The Procedure requires, among other things, preparation of a site-specific Health and Safety Plan that incorporates OSHA and CalOSHA regulations, as well as FAA and LAWA health and safety requirements in order to minimize the risk of injury to site workers. Implementation of this Procedure would ensure that if unexpected contaminated materials are encountered during construction, they are properly identified, stored, and remediated and disposed of in accordance with applicable regulations, including those governing worker health and safety. In the event that Project-related excavation unexpectedly encounters VOC-contaminated soil, the continuation of such excavation would be carried out in accordance with SCAQMD Rule 1166. In addition, based on the depth of groundwater at the Project site (i.e., the Gage Aquifer is 100 to 105 feet bgs and shallow perched groundwater is 35 to 40 feet bgs), the construction of the proposed Project would not encounter contaminated groundwater. As such, impacts associated with the excavation of contaminated materials would be less than significant.

The off-gassing of methane is considered a possibility during construction activities because of the Project site's location on a former oil field and in the City of Los Angeles designated

Hyperion Field Methane Zone. As discussed above, in the event that elevated concentrations of methane are found to be present, a significant hazard associated with construction activities is generally not expected to occur because the methane hazard (combustion) occurs at concentrations above 50,000 ppm, at which subsurface methane concentrations would quickly disperse (reduce) to concentrations much lower than this once released to the surface. In addition, the exposure of workers to methane is regulated by OSHA and CalOSHA, as well as through the Procedure. In accordance with OSHA and CalOSHA standards, worker exposure to a "hazardous atmosphere" within confined spaces (e.g., trenches, bore holes) where the presence of flammable gas vapor or mist exceeding 10 percent of the lower explosive limit is not permitted without proper personal protective equipment. CalOSHA also establishes which compounds are considered a health risk, the exposure limits associated with such compounds, protective equipment, workplace monitoring, and medical surveillance required for compliance. Compliance with applicable regulations would ensure that workers are not exposed to hazardous levels of methane and a less than significant impact would result.

4.3.6.2.2 Operation

The proposed Project would accommodate the same types of routine maintenance activities that are currently occurring at various places throughout LAX airport. As with current operations, maintenance workers would continue to comply with all applicable regulations. For instance, exposure of maintenance workers to contaminated materials would be minimized by implementing the measures required by federal, state, and local laws and regulations. As discussed above, these include OSHA and CalOSHA standards, which establish exposure limits for workers; require protective equipment or other protective measures, when warranted; and require employers to provide a written health and safety program, worker training, emergency response training, and medical surveillance. Therefore, the proposed Project would result in less than significant impacts with respect to maintenance worker exposure to hazardous materials.

As discussed above, the Project site is located in the City-designated Hyperion Methane Zone. Nonetheless, interior methane levels would be regulated in accordance with Los Angeles Methane Seepage Regulations, which could require design features such as methane barriers, methane detection systems, and venting systems should hazardous levels of methane be detected during pre-construction investigations. Adherence with the applicable regulations would ensure that interior methane levels do not reach limits that would pose a threat to maintenance workers or rise to explosive levels, and a less than significant impact would result.

4.3.6.3 Contamination of Soil & Groundwater/Prevention of Cleanup

4.3.6.3.1 Construction

Only one ongoing remediation effort is occurring in the vicinity of the Project site; the groundwater remediation efforts for a jet fuel plume originating from the former Continental Airlines ACMX. Specifically, as discussed above, the groundwater remediation consists of the VEFPR system for a jet fuel plume centered at the former Continental Airlines ACMX located east of the Project site. Although studies have concluded that the jet fuel plume does not encroach the boundaries of the Project site, the VEFPR system includes three on-site groundwater monitoring wells (i.e., CMW-31, CMW-32, CMW-33). As part of the construction of

the proposed Project, these monitoring wells would be protected in place, and enclosed in concrete vaults with load bearing grates at the surface to provide for continued access. LAWA would continue to coordinate with the third-party operator of the remediation system. Because the wells would not be relocated by the proposed Project, but rather protected in place in enclosed concrete vaults, permits or approvals from the LARWQCB would not be required. Impacts, if any, to the remediation system would be less than significant and therefore construction impacts would be less than significant.

As it relates to the discovery of unknown contamination during construction, the Procedure (that facilitates implementation of LAX Master Plan Commitment HM-2, Handling of Contaminated Materials Encountered During Construction) provides detailed guidance for especially for projects involving excavation and grading of soils. The Procedure requires the preparation of detailed plans for handling previously unknown contaminated soil encountered during construction, as well as spills of hazardous materials or substances that may occur during construction. It also requires preparation of a detailed Health and Safety Plan, and provisions for testing and segregation of contaminated soils for proper disposal. Therefore, the proposed Project would result in less than significant impacts with respect to unknown contamination.

4.3.6.3.2 Operation

Maintenance activities would occur within the boundaries of the Project site, where no remediation efforts are currently taking place. As mentioned above, construction of the proposed Project would include the protection-in-place of the three existing on-site monitoring wells. Proposed Project operations would not result in any additional impacts to these monitoring wells, or other remediation efforts occurring in the proposed Project vicinity. Impacts, if any, to the remediation system would be less than significant and therefore operational impacts would be less than significant.

4.3.6.4 Impacts Related to Landfill Capacity

4.3.6.4.1 Construction

While a portion of the existing stockpiled soil and construction rubble within and immediately adjacent to the Project site would be re-used on-site as backfill material during construction, the proposed Project would still require the removal of soils from the Project site. In total, it is estimated that 295,000 cubic yards of stockpiled materials would need to be hauled from the Project site and disposed of at regional MSW landfills. Based on the findings of the recent Geosyntec Report, all stockpiled soils would be suitable for disposal at Class III MSW landfills, with most of the materials suitable for unrestricted disposal at such landfills. Soils at Stockpile Areas #1 and #2B with TPH (full chain) concentrations in excess of 500 mg/kg would still be suitable for disposal at Class III MSW landfills. However, they would be restricted to portions of the landfill that implement a SWPPP in accordance with Storm Water General Permit No. 97-03-DWQ. The SWPPP outlines BMPs to ensure soils contamination does not enter stormwater flows leaving the landfill site. As of December 31, 2011, the most recent information available, the MSW capacity of landfills in Los Angeles County is estimated at 127 million tons.[22] As a result, MSW landfills in Los Angeles County have ample capacity to accommodate the 295,000 cubic yards of soil required to be hauled from the Project site.

[22] County of Los Angeles Department of Public Works. County of Los Angeles Countywide Integrated Waste Management Plan: 2011 Annual Report. August 2012.

As mentioned above, the June 2013 Geosyntec Report found no indication that existing on-site stockpiles contain hazardous materials requiring special handling and disposal/treatment at a lined Class I (hazardous materials) landfill.[23] Should hazardous materials be unexpectedly encountered during construction activities, they would be disposed of in accordance with the Procedure, which would identify disposal options for previously unidentified hazardous materials. Therefore, construction of the proposed Project would not generate hazardous materials which would exceed the available disposal capacity and a less than significant impact would result.

4.3.6.4.2 Operation

The proposed Project would accommodate the same types of the routine maintenance activities that are currently occurring elsewhere at the airport; hence, the types of hazardous wastes generated under the proposed Project are expected to be similar to those now generated. Because proposed Project operations would relocate existing maintenance operations, there would not be an increase in the amount of hazardous materials generated at LAX as a whole. Hazardous waste generated at LAX is removed by private contractors and delivered to treatment, recycling, and disposal facilities both within and outside the Los Angeles region. As existing disposal capacity adequately meets the needs of routine maintenance activities currently occurring at LAX, the proposed Project would not result in an exceedance of hazardous waste disposal capacity and a less than significant impact would result.

4.3.7 Cumulative Impacts

Impacts associated with hazardous materials include the potential exposure of construction workers to contamination, interference with ongoing remediation efforts, the potential for related projects to result in soil or groundwater contamination, and the potential for impairment to the implementation of emergency response activities. The exposure of construction workers to contaminated substances or hazardous building materials, air transport of hazardous substances, and interference with ongoing soil and groundwater remediation generation are not subject to cumulative effects, as this impact is site-specific and limited to particular construction workers that are employed at a construction site where contaminated materials may be uncovered. Development of the related projects in the area, in conjunction with the proposed Project could result in a potential increase in impacts relative to the ground transport of hazardous materials and wastes and increased demand for hazardous waste treatment, recycling, and disposal. Proper packaging and handling of hazardous materials and wastes, coupled with employee training and emergency response, would reduce cumulative impacts of increased ground transport of hazardous materials/wastes to a level that is less than significant. With respect to the cumulative demand for treatment, recycling, and disposal from related projects, sufficient capacity is expected to be available to accommodate related projects. As discussed above, as of December 31, 2011 (the most recent information available) the County of Los Angeles Countywide Integrated Waste Management Plan 2011 Annual Report indicates that MSW capacity of landfills in Los Angeles County is estimated at 127 million tons. Furthermore, the 2011 Annual Report indicates that there would be adequate landfill capacity

[23] Geosyntec Consultants. Report of Screening-Level Sampling and Analyses of Selected Stockpiles: West Aircraft Maintenance Area by Geosyntec Consultants. June 2013

for the 15-year planning period ending in 2025 through the use of the following strategies: expansion of existing landfills; the study, promotion, and development of conversion technologies; the expansion of transfer and processing infrastructure; development of a waste-by-rail system to efficiently transfer solid waste to out-of-county landfills; and the maximization of waste reduction and recycling.[24] The waste-by-rail system will allow the remote disposal of waste in areas with abundant landfill capacity and is currently being developed by the sanitation districts within Los Angeles County. The waste-by-rail system will provide long-term disposal capacity to replace local landfills as they reach capacity and close. The starting point of the Waste-by-Rail System is the Puente Hills Intermodal Facility, located near the Puente Hills Materials Recovery Facility, which already accepts residual wastes from transfer stations and transports them by rail to the Mesquite Regional Landfill for disposal. Therefore, the impact of cumulative increases in hazardous waste generation would be less than significant.

As discussed above, groundwater remediation is occurring on the former Continental Airlines ACMX. However, the extent of the jet fuel plume is static and does not encroach on the Project site. An HVOC plume is currently located south and east of the Project site, with HVOC concentrations increasing at groundwater monitoring wells upgradient (east) of the VEFPR system. No conclusive source of the HVOC contamination has been identified and additional study is likely required to identify its source and lateral extent. Although HVOC contamination may encroach on the eastern portion of the Project site, because lateral extent, source, and precise makeup of HVOCs have not been agreed upon, no remediation plan has been established. Any future remediation of the HVOC plume would occur in accordance with the applicable regulatory requirements. As long as existing groundwater monitoring wells are not relocated and temporary disruptions to well access, such as the construction of concrete vaults around the wells, do no disrupt scheduled monitoring schedules, approval from the LARWQCB would not be required. Further, the presence of the HVOC plume in combination with the proposed Project would not impede existing groundwater remediation efforts currently underway with the VEFPR system. Therefore, there would be no cumulative impacts related to ongoing remediation efforts.

Cumulative increases in the use of hazardous materials can result in increased potential for a spill or release that, in turn, may result in soil or groundwater contamination. Because the proposed Project would consolidate some of the existing maintenance activities within LAX, no notable increase in the use and storage of hazardous materials is anticipated to result from the proposed Project. Compliance with existing regulations and operating procedures in accordance with LAWA's Procedure and BMPs for hazardous materials would continue to reduce the potential for releases to occur and would minimize the impact of a release were one to occur. Therefore, this impact would be less than significant. Related projects would be subject to the same regulations and operating procedures. Therefore, cumulative impacts would also be less than significant.

4.3.8 Mitigation Measures

The following mitigation measure beyond those required by the LAX Master Plan MMRP is recommended to reduce impacts associated with the proposed Project:

[24] County of Los Angeles Department of Public Works. County of Los Angeles Countywide Integrated Waste Management Plan: 2011 Annual Report. August 2012

- **MM-HAZ (WAMA)-1.** Prior to construction at the Project site, additional research shall be undertaken to determine if abandoned/plugged wells at the Project site were abandoned per the current regulations. If necessary, these wells shall be properly abandoned per current regulations. Since the Division of Oil, Gas, and Geothermal Resources (DOGGR) maps are not guaranteed to be accurate, a magnetometer survey shall be completed to determine the exact location of these abandoned/plugged oil wells. If the magnetometer survey successfully determines the location of these oil wells, a subsurface investigation in coordination with the DOGGR and City of Los Angeles Fire Department, as applicable, will be performed to determine if the abandoned wells pose a risk during the grading and construction activities.

  Specific DOGGR regulations and requirements for the inspection, testing, plugging, and abandonment of oil wells are contained within Chapter 4, Development, Regulation, and Conservation of Oil and Gas Resources, Article 3 of the State of California Code of Regulations. These regulations require a specific set of actions be taken, dependent on the found state of the abandoned oil wells (e.g. for open holes, a cement plug must extend from the total depth of the well or from at least 100 feet below the bottom of each oil or gas zone to at least 100 feet above the top of each oil or gas zone, for cased holes, all perforations are to be plugged with cement, with the plug extending at least 100 feet above the top of a landed liner, the uppermost perforations, the casing cementing point, the water shut-off holes, or the oil or gas zone, whichever is highest). Chapter V, Article 7, (Fire Code) (57.90.01-45) of the Los Angeles City Municipal Code further regulates the location, drilling safeguards, and abandonment of oil wells in the City. In the event oil wells are found that have not been properly abandoned, the procedures and agency oversight prescribed in these regulations would serve as performance standards to ensure that significant impacts associated with the potential migration of fluids and groundwater contamination would be avoided during construction of the proposed Project. Construction will comply with all applicable requirements of DOGGR and the City of Los Angeles Fire Department for the investigation and/or re-abandonment of the well(s).

4.3.9 Level of Significance After Mitigation

With implementation of the LAX Master Plan MMRP programs and existing regulatory programs and requirements related to hazards and hazardous materials, along with Mitigation Measure MM-HAZ (WAMA)-1, impacts would be mitigated to a less than significant level. Prior to the start of construction, the magnometer survey required under Mitigation Measure MM-HAZ (WAMA)-1 would determine if abandoned/plugged wells at the Project site were abandoned per the current regulations and shall be completed to determine the location of these abandoned/plugged oil wells. Compliance with the results of this survey, as well as with DOGGR and LAFD regulations, would ensure that these wells are properly abandoned.

This page intentionally left blank.