PHASE II ENVIRONMENTAL SITE ASSESSMENT

Former Figueroa Pump Station
5800 South Figueroa Street, Los Angeles, California

Prepared for

DEPARTMENT OF WATER AND POWER
CITY OF LOS ANGELES
111 N. Hope Street, Room 1050
Los Angeles, CA 90012

October 2004

Prepared by

PARSONS INC.
100 WEST WALNUT STREET • PASADENA • CALIFORNIA 91124

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Reviewed by: Timothy P. Wendler 10/28/04

Timothy P. Wendler, PE — Date
Project Manager

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1.0 INTRODUCTION

1.1 PROJECT OBJECTIVES

Parsons prepared this assessment report for Los Angeles Department of Water and Power (LADWP) to assess possible environmental impacts and establish baseline conditions at the former Figueroa Pump Station, 5800 Figueroa Street, Los Angeles, California. All fieldwork was performed by or under the direction of a California Registered Geologist. Activities were performed consistent with the Parsons proposal and the site-specific Health and Safety Plan (HSP) (Appendix A).

1.2 SITE SETTING

The subject site is located at the corner of Slauson Avenue and Figueroa Street, at 5800 Figueroa Street, Los Angeles, California (Figure 1). The site is a vacant asphalt/dirt lot with piping and debris scattered throughout the lot.

The subject site is the former location of a LADWP-owned pump station that operated from approximately 1908 to 1959. The site contained a pump house that included two pumps and a boiler, a 175,000-gallon water reservoir and a below grade fuel oil tank. The fuel oil tank had a capacity of 874 barrels and was fed by an oil line that had a fill pipe at the railroad directly south of the site. The pump station was retired in 1959. At that time, the pump house was demolished and the water reservoir was removed. The oil tank structure was backfilled and the appurtenant piping capped. Appendix B includes site photographs.

1.3 GEOLOGICAL AND HYDROGEOLOGICAL SETTING

The site is located in the northwestern portion of the Downey Plain, which comprises the central portion of the Coastal Plain of Los Angeles County. The Coastal Plain makes up the northwest end of the Peninsular Ranges Geomorphic Province. The Downey Plain is a lowland area formed by converging alluvial fans that slope toward the south. The Elysian Hills, which border the northwestern portion of the Downey Plain, are located approximately 8 miles north of the Site. The Los Angeles River, a concrete lined drainage channel, is located approximately 4 miles northeast of the Site. The topography in the vicinity of the Site is relatively flat and trends from northeast to southwest at a gradient of 0.004 feet per foot.

The material beneath the Site consists primarily of alluvial sediments of sands, silts and clays. The following is a description of the geologic units underlying the Site from youngest to oldest.

- Holocene (recent) Unnamed Alluvial Sediments – the uppermost 80 to 90 feet consisting of sands with minor amounts of silt, clay, and/or fine gravel.

- Late (upper) Pleistocene Lakewood Formation – approximately 200 feet thick consisting primarily of sandy strata subdivided by discontinuous clayey strata.
- Early (lower) Pleistocene San Pedro Formation – approximately 1,350 feet thick consisting generally of interbedded sands, gravelly sands, and clay. The uppermost clay interval in this formation separates the Late and Early Pleistocene sediments.

The site is located in the northern portion of the Central Groundwater Basin within the Los Angeles Forebay Area. Eight aquifers and associated aquitards have been mapped in the area of the Site by the Department of Water Resources (DWR, 1961). The aquifers from shallowest to deepest are the Gaspur, Exposition, Gage/Gardena, Hollydale, Jefferson, Lynwood, Silverado, and Sunnyside. The uppermost aquifer is reportedly comprised of medium to coarse-grained sands underlain by sand, gravel and cobbles. The groundwater depth in the area of the Site is at approximately 240 feet bgs. Regional groundwater flow underlying the Site is generally south to southeast, paralleling the course of the Los Angeles River.

Topography at the Site is consistent with the trend of the regional topography (northeast to southwest). During the current investigation, which was limited to the upper 5 feet across the Site, soils consisted of sands, silty sands, and clayey sands (see borehole logs in Appendix C). Also included in these soils were large amounts of debris including bricks, asphalt, and concrete. Soils were highly oxidized and based on debris within the soil matrix it is assumed that the material in the upper 5 feet is backfill. No groundwater was encountered.

2.0 PROJECT DESCRIPTION

2.1 SCOPE OF WORK

The scope of work for this baseline characterization included three tasks that are discussed below.

Task 1. Project Scoping, Health & Safety Plan (HSP) Preparation, and Mobilization for Field Work. A site-specific HSP was prepared for use during the site characterization field work (Appendix A). In addition, the necessary field equipment was mobilized and subcontractor (i.e., drilling, geophysical, and laboratory) schedules and work scopes were established.

Task 2. Field Work Included Geophysical Utility Clearance, Drilling Boreholes, and Collecting Soil Samples. Prior to the initiation of the field work, Parsons notified DigAlert (one-call utility notification service). A geophysical survey was conducted by Sub Surface Surveys at each proposed boring location to search for unmapped underground utilities. The geophysical survey also assessed the potential presences of underground structures (remnant tanks and piping) associated with the former pump station operations.

A total of twelve exploratory soil borings were drilled to collect soil samples for laboratory analysis. The laboratory tests were designed to assess potential environmental impacts at the site. The locations of the borings are shown on Figure 2. Samples were collected at 0.5, 3, and 5 feet bgs (and 10 feet bgs in boring SB-8) and analyzed for volatile organic compounds (VOCs), arsenic, lead, mercury, total petroleum hydrocarbons as gasoline (TPH-G), diesel (TPH-D), and extended range (TPH-ext). All borings were cleared by hand augering to a depth of 5 feet bgs prior to sampling. Drilling was performed by Interphase Environmental and laboratory analyses were performed by APCL Laboratories, Inc.

Task 3. Report Preparation included review of the APCL laboratory analytical report, reduction of data for site assessment, creation of data tables, site figures, and preparing this letter report.

2.2 PROJECT ORGANIZATION

Parsons followed defined sampling and chemical quality control (QC) procedures. The following section lists project personnel, their functions, and responsibilities.

- Project Manager Tim Wendler, PE, was responsible for the quality and timeliness of all project activities, including those performed by subcontractors.

- Project Geologist Stuart Michener, RG, directly supervised all field sampling activity including sample integrity and documentation from sample collection to sample

receipt by the contract laboratory and acted as the Site Safety Officer with responsibility for ensuring that any and all team members (including subcontractors) comply with the project HSP.

- Project Chemist Ellis Hsue was responsible for review and approval of analytical requirements, validation activities, and preparation of quality control summary reports. The specifications for accuracy and precision goals for laboratory analysis are 90% completeness and 100% for analytical holding times.

- InterPhase Environmental, Inc. was the drilling contractor.

- Subsurface Survey was the geophysical contactor.

2.3 SAMPLING RATIONALE

Sampling locations, depths, and analyses were chosen based on historical activities (see Table 1 and Figure 2). Site photos are included in Appendix B.

The investigation focused on shallow soils with sample locations biased in the area of the pump house, oil tank, and oil tank feed piping. In the vicinity of the pump house and oil tank where oil discharges were most likely to occur, an approximate sampling grid of 50 foot x 25 foot was implemented and outside this area, a approximate sampling grid of 50 foot x 50 foot was implemented:

- SB-1, SB-2, SB-6, and SB-7 were located in the former pumping plant area
- SB-3 and SB-4 were located on each side of the former water tank
- SB-8 was located in the suspected footprint of a fuel oil tank
- SB-12, was located immediately south of the former oil tank (in the vicinity of the supply line)
- SB-9 and SB-10 were located just east of the former oil tank
- SB-5 and SB-11 were located near the east boundary of the property.

All soil borings (with one exception) were advanced to a total depth of 5 feet with samples collected at 0.5, 3, and 5 feet below ground surface (bgs). The boring within the suspected footprint of the former oil tank (SB-8) was advanced to a depth of 10 feet bgs, in an attempt to locate or confirm the bottom of the tank. Samples were analyzed for volatile organic compounds (VOCs), arsenic, lead, mercury, total petroleum hydrocarbons as gasoline (TPH-G), diesel (TPH-D), and extended range (TPH-ext).

2.4 FIELD DOCUMENTATION

Sampling and related activities were performed and controlled in a manner that ensured their integrity and representativeness. Sample documentation and field records for this project include sample labels, chain-of-custody (COC) forms, and a field logbook.

A handwritten label was applied to each sample container that had a unique sample identification number, date and time collected, sampler name, and analysis requested. Each sample was assigned unique sample identification. QC/QA samples (e.g., duplicates) were coded using the same scheme as primary samples, but were identified in the field log as duplicates and submitted to the laboratory blind.

Soil samples were labeled SB-Y-XX where

SB = soil borehole
Y = location number, consecutively numbered from 1 to 12
XX = a number representing sample depth in feet bgs

All the samples were logged onto APCL Laboratory COC forms. COC records were signed by the field person relinquishing the samples and by the APCL representative receiving the samples.

2.5 SAMPLING METHODS

Field work was conducted on August 5, 2003.

2.5.1 Soil Sampling

Boreholes were advanced and soil samples collected using a direct-push technique with a GeoProbe™ unit. The GeoProbe™ has hydraulic rams and a vibrating head that push a rod with a core sampler into the soil. The tip of the corer is then removed and the corer is advanced into the soil at a specified depth to collect a core sample. Retrieved core sleeves (new plastic liner) with sample were (1) packed for shipment to the laboratory and (2) described in the field using the Unified Soil Classification System (USCS). Copies of the borehole logs are provided in Appendix C.

The soil samples from selected depths were sealed by covering the liner ends with a sheet of Teflon™ and a plastic end cap. Where field duplicate samples were collected, a section of the core adjacent to the primary sample was collected. Upon completion of the sampling, the borehole was backfilled with bentonite and hydrated.

Prior to sampling and between subsequent uses, sampling tools were decontaminated to avoid cross-contamination. Any equipment that would come into contact with the soil to be sampled was scrubbed with a brush in nonphosphate detergent solution and rinsed in distilled water. The equipment was then rinsed a second time in distilled water and air-dried before the next use.

2.5.2 Investigation Derived Waste (IDW)

Decontamination water and any excess core material not shipped to the laboratory was collected and removed from the site by InterPhase Environmental, Inc. InterPhase provides

disposal service of IDW according to California Code of Regulations manifesting and disposal requirements.

2.6 GEOPHYSICAL CLEARANCE SURVEY

On July 30, 2003, all 12 proposed borehole locations were cleared using geophysical tools. A combination of electromagnetic induction (EM) and ground penetrating radar (GPR) were used to conduct the survey. For all borehole locations the survey tools were used to clear a 5-foot radius circular area around each location. A utility locator with line tracing capabilities was also brought to the field and used where risers existed onto which a signal could be impressed and traced. Piping and debris detected during the survey were marked with paint on the ground cover at the site in orange for maximum visibility. Isolated areas of concentrated debris with some metallic components were found randomly throughout the site and were marked where found near the boreholes. These areas appeared to be discarded material, such as concrete rubble with embedded rebar or rusted metal shards. Several borehole locations were moved slightly in order to provide adequate clearance from debris. The only intact pipe found on site was west of boreholes SB-8 and SB-12 oriented north-south. It was found to travel from the fence approximately 20 feet to the north where it was stubbed off and did not continue (consistent with the air supply line show on historical drawings).

3.0 LABORATORY ANALYSES

3.1 DATA QUALITY ASSESSMENT

The project chemist reviewed all the analytical data according to National Functional Guidelines for Organic Data Review (USEPA, 1994) and National Functional Guidelines for Inorganic Data Review (USEPA, 1994) and checked the following information provided by the laboratory:

- Holding Times
- Method Blanks
- System Monitoring Compounds
- Matrix Spike/Matrix Spike Duplicate
- Duplicate Samples, and
- Laboratory Control Samples

Based on the project chemist's review, the data meet QA/QA criteria and are valid for the intended use to assess the environmental conditions at the sites. Copies of the laboratory report, COC documentation, and laboratory QA/QC reports are in Appendix D. A copy of the Parsons validation report is in Appendix E.

3.2 ANALYTICAL RESULTS

Summaries of the investigation results for areas of potential concern identified above are presented below. Detections above method detection limits (MDLs) were compared to applicable environmental screening concentrations in order to determine if a Recognized Environmental Condition (REC) exists. Table 1 summarize samples obtained and laboratory analysis performed. Tables 2 through 4 summarize laboratory analytical results for the soil samples.

The following metals were found above detection limits in at least one sample: arsenic, lead, and mercury (see Table 2). Of these, arsenic and lead exceeded the EPA Region IX preliminary remediation goal (PRG) for residential or industrial exposure (lead results were compared to the California Modified PRG):

- Concentrations of arsenic ranged from 0.39 mg/kg to 7.0 mg/kg (maximum detection at SB-8-10, 10 feet bgs) with detectable concentrations in all 41 samples analyzed. In all of these samples, the residential PRG of 0.39 mg/kg was exceeded. Of these, 28 samples also exceeded or equaled the industrial PRG of 1.6 mg/kg. While a formal background study of the Figueroa site has not been performed, at other sites an evaluation of arsenic data in the regional area and in California suggest that the upper range of background at the site is most likely about 10 mg/kg (Bradford, 1996). In addition, in the western United States, arsenic in soil can range from less than 0.1 to 97 mg/kg (ATSDR, 1992). As a result, these analytical results appear well within typical background ranges.

- Concentrations of lead ranged from 1.2 mg/kg to 401 mg/kg (maximum detection at SB-8-10, 10 feet bgs) with detectable concentrations in all 41 samples analyzed. In five of these samples (SB-3-0.5, SB-4-0.5, SB-6-0.5, SB-8-10, and SB-66-0.5, a duplicate for SB-6), the residential PRG of 150 mg/kg was exceeded. None of the samples exceeded the industrial PRG of 750 mg/kg.

Total petroleum hydrocarbons (TPH) as gasoline and light hydrocarbons (C4-C12), diesel (C12-C23), and motor oils were all found above detection limits in at least one sample (see Table 3). Concentrations of TPH-gasoline ranged from 0.02J mg/kg to 0.1J mg/kg (maximum detection at SB8-5, 5 feet bgs) with detectable concentrations in 23 samples out of 41 total samples analyzed. Concentrations of TPH-diesel ranged from 2J mg/kg to 830 mg/kg (maximum detection at SB7-0.5, 0.5 feet bgs) with detectable concentrations in 26 samples out of 41 total samples analyzed. Concentrations of TPH-motor oils ranged from 4J mg/kg to 2,900 mg/kg (maximum detection at SB3-5, 5 feet bgs) with detectable concentrations in 29 samples out of 41 total samples analyzed. None of these concentrations exceeded the Los Angeles RWQCB remedial action screening concentrations for TPH detections where groundwater is greater than 150 feet below the sampling depth. During the field investigation, the sample at SB-8-10 (anticipated to be the bottom of the oil tank) was moist and discolored (black).

Benzene-toluene-ethylbenzene-xylenes (BTEX) compounds were found above detection limits in at least one sample (see Table 4). None of these compounds exceeded the EPA Region IX PRG for residential or industrial exposure.

4.0 CONCLUSIONS

Parsons prepared this characterization report for LADWP to assess possible environmental impacts and establish baseline conditions at the subject site. Based on the data collected, Parsons concludes that the only identified recognized environmental conditions (REC) is lead impacted soil. In five of the samples (SB-3-0.5, SB-4-0.5, SB-6-0.5, SB-8-10, and SB-66-0.5, a duplicate for SB-6), the lead residential PRG of 150 mg/kg was exceeded. None of the samples exceeded the lead industrial PRG of 750 mg/kg. A PEA-type risk screening evaluation is recommended to determine if the lead impacts would pose a risk to future on-site residents.

While analytical results for TPH do not show current regulatory standards to be exceeded at the oil tank, discolored soils and the potential presence of part of the oil tank structure may create a concern during future construction. Depending upon future use, it may be advisable for LADWP to excavate this area and remove any impacted soils. Backfill soils if imported from off-site should be screened for impacts before compaction.

5.0 REFERENCES

Agency for Toxic Substances and Disease Registry (ATSDR), 1992. Public Health Assessment Guidance Manual. Washington, D.C. U.S. Department of Health and Human Services, Public Health Service.

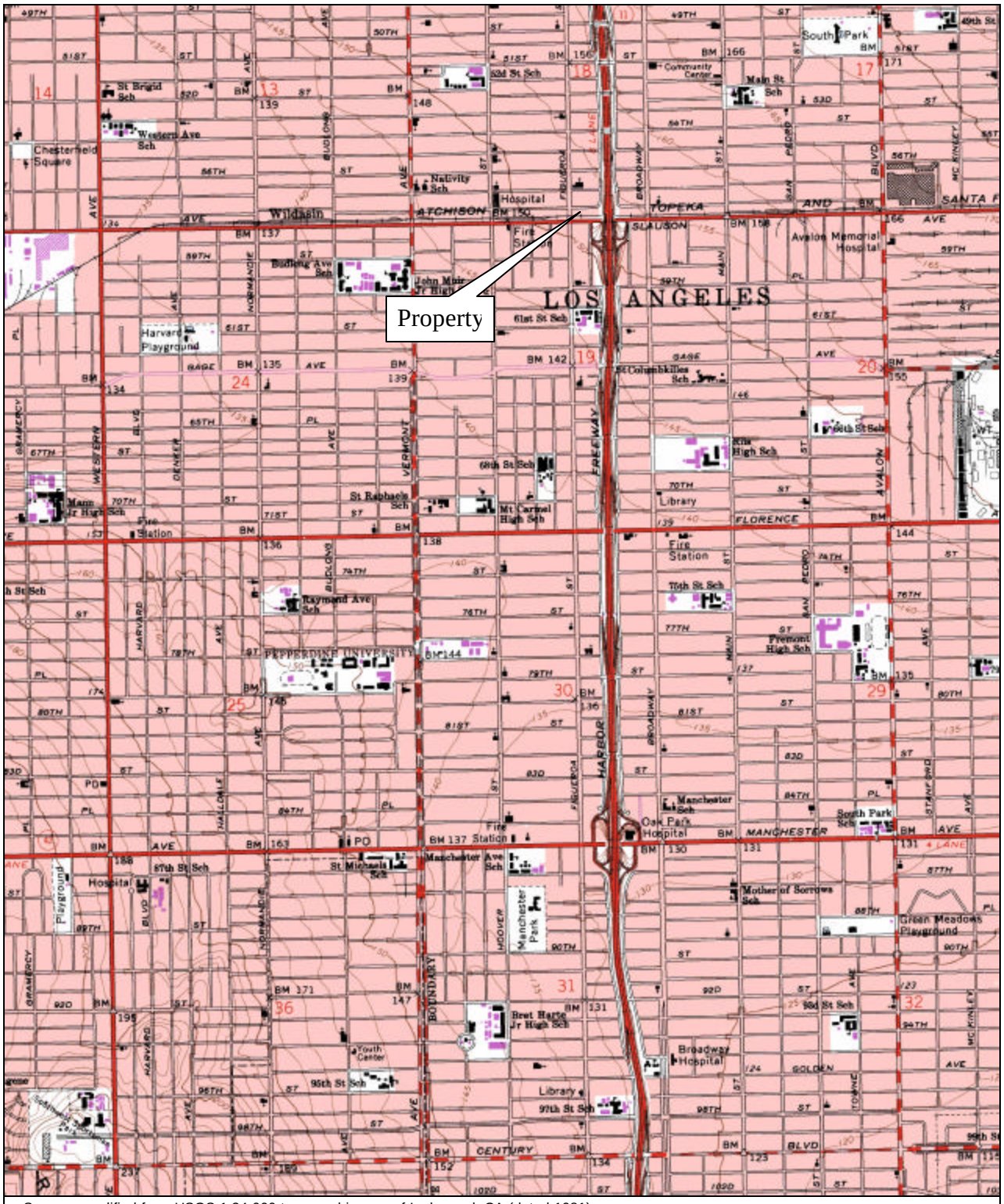
Bradford, G.R., Chang, A.C., Page, A.L., Bakhtar, D., Framton, J.A., and Wright, H., 1996, Background concentrations of trace and major elements in California soils, Kearney Foundation of Soil Science, University of California.

Los Angeles Regional Water Quality Control Board, 1996, Interim Site Assessment & Cleanup Guidebook.

United States Department of Agriculture, Soil Conservation Service, 1967 (revised 1969), *Report and General Soil Map, Los Angeles County, California*

USEPA, 2002, Region 9 Preliminary Remediation Goals (PRGs).

FIGURES



Source: modified from USGS 1:24 000 topographic map of Inglewood, CA (dated 1981)

NORTH

0 2500

Approximate Scale in Feet

Figure 1
Site Location Map
Former Figueroa Pump Station
Los Angeles, California

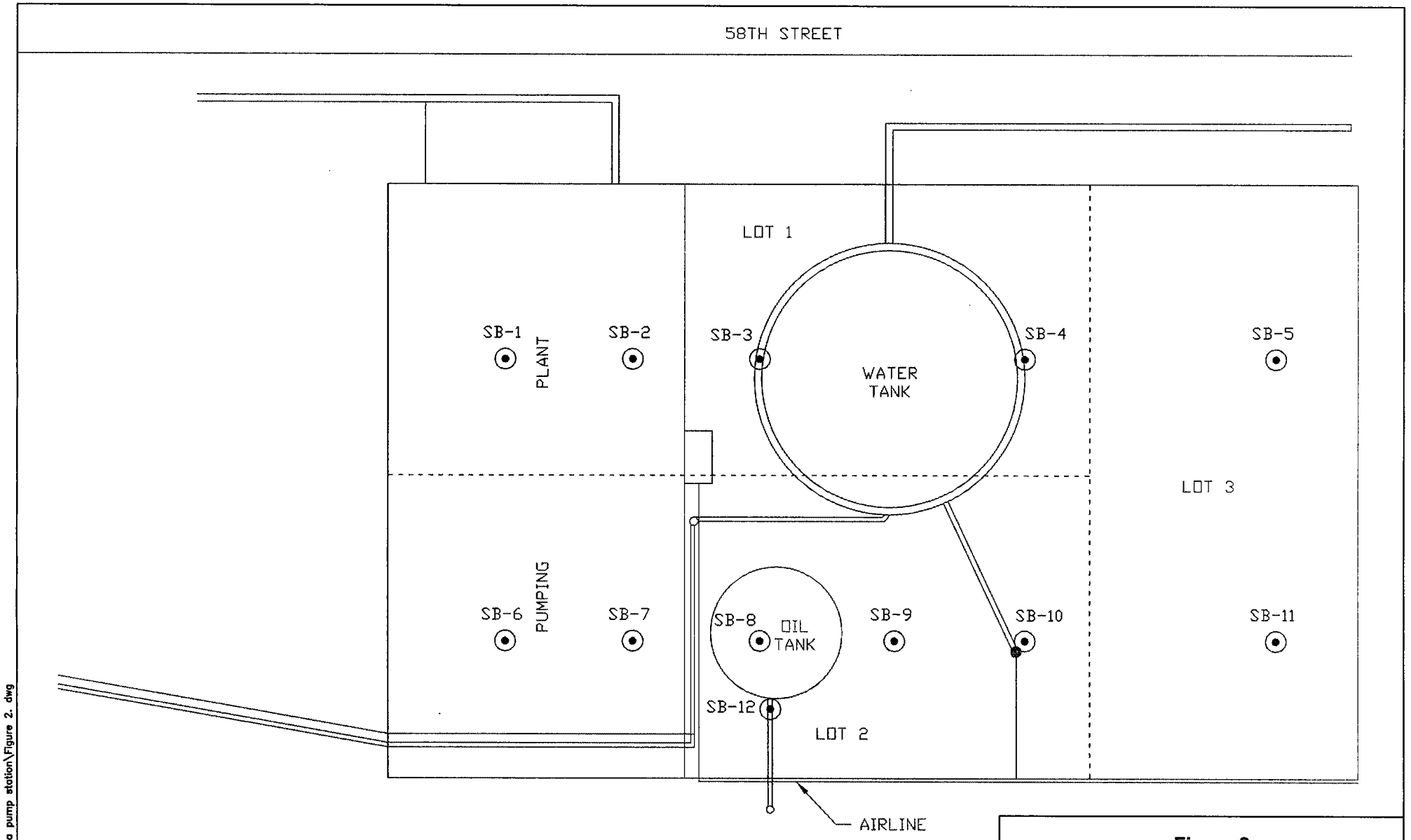


Figure 2

Soil Boring Locations

Former Figueroa Pump Station

PARSONS

Pasadena, CA

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TABLES

Table 1
Summary of Samples Obtained and Laboratory Analysis Performed
Former Figueroa Pump Station

Sample I.D.	Sample Type	Target Sample Depth (feet bgs)	Analyses (see note)	Sampling Objective
SB1, SB2, SB3, SB4, SB5, SB6, SB7	Soil matrix	0.5, 3, 5	TPH-ext range (8015m), BTEX (8021B), Arsenic/Lead/Mercury (6000/7000 series)	Determine existence of TPH, BTEX, arsenic, lead, and mercury impacts in soil
SB8	Soil matrix	0.5, 3, 5, tank bottom at 10 feet	TPH-ext range (8015m), BTEX (8021B), Arsenic/Lead/Mercury (6000/7000 series)	Determine existence of TPH, BTEX, arsenic, lead, and mercury impacts in soil
SB9, SB10, SB11, SB12	Soil matrix	0.5, 3, 5	TPH-ext range (8015m), BTEX (8021B), Arsenic/Lead/Mercury (6000/7000 series)	Determine existence of TPH, BTEX, arsenic, lead, and mercury impacts in soil

Note: BTEX samples will not be analyzed at the 0.5 foot depth.

Table 2
Summary of Soil Sample Analytical Results for Title 22 Metals

Sample ID	Date Sampled	Units	Arsenic	Lead	Mercury
Residential PRGs (mg/kg)			0.39	150*	23
Industrial PRGs (mg/kg)			1.6	750	310
SB-1-0.5	8/5/2003	mg/kg	**4.0**	109	0.12J
SB-1-3	8/5/2003	mg/kg	**1.2**	1.2	0.013J
SB-1-5	8/5/2003	mg/kg	**2.1**	38.7	0.20J
SB-2-0.5	8/5/2003	mg/kg	**1.1**	50.0	0.22J
SB-2-3	8/5/2003	mg/kg	**4.1**	90.9	0.097J
SB-2-5	8/5/2003	mg/kg	**1.9**	3.5	0.13J
SB-3-0.5	8/5/2003	mg/kg	**3.7**	**184**	0.16J
SB-3-3	8/5/2003	mg/kg	**3.9**	30.3	0.091J
SB-3-5	8/5/2003	mg/kg	**2.9**	31.9	0.16J
SB-4-0.5	8/5/2003	mg/kg	**5.7**	**181**	0.13J
SB-4-3	8/5/2003	mg/kg	**3.9**	98.6	0.10J
SB-4-5	8/5/2003	mg/kg	**4.0**	23.9	0.13J
SB-5-0.5	8/5/2003	mg/kg	**2.2**	3.5	0.078J
SB-5-3	8/5/2003	mg/kg	**2.5**	3.6	0.056J
SB-5-5	8/5/2003	mg/kg	**2.2**	3.1	0.11J
SB-55-5	8/5/2003	mg/kg	**1.6**	2.8	0.0097J
SB-6-0.5	8/5/2003	mg/kg	**1.9**	**173**	0.061J
SB-66-0.5	8/5/2003	mg/kg	**2.3**	**271**	ND(0.21)
SB-6-3	8/5/2003	mg/kg	**1.2**	3.2	0.047J
SB-6-5	8/5/2003	mg/kg	**0.71**	2.9	0.11J
SB-7-0.5	8/5/2003	mg/kg	**4.2**	126	0.39
SB-7-3	8/5/2003	mg/kg	**1.2**	108	0.076J
SB-7-5	8/5/2003	mg/kg	**0.55**	1.7	0.022J
SB-8-0.5	8/5/2003	mg/kg	**2.7**	125	0.18J
SB-8-3	8/5/2003	mg/kg	**1.6**	46.5	2.7
SB-8-5	8/5/2003	mg/kg	**2.1**	126	2.1
SB-8-10	8/5/2003	mg/kg	**7.0**	**401**	0.54
SB-9-0.5	8/5/2003	mg/kg	**1.6**	5.5	0.13J
SB-99-0.5	8/5/2003	mg/kg	**3.2**	103	0.038J
SB-9-3	8/5/2003	mg/kg	**1.3**	4.7	0.060J
SB-9-5	8/5/2003	mg/kg	**1.5**	3.3	0.092J
SB-10-0.5	8/5/2003	mg/kg	**1.3**	85.5	0.12J
SB-100-0.5	8/5/2003	mg/kg	**2.0**	44.3	ND(0.21)
SB-10-3	8/5/2003	mg/kg	**0.62**	3.5	0.075J
SB1-10-5	8/5/2003	mg/kg	**1.2**	4.8	0.12J
SB-11-0.5	8/5/2003	mg/kg	**0.77**	5.0	0.085J
SB-11-3	8/5/2003	mg/kg	**2.1**	4.2	0.074J
SB-11-5	8/5/2003	mg/kg	**0.39**	3.8	0.070J
SB-12-0.5	8/5/2003	mg/kg	**3.4**	140	0.0072J
SB-12-4	8/5/2003	mg/kg	**1.7**	46.5	0.17J
SB-12-5	8/5/2003	mg/kg	**3.3**	115	ND(0.22)

NOTES:

ND = Analyte was not detected in the sample at or above the Method Detection Limit (MDL)

( ) -The MDL concentration for each analyte is presented in the brackets

J = The J designation, commonly referred to as a "J-flag," denotes a detection that is above the analytical method detection limit but below the practical quantitation limit.

Bold = concentration exceeds PRG

Table 3
Summary of Soil Sample Analytical Results for Total Petroleum Hydrocarbons-Gasoline, Diesel, and Motor Oil

Sample ID	Date Sampled	Units	Gasoline and Light HC (C4-C12)	Diesel (C12-C22)	Motor Oils (C23 C32)
SB-1-0.5	8/5/2003	mg/kg	0.02J	80J	850
SB-1-3	8/5/2003	mg/kg	0.03J	ND(12)	ND(12)
SB-1-5	8/5/2003	mg/kg	0.02J	30	120
SB-2-0.5	8/5/2003	mg/kg	0.02J	230	760
SB-2-3	8/5/2003	mg/kg	0.03J	51J	600
SB-2-5	8/5/2003	mg/kg	ND(1.1)	ND(11)	23
SB-3-0.5	8/5/2003	mg/kg	0.02J	53	450
SB-3-3	8/5/2003	mg/kg	0.02J	4J	82
SB-3-5	8/5/2003	mg/kg	0.02J	780	2,900
SB-4-0.5	8/5/2003	mg/kg	0.02J	31J	300
SB-4-3	8/5/2003	mg/kg	0.02J	170	1,000
SB-4-5	8/5/2003	mg/kg	ND(1.0)	240	2,500
SB-5-0.5	8/5/2003	mg/kg	ND(1.1)	ND(11)	ND(11)
SB-5-3	8/5/2003	mg/kg	ND(1.3)	ND(11)	ND(11)
SB-5-5	8/5/2003	mg/kg	0.02J	ND(11)	ND(11)
SB-55-5	8/5/2003	mg/kg	ND(1.1)	ND(11)	ND(11)
SB-6-0.5	8/5/2003	mg/kg	0.02J	13J	590
SB-66-0.5	8/5/2003	mg/kg	ND(1.0)	65J	1,500
SB-6-3	8/5/2003	mg/kg	0.02J	ND(11)	9J
SB-6-5	8/5/2003	mg/kg	ND(1.0)	ND(11)	ND(11)
SB-7-0.5	8/5/2003	mg/kg	0.02J	830	1,900
SB-7-3	8/5/2003	mg/kg	ND(1.1)	11	74
SB-7-5	8/5/2003	mg/kg	ND(1.3)	2J	ND(13)
SB-8-0.5	8/5/2003	mg/kg	0.02J	7J	67
SB-8-3	8/5/2003	mg/kg	0.05J	22J	220
SB-8-5	8/5/2003	mg/kg	0.1J	28J	180
SB-8-10	8/5/2003	mg/kg	0.04J	560	1,300
SB-9-0.5	8/5/2003	mg/kg	0.02J	ND(11)	ND(11)
SB-99-0.5	8/5/2003	mg/kg	ND(1.1)	25J	200
SB-9-3	8/5/2003	mg/kg	ND(1.0)	ND(11)	6J
SB-9-5	8/5/2003	mg/kg	ND(1.0)	ND(11)	4J
SB-10-0.5	8/5/2003	mg/kg	0.02J	23J	230
SB-100-0.5	8/5/2003	mg/kg	ND(1.1)	28J	600
SB-10-3	8/5/2003	mg/kg	ND(1.2)	ND(11)	ND(11)
SB1-10-5	8/5/2003	mg/kg	ND(1.2)	ND(11)	ND(11)
SB-11-0.5	8/5/2003	mg/kg	0.02J	44	190
SB-11-3	8/5/2003	mg/kg	ND(1.2)	ND(11)	ND(11)
SB-11-5	8/5/2003	mg/kg	ND(1.1)	ND(11)	ND(11)
SB-12-0.5	8/5/2003	mg/kg	ND(1.1)	64	920
SB-12-4	8/5/2003	mg/kg	0.02J	200J	1,500
SB-12-5	8/5/2003	mg/kg	0.02J	14	190

NOTES:

ND = Analyte was not detected in the sample at or above the Method Detection Limit (MDL)

( ) -The MDL concentration for each analyte is presented in the brackets

J = The J designation, commonly referred to as a "J-flag," denotes a detection that is above the analytical method detection limit but below the practical quantitation limit.

Table 4
Summary of Soil Sample Analytical Results for BTEX Compounds

Sample ID	Date Sampled	Units	Benzene	Ethylbenzene	m,p-Xylenes	o-Xylene	Toluene (Methyl benzene)
Residential PRGs (ug/kg)			600	8,900	270,000	270,000	520,000
Industrial PRGs (ug/kg)			1300	20,000	420,000	420,000	520,000
SB-1-3	8/5/2003	ug/kg	ND(7.3)	2J	3J	1J	1J
SB-1-5	8/5/2003	ug/kg	0.5J	0.3J	1J	0.6J	0.6J
SB-2-3	8/5/2003	ug/kg	0.4J	2J	6J	2J	0.4J
SB-2-5	8/5/2003	ug/kg	ND(5.3)	0.6J	0.8J	ND(5.3)	0.4J
SB-3-3	8/5/2003	ug/kg	0.7J	0.8J	1J	0.6J	0.4J
SB-3-5	8/5/2003	ug/kg	ND(6.6)	1J	1J	0.5J	0.5J
SB-4-3	8/5/2003	ug/kg	ND(6.7)	1J	1J	0.5J	0.5J
SB-4-5	8/5/2003	ug/kg	ND(5.1)	0.8J	1J	0.4J	0.4J
SB-5-3	8/5/2003	ug/kg	ND(6.3)	0.8J	1J	0.4J	0.5J
SB-5-5	8/5/2003	ug/kg	ND(6.0)	1J	3J	2J	0.4J
SB-55-5	8/5/2003	ug/kg	ND(5.4)	0.7J	1J	0.4J	0.3J
SB-6-3	8/5/2003	ug/kg	0.5J	1J	1J	0.6J	0.6J
SB-6-5	8/5/2003	ug/kg	ND(5.1)	1J	1J	0.4J	0.6J
SB-7-3	8/5/2003	ug/kg	ND(5.7)	1J	1J	0.5J	0.5J
SB-7-5	8/5/2003	ug/kg	ND(6.3)	1J	1J	0.7J	0.4J
SB-8-3	8/5/2003	ug/kg	7	2J	4J	2J	0.6J
SB-8-5	8/5/2003	ug/kg	5J	2J	4J	2J	1J
SB-8-10	8/5/2003	ug/kg	0.5J	2J	2J	1J	0.8J
SB-9-3	8/5/2003	ug/kg	ND(5.2)	0.6J	0.9J	ND(5.2)	0.4J
SB-9-5	8/5/2003	ug/kg	ND(5.2)	0.7J	0.9J	0.4J	0.3J
SB-10-3	8/5/2003	ug/kg	ND(5.8)	1J	1J	0.5J	0.4J
SB-10-5	8/5/2003	ug/kg	ND(6.0)	1J	1J	0.4J	0.4J
SB-11-3	8/5/2003	ug/kg	ND(6.1)	1J	1J	0.5J	0.6J
SB-11-5	8/5/2003	ug/kg	ND(5.3)	0.5J	0.8J	0.4J	0.3J
SB-12-4	8/5/2003	ug/kg	0.4J	1J	2J	0.8J	0.6J
SB-12-5	8/5/2003	ug/kg	ND(5.6)	0.9J	1J	0.5J	0.6J

NOTES:

ND = Analyte was not detected in the sample at or above the Method Detection Limit (MDL)

( ) -The MDL concentration for each analyte is presented in the brackets

J = The J designation, commonly referred to as a "J-flag," denotes a detection that is above the analytical method detection limit but below the practical quantitation limit.

APPENDIX A
Parsons Health and Safety Plan

HEALTH AND SAFETY PLAN

FOR

Former Figueroa Pump Station
5800 S. Figueroa Street
Los Angeles, California

Prepared For

Los Angeles Department of Water and Power
Los Angles, California

July 2003

Prepared by

Parsons
Pasadena, California

Reviewed and Approved By:

	Name	Date
Project Manager		7/15/03

1.0 INTRODUCTION

This Health and Safety Plan (HSP) was prepared for personnel performing a Phase II site investigation to be conducted at the former Figueroa Pumping Station, 5800 S. Figueroa Street, Los Angeles, California for the Los Angeles Department of Water and Power (LADWP). This HSP was prepared based on the best available information regarding the physical and chemical hazards known, or suspected to be present on the project site. It is not possible in advance to discover, evaluate, and protect against all possible hazards that may be encountered during the duration of this project. Adherence to the requirements of this HSP will significantly reduce, but not eliminate, the potential for occupational injury and illness at the project site. The guidelines contained in this HSP were developed specifically for the project described herein and should not be used at any other site without the review and approval of a qualified safety and health professional.

1.2 Tailgate Safety Meetings

The Site Health and Safety Officer (SHSO) will conduct a Tailgate Safety Meeting with all field personnel, including subcontractor personnel, at the beginning of every shift. A copy of each day's Tailgate Safety Meeting form (**Attachment A** of this HSP) shall be maintained at the immediate work site and shall be available for field personnel and site visitor review. All site visitors are to be briefed on the operations and daily Tailgate Safety Meeting information prior to entering a designated exclusion zone. Copies of all Tailgate Safety Meetings shall be maintained on-site during the project.

1.3 Accidents

In the event of an accident, the SHSO will complete the Accident Report Form. Copies of the completed forms will be maintained by the health and safety manager in the health and safety file of the affected employee. Follow-up action should be taken to correct the situation that caused the accident.

Near-miss incidents will also be documented using the form provided in Attachment A, and filed with the onsite health and safety records, as well as with the health and safety manager. Near-miss incidents are defined as any incident that could have led to injury or property damage, but for whatever reason, did not. The assessment of near-miss incidents provides a better measure of safety program effectiveness than simply tracking accidents, since near-misses tend to occur at much higher frequencies than actual accidents.

2.0 SITE SPECIFIC HEALTH AND SAFETY PLAN

2.1 INTRODUCTION

Name of Site Former Figueroa Pumping Station

Address of Site 5800 S. Figueroa St, Los Angeles, California

Client Name Los Angeles Department of Water and Power

Contact Name George Faeustle

Overall Objective of Site Work Collect soil samples for site characterization.

Proposed Date(s) of Site Work August 2003

Source and Age of Information on the site LADWP personnel, previous records of assessments.

Estimate of Hazard to Employees: _____ High _____ Medium ___X___ Low _____ None

Detailed Description of the Facility (attach map) Former Pumping Station.

Site Status: _____ Active ___X___ Closed _____ Abandoned _____ Unknown

2.1.1 Parsons Work Party

Name	Responsibility	Protection Level
Stuart Michener	site supervisor/geologist, site safety officer	Level D

2.1.2 Subcontractor Work Party

Name	Responsibility	Protection Level
Interphase Environmental	operating drilling rigs	Level D

Site Entry Procedures Notify DWP Project Manager before starting fieldwork.

2.2 LIST POSSIBLE CHEMICAL(S) OF CONCERN:

CHEMICAL NAME	MEDIA
Fuel Hydrocarbons	soil
Arsenic, Lead, Mercury	soil

Describe Potential Work Hazards (1) Chemical hazards not anticipated, (2) Physical hazards from sampling rig, underground utilities (see attachment B).

2.3 ACTIVITY CONSIDERATIONS

Will site officials be with you? X Yes ____ No

Is the location of possible wastes known? X Yes ____ No

List Activities Planned:

Activity

Collect soil samples for site characterization

2.4 SAFETY CONSIDERATIONS

2.4.1 Work Location(s) 5800 S. Figueroa St, Los Angeles, California

2.4.2 Objective(s) of Work Collect soil samples for site characterization.

2.4.3 Surveillance Equipment

____	OVA (FID)	____	Oxygen Meter
X___	OVM (PID) (for screening)	____	Hydrogen Sulfide Meter
____	Explosimeter - manual/automatic	____	Carbon Monoxide Meter
____	Dust Meter	____	Other ____
____	Dräeger Pump & Direct Reading Tubes ____		

2.5 PLANNED LEVEL OF PROTECTION

2.5.1 Protection level modified level D

2.5.2 Upgrade Criteria: Constant reading of >30 ppm on OVM calibrated to 100 ppm isobutylene - full-face respirator

2.5.3 Protective Equipment

Feet	X___	Leather/Steel Toe	**Eyes**	X___	Safety Glasses
	____	Rubber/Steel Toe		____	Goggles
	____	Booties		____	Splash Guard
	____	**Other_**		____	Other____
Clothing	____	Cotton Coveralls	**Gloves**	X___	Leather/Cotton
	____	Tyvek Coveralls		____	PVC Surgical
	____	Saranax Coveralls		____	Nitrile Rubber
	____	Rubber Suit		____	Neoprene
	____	Splash Apron		____	Other____
	X___	Hard Hat			
	____	Rain Suit			
	____	Other			
Respiratory	____	Half Face APR	**Other**	X___	First Aid Kit

_____	Full Face APR	_X_	Mobile Phone
_____	Air Line Respirator	_____	Walkie Talkies
_____	30 minute SCBA	_X_	Drinking Water
_____	Cartridges_____	_____	Wash Towelettes
_____	Other_____		

2.7 ADDITIONAL SURVEILLANCE EQUIPMENT none

2.8 TRAFFIC CONTROL PLAN Not Required

2.9 DECONTAMINATION PROCEDURES Clean sampling equipment between each sample location with wash and double rinse.

2.10 WORK LIMITATIONS (Time of Day, Temperature, etc.) Daytime (0700-1800).

2.11 DISPOSAL OF CONTAMINATED MATERIALS responsibility of generator - LADWP

2.12 EMERGENCY INFORMATION

Phone Numbers

Local Police 911

Local Ambulance 911

Local Fire Department 911

Local Hospital Community Hospital of Huntington Park, 2623 E Slauson Ave, Huntington Park, CA 323-583-1931

Telephone No. Onsite

Client Contact George Faeustle 213-367-4708

In an Emergency, also contact:

Project Manager Tim Wendler 626-440-6229

Site Health & Safety Officer Stuart Michener 626-440-6102

Office Health & Safety Officer Lynette Stauch 626-440-6139

2.13 HOSPITAL ROUTE

Community Hospital of Huntington Park
2623 E Slauson Ave
Huntington Park, CA
323-583-1931

Directions

1 Start on **S FIGUEROA ST**
2 Turn Left on **W SLAUSON AVE**
3 Continue on **E SLAUSON AVE**

Approximate Travel Time: 7 minutes

Distance: 3.3 miles

See attached map.

Starting from: A 5800 S Figueroa St, Los Angeles, CA 90003-1047

Arriving at: B 2623 E Slauson Ave, Huntington Park, CA 90255-2926

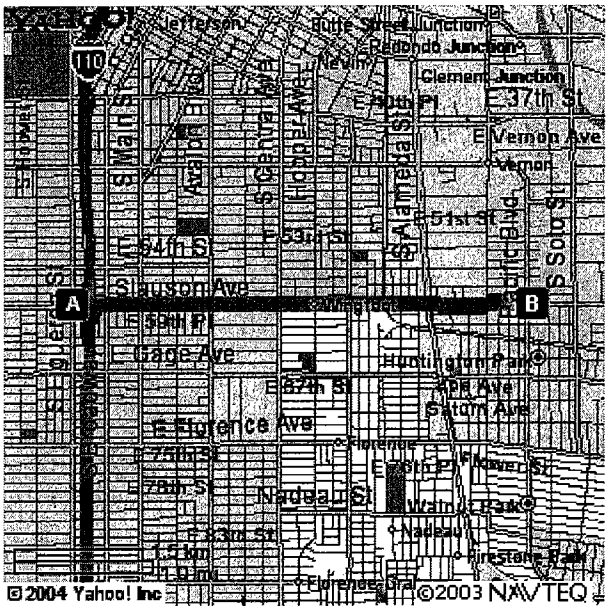
Distance: 3.3 miles **Approximate Travel Time:** 7 mins

Your Directions

1.	Start at **5800 S FIGUEROA ST, LOS ANGELES** - go **< 0.1** mi
2.	Turn L on **SLAUSON AVE** - go **3.3** mi
3.	Arrive at **2623 E SLAUSON AVE, HUNTINGTON PARK,** on the L

When using any driving directions or map, it's a good idea to do a reality check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning.

Your Full Route



Your Destination

Address:
2623 E Slauson Ave
Huntington Park, CA 90255-2926

ATTACHMENT A

Site Safety Tailgate Meeting Form

TAILGATE MEETING FORM

Work Activity:

☐ Land Survey / Utility Survey
☐ Investigation Derived Waste Mgmt.
☐ Storm Drainage System Installation
☐ Drilling
☐ Trenching / Backfill
☐ Other _____
☐ Sample Collection
☐ Source Removal

PPE Required for Work Activities:

X☐ Level D – Steel-toed boots, hard hat, safety glasses, work gloves
☐ Mod Level C – Level D PPE, plus nitrile gloves, Tyvek suit, rubber or PVC boots
☐ Level C – Mod Level C PPE, plus respirator (half mask / full mask / ELSA)

Chemicals of Concern on-site:

☐ Low levels of TPH as gasoline, diesel, motor oil, and hydraulic fluid
☐ VOCs ☐ PAHs
☐ PCBs ☐ SVOCs
☐ Pesticides ☐ Metals

Emergency Response:

Medical Emergency	For any major medical emergency - Phone 911 Give location, and wait for paramedic / ambulance
Hospital Location	For less serious medical problem – Refer to Hospital Location Map, Site Safety and Health Plan
Other Emergency	For Security, Environmental or other emergency - Refer to list of Emergency Contacts, Site Safety and Health Plan

Topic(s) Discussed:

Site Safety and Health Daily Briefing conducted by:

Name:_____ Title:_____ Date:_____

Attendees Sign-in:

Please PRINT NAME / COMPANY	SIGNATURE
/	
/	
/	
/	
/	
/	

ATTACHMENT B

Pre-Drilling Protocol

PARSONS COMMERCIAL TECHNOLOGIES GROUP
MANDATORY PRE-DRILLING PROTOCOL
INDUSTRIAL DIVISION

1. INTRODUCTION

Intrusive investigation or excavation of the subsurface in areas developed for commercial, industrial or residential use exposes Parsons to the risk of causing damage to underground utilities and structures on a daily basis.

The potential consequences of causing damage to an underground utility or structure include, but are not limited to the following:

- Injury or loss of life
- Financial responsibility for repair, lost time, and/or loss of service
- Loss of client
- Federal investigation of job site work practices
- Litigation (third party lawsuits)

The mandatory protocol and checklist provided herein are intended as a tool to aid in the management of risk, and ensure that a responsible standard is consistently applied at project sites where intrusion of the subsurface will occur. Please note that this protocol must be included as an attachment to all project specific health and safety plans.

2. PURPOSE

The purpose of this mandatory protocol is the prevention of potential injury and/or loss of life; and damage to subsurface utilities and structures during drilling. The use of the protocol (modified to meet the situation) is highly recommended for any intrusive subsurface operation including excavation and test pitting.

Parsons' staff will evaluate and identify hazards associated with incidents involving underground utilities and other structures encountered during drilling/boring, excavation and other subsurface intrusive activities. This document develops precautionary procedures to prevent damage to underground utilities and structures and will comply with applicable laws.

3. SCOPE

Parsons' staff will employ sound investigative and drilling practices and will use appropriate measures to avoid damage to subsurface utilities and structures. Furthermore, Parsons requires

that these procedures be implemented by all of Parsons' employees and subcontractors, as appropriate. Subcontractors will have a copy of the procedures set forth in Section 6 of this document as an appendix to their contracts.

4. POLICY

Parsons' policy requires that the project manager follow all local, state, and federal laws applying to intrusive subsurface work (i.e. obtain permits, inform agencies, obtain utility clearances, etc). The project manager shall review, as available, all current and historical site drawings and plans from the client, facility owner or tenant, utility providers, municipal government offices (i.e. city engineer or building department) and third parties as appropriate.

The attached Pre-Drilling/Subsurface Checklist for Intrusive Fieldwork **(Attachment A)** shall be completed prior to initiating fieldwork. Note: The *checklist includes a site visit as a requisite to meet with knowledgeable staff as appropriate (plant or station manager, utility representatives, municipal representatives, etc.), and review site conditions and features relative to the proposed locations for intrusive work. The checklist should be turned in to the office Staff Coordinator weekly and a copy should be placed in the project file.*

The procedure described under Section 6 of this document is mandatory at all sites where drilling, augering, boring, or direct push (Geoprobe) activities will take place. Similar procedures are recommended for excavations, test pits and trenching.

The Project Manager is encouraged to find locations that are acceptable to the project team, to perform drilling/boring, test pit excavations or other intrusive work that are not within right-of-ways, streets, highways, or near municipal or third party-owned utility corridors. When it is necessary to conduct work within these areas, the Project Manager should obtain approval from either the Program Manager or Sector Leader and submit the existing work plan to the Division Health & Safety Manager for review.

5. RESPONSIBILITY

It is the responsibility of the Project Manager to ensure that the Pre-Drilling Protocol and checklist are followed at all sites where drilling, boring, and augering or other intrusive methods are required by a work plan implemented by Parsons. **Variance from the Pre-Drilling Protocol is allowed only with the written approval of the Client and the appropriate Parsons' Program Manager or Sector Leader. Local health and safety staff and the Division Health and Safety manager should be consulted as needed. Failure to obtain a variance in writing is grounds for disciplinary action. Copies of all variances should be sent to the Investigation/Studies Technical Resource Manager for filing.**

6. PROCEDURE: PRE-DRILLING PROTOCOL

The Parsons' Project Manager will be responsible for fulfilling the objectives of this protocol by ensuring that the procedures are carried out by Parsons' employees, subcontractors,

and any other person acting on behalf of Parsons. The Parsons' Project Manager will ensure that all individuals working on drilling and other subsurface exploration projects are adequately trained and supervised. Parsons will practice sound investigation and drilling practices and employ all necessary measures to avoid damage to subsurface systems and structures. The Parsons' Program/Project Manager, Sector Leader, and the Client will be contacted and advised in advance of beginning fieldwork in the event that a variance to this protocol is requested by the Parsons' Project Manager or designee. The following tasks/subtasks will be completed at every site and documented on the checklist.

6.1 PRE-INVESTIGATION TASKS

The objective of these tasks is to gather all relevant information about the site to assist in identifying exploration locations and obtaining necessary permits. Please note that in some instances the following information will be obtained/gathered by the drilling subcontractor or other subcontractor. This meets this objective.

6.1.1 Obtain Site Plans

Obtain as-built drawings and/or existing site plans as available. NOTE: As-built drawings may not accurately depict the locations of improvements and subsurface features and should therefore not be solely relied upon to determine drilling or test pit locations.

6.1.2 Obtain Permits

The project staff will observe all local, state, and federal laws, obtain all necessary permits and utility clearances, and secure site access permission. Note: Some permits/clearances require this step to be completed after the exploration locations have been identified and marked in the field. If this is required, proceed with Items 6.2 and 6.3 prior to obtaining permits.

6.1.3 Utility Mark-outs

Parsons' project staff will request a utility mark-out through the local utility locating one-call system for the work site, and document a reasonable degree of effort to locate all main electrical, gas, telephone and all other subsurface utilities. The Parsons' Project Manager must be notified of the status of locating underground utilities before fieldwork progresses. If locating utilities becomes problematic, the Parsons' Project Manager should update the client and discuss potential alternative methods for locating or reducing risk of damage to underground utilities/structures for consideration (i.e. subcontract a private locating service, re-evaluate risk/reward of specific locations or alter field methods). Site plans will be updated as appropriate to include utility mark-out information. On third party sites, close coordination with the site owner's representatives for mark-outs, review of as-builts, and other information reviews should be conducted prior to work. Note: Some utilities require the exploration locations to be identified and marked in the field prior to performing mark-outs. If this is required proceed with Items 6.2 and 6.3 prior to obtaining permits.

6.2 SITE VISIT

A site visit is required to compare the site plan to actual conditions, document all findings, and update the site plan. Parsons will obtain information needed to prepare a vicinity map of the area that may include significant neighboring addresses, land use, surface water bodies, and other natural as well as manmade features of note, as appropriate. The site visit should be scheduled concurrent with, or soon after the utility mark-out. The inspection should include the following activities at a minimum.

6.2.1 Utilities

Note the location of all utility mark-outs and aboveground utilities:

- Area lights
- Phones
- Drain lines
- Overhead lines
- Fire hydrants
- Fiber optic cable signage
- Catch basins
- Manholes
- Junction boxes
- Natural gas
- Other utilities
- Observe paving scars such as areas of new pavement or saw cuts

6.2.2 Plant/Property Systems

If possible, speak with someone having historical site knowledge to gain information about the site (locations of former tanks, lines, etc.). For UST systems:

- Inspect for the presence of a dispenser pan and, if possible, determine whether product piping is rigid or flexible.
- Visually inspect the location of the tank field, observation wells (if present), dispensers and vent stack(s).

- Note the orientation, arrangement, location, sizes, etc. of the tanks and manholes. Estimate the burial depth of the tank field.
- Observe paving scars (i.e. fresh asphalt/concrete patches, scored asphalt/concrete). Note that this may not indicate location of product piping.

6.2.3 Existing Remediation Systems

Visually inspect the location of aboveground components. Note the locations of well manholes, sparge points, etc.

6.2.4 Safety

For UST systems, note the location of the emergency shut off switch and become familiar with its use.

6.3 SELECTION OF DRILLING/TEST PIT LOCATIONS

6.3.1 Critical Zones

Establish pre-drilling critical zones appropriate to the project site. These are zones where no drilling (if possible and if client concurs) will be conducted. As an example, the following critical zones could be applied at a UST site:

- 10ft (3m) distance from the furthest edge of any operating tank
- 10ft (3m) distance surrounding operating dispenser islands
- At active service station sites, the entire area between the tank field and the dispenser islands.
- The zone between 0 and 5-feet of utility markings

6.3.2 Select Drilling Locations

The information collected to this point will be utilized in combination with regulatory requirements and investigation objectives to select drilling locations. It is recommended that alternate drilling locations be selected in case additional explorations are required or obstructions are encountered. The effort to investigate a specific proposed drilling location should be to clear a minimum five-foot radius circle around the location

6.3.3 Review Selected Locations with the Client

At a minimum, offer to review the selected and alternate drilling locations with the client's project manager or designated representative. When completing Geoprobe^{tm} (or similar)

investigations in which some boring locations are not selected in advance, but partially determined in the field based on field screening results, the client should approve the areas in which work will be performed. Do not proceed with the investigation until the plan has been discussed with the client, and approval to proceed has been granted. If relocation of a boring outside approved limits is necessary at any time and for any reason, contact the client prior to proceeding. CLIENT APPROVAL MUST BE DOCUMENTED. Verbal approval is acceptable if followed with written approval. Documentation may include a notation in the field book, email or written correspondence.

6.4. REQUIRED NOTIFICATIONS

Affected parties must be notified at least 48-hours (longer if possible) in advance of planned intrusive fieldwork. An exception would be in the event of an emergency response situation. Parsons' staff will avoid scheduling conflicts with facility activities at the site. The Parsons' Project Manager or designee will notify the following persons as applicable:

- The oversight regulatory agency (includes local fire, police and municipal contacts as appropriate).
- Property owner for private properties. This should include neighboring third party property owners if a potential exists for causing inconvenience as a result of the scheduled fieldwork.
- Client specific notifications as appropriate (i.e. facility maintenance, retail and/or real estate managers as appropriate)

6.5. ON-SITE PRE-DRILLING ACTIVITIES

6.5.1 Safety

A Health and Safety Plan (HASP) must be available on site at all times and all Parsons' staff, contractors and subcontractors must be familiar with it. Parsons' employees are to acknowledge their review of the HASP by signing the signature form contained within the HASP. The Parsons' field team leader is tasked with conducting a tailgate meeting at the start of each day to review project specific health and safety items with staff and subcontractors. Subcontractors, however, are responsible for their own health and safety. All work areas shall be secured with safety cones, safety tape, construction fence, other barriers, or signs as appropriate. If applicable, the emergency shut off switch shall be located and the project staff must be familiar with its use. In addition, a fire extinguisher and "No Smoking" signs must be present at all times.

A copy of this entire drilling protocol and checklist must be appended to the health and safety plan.

6.5.2 Supervision

A Parsons' on-site representative will be responsible for overseeing drilling operations. All surface removal, hand augering/digging, drilling, and test pitting will be performed, observed or

supervised by a Parsons' on-site representative at all times. This representative will ensure that the work is performed with due caution and will be alert for warning signs that could indicate the presence of underground tanks, lines, or other subsurface structures.

6.5.3 Warning Signs

The following warning signs may indicate the presence of a subsurface structure such as tanks/lines:

- Pea Gravel/Sand/Non-indigenous Material.
- The absence of soil recovery in the hand auger. This could indicate pea gravel that has spilled out of the auger.
- Any unexpected departure from the native soil or groundwater conditions as established in other on-site digging.
- Obstructions encountered

If any of the above warning signs or a suspicious condition is encountered, drilling in this area should immediately cease and the Parsons' Project Manager shall be contacted.

6.5.4 Drill Boring Sequence

If possible, the boring sequence should be planned such that the boring furthest from any suspected underground improvements is carried out first. This is done to determine the natural subsurface conditions and to allow the field geologist/scientist to recognize native versus fill conditions. Also, least impacted locations should be done first if possible to prevent possible cross contamination

6.5.5 Surface Removal for Paved Areas

Sufficient paving or surface improvement should be removed to allow clear visibility of the subsurface conditions during hand augering/digging, and allow excavation with hand tools. Drilling in an area of high risk may warrant a larger pavement opening.

- Monitoring Well Installations: 2ft x 2ft (60cm x 60cm) minimum removal is suggested (assumes for example: 6.25-inch hollow stem auger (HSA) or smaller).
- Soil Borings: 8in (20cm) diameter minimum removal is suggested (assumes for example: 3.25-inch HAS or smaller).
- Direct Push Samplers: 4 to 6 in (10 to 15 cm) diameter minimum removal is suggested (assumes for example: 2-inch diameter sample tube).

The technique used should not pose a threat to subsurface structures. Final completion for holes in pavement shall be neatly saw-cut or cored unless otherwise directed by the client.

6.5.6 Clearing the Subsurface for Utilities and Other Structures

Parsons' staff must ensure that no subsurface utilities, structures, or improvements exist where the drill or auger will penetrate. Locations will be cleared using results of historical data research and with geophysical methods (see below for details) at a zone 5 feet in radius around the proposed location. Staff (or personnel supervised by Parsons) will also utilize intrusive, non-destructive procedures such as hand digging to a depth of 5 feet and a diameter or width equivalent to the outside dimensions of the auger to investigate the boring location.

The method used to delineate the subsurface should be compatible with the inherent risk associated with the type of facility/property and the location of the drilling.

Variances: Approval to deviate from this work scope may be granted on an exception basis for specific situations. However, the Parsons' Project Manager will first discuss the situation with the client's project manager or designee and obtain approval of the variance from the client as well as the Parsons' Program Manager or Sector Leader prior to initiating fieldwork.

Proactive investigative methods to clear specific drilling locations will include the following non-invasive and invasive non-destructive methods:

Non-Invasive Geophysical Remote Sensing: Multiple appropriate instruments (ground penetrating radar, electromagnetic detector, magnetometer, metal detector) can be used for this work. Survey an area around the location to a distance of 5 feet using geophysical methods to identify potential subsurface utilities or facilities. Move the borehole location, if necessary, within the cleared circle to avoid an object identified by the geophysical instrument. Examples of geophysical methods are provided below:

- Electromagnetic and radio frequency;
- Ferrous metal or magnetic locators;
- Ground penetrating radar.

Important note: A combination of non-invasive instruments is typically required to clear a subsurface area. For example, a ferrous metal detector will typically not detect metals pipes embedded in concrete duct banks, PVC pipes, fiberglass reinforced plastic (FRP) pipes, or other non-ferrous materials.

Intrusive Non-Destructive Procedures: Delineate the subsurface at the borehole location by probing or digging. Several acceptable methods are discussed below. In some cases,

these intrusive procedures may not be practical due to the subsurface conditions or requirements of the explorations.

- Vacuum Digging: Vacuum digging has proven to be a very effective and safe means of digging and is recommended instead of probing and digging with hand tools. This technology is not appropriate for highly contaminated areas.
- Probing: The probe should have a blunt or rounded tip and should be advanced by hand without excessive force.
- Hand Digging: Should be performed with a small hand garden spade.
- Hand Augering: The auger is to be turned slowly and not forced through the soil. It is recommended that an auger without sharp points (some augers have rounded edges) be used.
- Post Hole Digging: Can be used for soil removal only in soil that has been probed and cannot be used to advance the hole beyond the depth or width of probing.

The area to be cleared for underground utilities or structures for augering shall exceed the diameter of the largest tool (hand auger, drill auger, sampling tube, etc.) to be advanced and sufficiently large to allow for visual inspection of any obstructions encountered. The first 1 - 2ft (0.3 - 0.6m) can be cleared by hand digging to remove the soil. Slowly and carefully probe, vacuum, or hand auger throughout the area to be cleared to ensure that no obstructions exist anywhere near the potential path of the drill auger or push type sampler. The soil in the area to be cleared shall be fully removed during this step. If probing is utilized, alternate probing with soil removal as necessary until the first 5ft (1.5m) have been delineated

6.5.7 Refusal

Where natural subsurface conditions (e.g. cobbles/rocks, fill material, and/or bedrock) may prevent adequate probing and augering, a practical and sensible evaluation by the Parsons' Project Manager will be the basis for determining if continuation of probing and augering is feasible. In all cases Parsons must employ all means necessary to prevent damaging subsurface utilities, product lines, tanks, or other structures. **When conventional means of probing and augering cannot be utilized or the Parsons' field representative believes that additional probing/augering is not feasible, work in that specific area will cease.** The Parsons' Project Manager will contact the client's project manager or designee to discuss alternatives. If Parsons' staff suspects, based on past information or boring logs, that hand augering is infeasible, then alternatives such as vacuum clearing or non-invasive procedures should be evaluated in advance.

6.5.8 Event Notification

If any portion of a tank, pipe, utility or other subsurface structure is encountered, or if there is any doubt it has been encountered, the work is to cease in that area and the Parsons' Project

Manager notified immediately. If there is reason to believe that the structure has been damaged, if applicable, the emergency shut-off switch should be activated. The Parsons' Project Manager and/or client will decide if additional uncovering by hand is required. If it is confirmed that a UST system has been encountered, a tightness test(s) should be considered. Under no circumstances is the area to be backfilled without notifying the Parsons' Project Manager, unless risk of personal injury or damage warrants a temporary backfilling.

In case of refusal or if an unknown subsurface object is encountered while drilling or test pitting, then the following specified resolution process must take place.

- Additional and deliberately careful excavation by hand will be conducted in an attempt to define the cause of refusal or identify the subsurface object.

    a. If the cause CAN be readily and correctly defined as not destructive or hazardous, the field task manager should call the PM to discuss the situation. Then proceed with drilling, if considered safe.

    b. If the cause CAN be readily and correctly defined as potentially destructive or hazardous, the field task manager should call the PM to discuss the situation. The specific location must be reevaluated.

    c. If the cause CANNOT be readily and correctly defined, the field task manager should call the PM to discuss the situation. The specific location must be reevaluated.

- In case "a," drilling may proceed ONLY after consultation with the PM.

- In cases "b" and "c," drilling MUST STOP so that location reevaluation can take place. The client, the utility owner (if applicable) and if required, the appropriate regulatory agency, must be advised of the situation and consulted to determine if (1) the location is necessary, which may require additional effort to clear a new location, or (2) the location is not necessary, and can be deleted from the program.

6.5.9 Scheduling

Since clearing locations for augering, drilling, excavation and similar intrusive fieldwork can be time consuming, it may be appropriate to perform the surface removal subsurface delineation prior to the arrival of subcontractors and their equipment on site. If these activities are conducted prior to the actual drilling day, the cleared locations must be adequately covered with plates and/or backfilled, or barricaded to protect pedestrians and other surface traffic. Care must be taken to prevent settlement of the material used to cover the holes. Note that it is acceptable for drilling or other subcontractors under Parsons direction to perform the clearance activities discussed within this protocol.

APPENDIX B
Site Photographs

Photo 1 – Figueroa sampling location SB-6 (looking north).

Photo 2 – Figueroa sampling location SB-8 and SB-12 (looking south).

Photo 3 – Billboard Poles Located at the Figueroa Pump Station Site (looking east).

Photo 4 – Figueroa sampling location SB-7 (looking southwest).

Photo 5 – Figueroa sampling location SB-10 (looking south).

Photo 6 – Figueroa sampling location SB-11 (looking southeast).

Photo 7 – Figueroa sampling location SB-3 (looking south).

Photo 8 – Figueroa sampling location SB-4 (looking south).

APPENDIX C
Borehole Logs

LOG OF BORING SB-1

Parsons

Project Name:	LADWP Figueroa	**Date Started:**	August 5, 2003
Project Number:	440725 **Logged By:** S. Michener	**Date Complete:**	August 5, 2003
Borehole Location:	Northwest Corner	**Elevation and Datum:**	NA
Drilling Contractor:	Interphase	**Sampling Method:**	Direct Push 1 1/4-inch Acetate sleeves
Drilling Equipment:	Geoprobe 5400	**Borehole Diameter:**	2-inch
Drilling Method:	Direct Push	**Groundwater Depth:**	NA
Hammer Type/Weight:	NA	**Total Depth:**	5.0 feet bgs
Driller:	Danny Alvarez	**Borehole Abandonment:**	Bentonite, Enviroplug #8 (Fine chips) to the surface

Depth (feet)	Sample	Sample Number	Blow Counts	Lithologic Description	USCS	Symbol	Notes
		SB-1-0.5'		Old pavement (AC) at surface Well graded sand, coarse grained, 10YR 5/4,abund coarse granules to 10mm asphalt and brick fragments, slightly moist	SW(AF)		No odors 0825
		SB-1-3.0'		Poorly graded sand, prominent red brown (brick color) beginning at 2.25 feet to 3.0 feet, 10R 4/6, slightly moist, medium grained	SP(AF)		No odors 0830
5		SB-1-5.0'		Poorly graded sand, 10YR 6/2, medium grained, moist, no odor or anthropogenic debris, could be native soil?	SP		No odors 0835
				End of boring at 5.0 feet below ground surface. Groundwater not encountered. Grouted to surface.			
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LOG OF BORING SB-2

Parsons

Project Name:	LADWP Figueroa	**Date Started:**	August 5, 2003
Project Number:	440725 **Logged By:** S. Michener	**Date Complete:**	August 5, 2003
Borehole Location:	Northwest Corner	**Elevation and Datum:**	NA
Drilling Contractor:	Interphase	**Sampling Method:**	Direct Push 1 1/4-inch Acetate sleeves
Drilling Equipment:	Geoprobe 5400	**Borehole Diameter:**	2-inch
Drilling Method:	Direct Push	**Groundwater Depth:**	NA
Hammer Type/Weight:	NA	**Total Depth:**	5.0 feet bgs
Driller:	Danny Alvarez	**Borehole Abandonment:**	Bentonite, Enviroplug #8 (Fine chips) to the surface

Depth (feet)	Sample	Sample Number	Blow Counts	Lithologic Description	USCS	Symbol	Notes
		SB-2-0.5'		Old pavement (AC) at surface Well graded sand, 10YR 4/2, probable coarse grained, moist, trace asphalt granules to 5 mm, fill	SW(AF)		Start drilling 0915 Slight petroleum hydrocarbon odor
		SB-2-3.0'		Well graded sand, coarse grained, AF due to brick, concrete, asphalt fragments, moist, 10YR 4/2, fill	SW(AF)		Slight petroleum hydrocarbon odor 0930
5		SB-2-5.0'		Same as above, but with weathered brick horizon at 4.2 feet, approx. 1-inch thick, well graded, moist, medium to coarse grained, trace (<5%) fines, micaceous, fill	SW(AF)		
				End of boring at 5.0 feet below ground surface. Groundwater not encountered. Grouted to surface.			
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LOG OF BORING SB-3

Parsons

Project Name:	LADWP Figueroa	**Date Started:**	August 5, 2003
Project Number:	440725 **Logged By:** S. Michener	**Date Complete:**	August 5, 2003
Borehole Location:	North Center	**Elevation and Datum:**	NA
Drilling Contractor:	Interphase	**Sampling Method:**	Direct Push 1 1/4-inch Acetate sleeves
Drilling Equipment:	Geoprobe 5400	**Borehole Diameter:**	2-inch
Drilling Method:	Direct Push	**Groundwater Depth:**	NA
Hammer Type/Weight:	NA	**Total Depth:**	5.0 feet bgs
Driller:	Danny Alvarez	**Borehole Abandonment:**	Bentonite, Enviroplug #8 (Fine chips) to the surface

Depth (feet)	Sample	Sample Number	Blow Counts	Lithologic Description	USCS	Symbol	Notes
		SB-3-0.5'		Old pavement (AC) at surface Well graded sand, coarse grained, asphalt debris to 5mm, dark yellowish brown, 10YR 4/2, moist, fill	SW(AF)		Start drilling 0951 Slight petroleum hydrocarbon odor
		SB-3-3.0'		Clayey sand, dark yellowish brown, 10YR 2/2, medium to coarse grained, probable AF due to small asphalt fragments, ~10% silty clay, fill	SC(AF)		
5		SB-3-5.0'		Same as above, clayey sand with abundant mica, moist, concrete fragments to 10mm, fill	SC(AF)		
				End of boring at 5.0 feet below ground surface. Groundwater not encountered. Grouted to surface.			
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30							

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LOG OF BORING SB-4

Parsons

Project Name:	LADWP Figueroa	**Date Started:**	August 5, 2003
Project Number:	440725 **Logged By:** S. Michener	**Date Complete:**	August 5, 2003
Borehole Location:	East Central	**Elevation and Datum:**	NA
Drilling Contractor:	Interphase	**Sampling Method:**	Direct Push 1 1/4-inch Acetate sleeves
Drilling Equipment:	Geoprobe 5400	**Borehole Diameter:**	2-inch
Drilling Method:	Direct Push	**Groundwater Depth:**	NA
Hammer Type/Weight:	NA	**Total Depth:**	5.0 feet bgs
Driller:	Danny Alvarez	**Borehole Abandonment:**	Bentonite, Enviroplug #8 (Fine chips) to the surface

Depth (feet)	Sample	Sample Number	Blow Counts	Lithologic Description	USCS	Symbol	Notes
		SB-4-0.5'		Old pavement (AC) at surface Poorly graded sand, dark yellowish brown, 10YR 4/2, dry, occasional granules to 3 mm	SP		Start drilling 1025 No Odor
		SB-4-3.0'		Poorly graded sand, dark yellowish brown 10YR 4/2, slightly moist, fine grained, 5-10% micaceous fines	SP		No Odor
5		SB-4-5.0'		Sandy clay, dark yellowish brown to greyish orange 10YR 7/4, mottled, micaceous, approx. 35-40% fine to medium grained sand, plastic fines, asphalt debris - fill	CL(AF)		No Odor
				End of boring at 5.0 feet below ground surface. Groundwater not encountered. Grouted to surface.			
10							
15							
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LOG OF BORING SB-5

Parsons

Project Name:	LADWP Figueroa	**Date Started:**	August 5, 2003
Project Number:	440725 **Logged By:** S. Michener	**Date Complete:**	August 5, 2003
Borehole Location:	Northeast Corner	**Elevation and Datum:**	NA
Drilling Contractor:	Interphase	**Sampling Method:**	Direct Push 1 1/4-inch Acetate sleeves
Drilling Equipment:	Geoprobe 5400	**Borehole Diameter:**	2-inch
Drilling Method:	Direct Push	**Groundwater Depth:**	NA
Hammer Type/Weight:	NA	**Total Depth:**	5.0 feet bgs
Driller:	Danny Alvarez	**Borehole Abandonment:**	Bentonite, Enviroplug #8 (Fine chips) to the surface

Depth (feet)	Sample	Sample Number	Blow Counts	Lithologic Description	USCS	Symbol	Notes
		SB-5-0.5'		Gravel and loose dirt at surface Poorly graded sand, pale yellow brown 10YR 6/2, medium grained, granules of granitic rocks to 7mm, trace brick debris, fill	SP(AF)		Start drilling 1047 No Odor
		SB-5-3.0'		Silty sand, moderate yellow brown 10YR 5/4, fine grained sand (65%), non-plastic fines (35%), slightly moist	SM		No Odor
5		SB-5-5.0'		Same as above, but more abundant sand (~80-85%.), Slightly moist	SM		No Odor
				End of boring at 5.0 feet below ground surface. Groundwater not encountered. Grouted to surface.			
10							
15							
20							
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30							

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LOG OF BORING SB-6

Parsons

Project Name:	LADWP Figueroa	**Date Started:**	August 5, 2003
Project Number:	440725 **Logged By:** S. Michener	**Date Complete:**	August 5, 2003
Borehole Location:	Southwest Corner	**Elevation and Datum:**	NA
Drilling Contractor:	Interphase	**Sampling Method:**	Direct Push 1 1/4-inch Acetate sleeves
Drilling Equipment:	Geoprobe 5400	**Borehole Diameter:**	2-inch
Drilling Method:	Direct Push	**Groundwater Depth:**	NA
Hammer Type/Weight:	NA	**Total Depth:**	5.0 feet bgs
Driller:	Danny Alvarez	**Borehole Abandonment:**	Bentonite, Enviroplug #8 (Fine chips) to the surface

Depth (feet)	Sample	Sample Number	Blow Counts	Lithologic Description	USCS	Symbol	Notes
		SB-6-0.5'		Unpaved surface Well graded sand, artificial fill, asphalt and brick fragments, medium to coarse grained, slightly moist	SW(AF)		No Odor
		SB-6-3.0'		Decomposed brick at 2.2 feet. Silty sand, dark yellowish brown 10YR 4/2, fine grained sand (85%), non-plastic fines (15%), moist	SM		No Odor
5		SB-6-5.0'		Silty sand, pale yellow grey 10YR 6/2, very fine grained sand (80%), non-plastic fines (20%), moist, micaceous	SM		
				End of boring at 5.0 feet below ground surface. Groundwater not encountered. Grouted to surface.			
10							
15							
20							
25							
30							

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LOG OF BORING SB-7

Parsons

Project Name:	LADWP Figueroa	**Date Started:**	August 5, 2003
Project Number:	440725 **Logged By:** S. Michener	**Date Complete:**	August 5, 2003
Borehole Location:	Southwest Corner	**Elevation and Datum:**	NA
Drilling Contractor:	Interphase	**Sampling Method:**	Direct Push 1 1/4-inch Acetate sleeves
Drilling Equipment:	Geoprobe 5400	**Borehole Diameter:**	2-inch
Drilling Method:	Direct Push	**Groundwater Depth:**	NA
Hammer Type/Weight:	NA	**Total Depth:**	5.0 feet bgs
Driller:	Danny Alvarez	**Borehole Abandonment:**	Bentonite, Enviroplug #8 (Fine chips) to the surface

Depth (feet)	Sample	Sample Number	Blow Counts	Lithologic Description	USCS	Symbol	Notes
		SB-7-0.5'		Unpaved surface Well graded sand, dry, pale yellow brown, fine grained sand, organic matter (mulch)	SW		Begin drilling 1305 No Odor
		SB-7-3.0'		Poorly graded sand, red brown, appears to be weathered/decomposed brick begins at 2.0 ft, medium grained, moist, fill	SP(AF)		No Odor
5		SB-7-5.0'		Same as above, decomposed bricks persist to 5 ft, fill	SP(AF)		
				End of boring at 5.0 feet below ground surface. Groundwater not encountered. Grouted to surface.			
10							
15							
20							
25							
30							

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LOG OF BORING SB-8

Parsons

Project Name:	LADWP Figueroa	**Date Started:**	August 5, 2003
Project Number:	440725 **Logged By:** S. Michener	**Date Complete:**	August 5, 2003
Borehole Location:	South Central	**Elevation and Datum:**	NA
Drilling Contractor:	Interphase	**Sampling Method:**	Direct Push 1 1/4-inch Acetate sleeves
Drilling Equipment:	Geoprobe 5400	**Borehole Diameter:**	2-inch
Drilling Method:	Direct Push	**Groundwater Depth:**	NA
Hammer Type/Weight:	NA	**Total Depth:**	9.8 feet bgs
Driller:	Danny Alvarez	**Borehole Abandonment:**	Bentonite, Enviroplug #8 (Fine chips) to the surface

Depth (feet)	Sample	Sample Number	Blow Counts	Lithologic Description	USCS	Symbol	Notes
	■	SB-8-0.5'		Unpaved surface Poorly graded sand, medium grained, dark yellowish brown 10YR 4/2, moist	SP		No Odor
	■	SB-8-3.0'		Poorly graded sand, moist, medium grained on top of ~3-inch concrete, could be loose construction rubble, fill	SP(AF)		
5	■	SB-8-5.0'		Well graded sand, medium to coarse grained, dark yellowish brown 10YR 4/2	SW		Saturated conditions interpreted as infiltration from rainfall atop (concrete) remnant tank bottom
	■	SB-8-10.0'		Silty sand, poorly graded, medium grained, 15-20% non-plastic fines, no free hydrocarbon liquids noted	SM		Driller met refusal at 9.8', sample saturated with water and noticeable hydrocarbon odor, apparent bottom of former tank - sample collected from 9.3-9.8 foot interval
10				End of boring at 9.8 feet below ground surface. Groundwater not encountered. Grouted to surface.			
15							
20							
25							
30							

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LOG OF BORING SB-9

Parsons

Project Name:	LADWP Figueroa	**Date Started:**	August 5, 2003
Project Number:	440725 **Logged By:** S. Michener	**Date Complete:**	August 5, 2003
Borehole Location:	South Central	**Elevation and Datum:**	NA
Drilling Contractor:	Interphase	**Sampling Method:**	Direct Push 1 1/4-inch Acetate sleeves
Drilling Equipment:	Geoprobe 5400	**Borehole Diameter:**	2-inch
Drilling Method:	Direct Push	**Groundwater Depth:**	NA
Hammer Type/Weight:	NA	**Total Depth:**	5.0 feet bgs
Driller:	Danny Alvarez	**Borehole Abandonment:**	Bentonite, Enviroplug #8 (Fine chips) to the surface

Depth (feet)	Sample	Sample Number	Blow Counts	Lithologic Description	USCS	Symbol	Notes
		SB-9-0.5'		Unpaved surface Well graded sand, pale yellowish brown 10YR 6/2, slightly moist, fine to medium grained, granules to 3mm, asphalt debris, fill	SW(AF)		Begin drilling 1245 No Odor
		SB-9-3.0'		Silty sand, very fine grained sand (80-85%), non-plastic fines, moist, micaceous, dark yellowish brown 10YR 4/2	SM		No Odor
5		SB-9-5.0'		Silty sand, as described above, moist	SM		
				End of boring at 5.0 feet below ground surface. Groundwater not encountered. Grouted to surface.			
10							
15							
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30							

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LOG OF BORING SB-10

Parsons

Project Name:	LADWP Figueroa	**Date Started:**	August 5, 2003
Project Number:	440725 **Logged By:** S. Michener	**Date Complete:**	August 5, 2003
Borehole Location:	South Central	**Elevation and Datum:**	NA
Drilling Contractor:	Interphase	**Sampling Method:**	Direct Push 1 1/4-inch Acetate sleeves
Drilling Equipment:	Geoprobe 5400	**Borehole Diameter:**	2-inch
Drilling Method:	Direct Push	**Groundwater Depth:**	NA
Hammer Type/Weight:	NA	**Total Depth:**	5.0 feet bgs
Driller:	Danny Alvarez	**Borehole Abandonment:**	Bentonite, Enviroplug #8 (Fine chips) to the surface

Depth (feet)	Sample	Sample Number	Blow Counts	Lithologic Description	USCS	Symbol	Notes
		SB-10-0.5'		Unpaved surface Poorly graded sand, fine grained, dry, very pale orange 10YR 8/2	SP		Begin drilling 1225 No Odor
		SB-10-3.0'		Poorly graded sand, very fine to fine grained, dry to slightly moist, moderate yellowish brown 10YR 5/4	SP		No Odor
5		SB-10-5.0'		Silty sand, dark yellowish brown 10YR 4/2, very fine to fine grained sand, 10-15%, non-plastic fines, moist	SM		No Odor
				End of boring at 5.0 feet below ground surface. Groundwater not encountered. Grouted to surface.			
10							
15							
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LOG OF BORING SB-11

Parsons

Project Name:	LADWP Figueroa	**Date Started:**	August 5, 2003
Project Number:	440725 **Logged By:** S. Michener	**Date Complete:**	August 5, 2003
Borehole Location:	South Central	**Elevation and Datum:**	NA
Drilling Contractor:	Interphase	**Sampling Method:**	Direct Push 1 1/4-inch Acetate sleeves
Drilling Equipment:	Geoprobe 5400	**Borehole Diameter:**	2-inch
Drilling Method:	Direct Push	**Groundwater Depth:**	NA
Hammer Type/Weight:	NA	**Total Depth:**	5.0 feet bgs
Driller:	Danny Alvarez	**Borehole Abandonment:**	Bentonite, Enviroplug #8 (Fine chips) to the surface

Depth (feet)	Sample	Sample Number	Blow Counts	Lithologic Description	USCS	Symbol	Notes
		SB-11-0.5'		Well graded sand, pale yellowish brown, 10YR 6/2, dry, fine asphalt fragments to 2mm, artificial fill, medium grained sand	SW(AF)		Begin drilling 1205 No Odor
		SB-11-3.0'		Silty sand, dark yellowish brown 10YR 4/2, fine grained sand (~70%), non-plastic fines (~30%), micaceous	SM		No Odor
5		SB-11-5.0'		Silty sand, dark yellowish brown 10YR 4/2, very fine to fine grained sand (80%), non-plastic fines (20%), very micaceous	SM		No Odor
				End of boring at 5.0 feet below ground surface. Groundwater not encountered. Grouted to surface.			
10							
15							
20							
25							
30							

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LOG OF BORING SB-12

Parsons

Project Name:	LADWP Figueroa	**Date Started:**	August 5, 2003
Project Number:	440725 **Logged By:** S. Michener	**Date Complete:**	August 5, 2003
Borehole Location:	South Central	**Elevation and Datum:**	NA
Drilling Contractor:	Interphase	**Sampling Method:**	Direct Push 1 1/4-inch Acetate sleeves
Drilling Equipment:	Geoprobe 5400	**Borehole Diameter:**	2-inch
Drilling Method:	Direct Push	**Groundwater Depth:**	NA
Hammer Type/Weight:	NA	**Total Depth:**	5.0 feet bgs
Driller:	Danny Alvarez	**Borehole Abandonment:**	Bentonite, Enviroplug #8 (Fine chips) to the surface

Depth (feet)	Sample	Sample Number	Blow Counts	Lithologic Description	USCS	Symbol	Notes
		SB-12-0.5'		Well graded sand, medium to coarse grained, dry, pale yellowish green 10YR 6/2, concrete fragments to 7mm, fill	SW(AF)		
		SB-12-4.0'		Tree root at 2.5-3.0 feet, collect sample from 3.5-4.0 feet	SW(AF)		No Odor
5		SB-12-5.0'		Well graded sand, coarse grained, dark yellowish brown 10YR 4/2, slightly moist, fine concrete fragments, fill			
				End of boring at 5.0 feet below ground surface. Groundwater not encountered. Grouted to surface.			
10							
15							
20							
25							
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APPENDIX D
Laboratory Analytical Reports for Soil Samples

Applied P & Ch Laboratory
13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

Submitted to:
Parsons Engineering Science
Attention: Tim Wendler
100 W. Walnut Street
Pasadena CA 91124
Tel: (626)585-6000 Fax: (626)440-6200

Service ID #: 801-034472
Collected by: Nita / Stuart.
Collected on: 08/05/03

Received: 08/05/03
Extracted: 08/06/03
Tested: 08/06-08/03
Reported: 08/11/03

Sample Description: Soil
Project Description: LADWP

Analysis of Soil Samples

Component Analyzed	Method	Unit	PQL	Analysis Result SB-1-3 03-04472-1	SB-1-5 03-04472-2	SB-1-0.5 03-04472-3	SB-2-3 03-04472-4
MOISTURE	ASTM-D2216	%Moisture	0.5	13.3	13.5	2.5	5.8
Dilution Factor				1	1	1	1
ARSENIC	6010B	mg/kg	0.3	1.2	2.1	4.0	4.1
LEAD	6010B	mg/kg	0.3	1.2	38.7	109	90.9
MERCURY	7471A	mg/kg	0.2	0.013J	0.20J	0.12J	0.097J
Dilution Factor				1.26	0.97	1.0	1.04
PHC AS GASOLINE	M8015V	mg/kg	1	0.03J	0.02J	0.02J	0.03J
Dilution Factor				1	1	10	5
PHC AS DIESEL FUEL	M8015E	mg/kg	10	<12	30	80J	51J
Dilution Factor				1	1	10	5
MOTOR OILS	M8015E	mg/kg	10	<12	120	850	600

Component Analyzed	Method	Unit	PQL	Analysis Result SB-2-5 03-04472-5	SB-2-0.5 03-04472-6	SB-3-3 03-04472-7	SB-3-5 03-04472-8
MOISTURE	ASTM-D2216	%Moisture	0.5	7.3	8.0	16.2	23.0
Dilution Factor				1	1	1	1
ARSENIC	6010B	mg/kg	0.3	1.9	1.1	3.9	2.9
LEAD	6010B	mg/kg	0.3	3.5	50.0	30.3	31.9
MERCURY	7471A	mg/kg	0.2	0.13J	0.22J	0.091J	0.16J
Dilution Factor				0.98	1.0	1.01	1.01
PHC AS GASOLINE	M8015V	mg/kg	1	<1.1	0.02J	0.02J	0.02J
Dilution Factor				1	10	1	20
PHC AS DIESEL FUEL	M8015E	mg/kg	10	<11	230	4J	780
Dilution Factor				1	10	1	20
MOTOR OILS	M8015E	mg/kg	10	23	760	82	2,900

Applied P & Ch Laboratory
13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result SB-3-0.5 03-04472-9	SB-4-3 03-04472-10	SB-4-5 03-04472-11	SB-4-0.5 03-04472-12
MOISTURE	ASTM-D2216	%Moisture	0.5	6.3	8.7	3.7	6.9
Dilution Factor				1	1	1	1
ARSENIC	6010B	mg/kg	0.3	3.7	3.9	4.0	5.7
LEAD	6010B	mg/kg	0.3	184	98.6	23.9	181
MERCURY, HG	7471A	mg/kg	0.2	0.16J	0.10J	0.13J	0.13J
Dilution Factor				1.0	1.23	0.98	1.0
PHC AS GASOLINE	M8015V	mg/kg	1	0.02J	0.02J	<1.0	0.02J
Dilution Factor				5	5	20	5
PHC AS DIESEL FUEL	M8015E	mg/kg	10	53	170	240	31J
Dilution Factor				5	5	20	5
MOTOR OILS	M8015E	mg/kg	10	450	1,000	2,500	300

Component Analyzed	Method	Unit	PQL	Analysis Result SB-5-3 03-04472-13	SB-5-5 03-04472-14	SB-5-0.5 03-04472-15
MOISTURE	ASTM-D2216	%Moisture	0.5	9.2	9.9	6.1
Dilution Factor				1	1	1
ARSENIC	6010B	mg/kg	0.3	2.5	2.2	2.2
LEAD	6010B	mg/kg	0.3	3.6	3.1	3.5
MERCURY, HG	7471A	mg/kg	0.2	0.056J	0.11J	0.078J
Dilution Factor				1.15	1.08	1.0
PHC AS GASOLINE	M8015V	mg/kg	1	<1.3	0.02J	<1.1
Dilution Factor				1	1	1
PHC AS DIESEL FUEL	M8015E	mg/kg	10	<11	<11	<11
Dilution Factor				1	1	1
MOTOR OILS	M8015E	mg/kg	10	<11	<11	<11

Component Analyzed	Method	Unit	PQL	Analysis Result SB-1-3 03-04472-1	SB-1-5 03-04472-2	SB-2-3 03-04472-4	SB-2-5 03-04472-5
BTXE							
Dilution Factor				1.26	0.97	1.04	0.98
BENZENE	8021B	µg/kg	5	<7.3	0.5J	0.4J	<5.3
ETHYLBENZENE	8021B	µg/kg	5	2J	0.3J	2J	0.6J
TOLUENE	8021B	µg/kg	5	1J	0.6J	0.4J	0.4J
O-XYLENE	8021B	µg/kg	5	1J	0.6J	2J	<5.3
M,P-XYLENE	8021B	µg/kg	10	3J	1J	6J	0.8J

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APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result SB-3-3 03-04472-7	SB-3-5 03-04472-8	SB-4-3 03-04472-10
BTXE						
Dilution Factor				1.01	1.01	1.23
BENZENE	8021B	µg/kg	5	0.7J	<6.6	<6.7
ETHYLBENZENE	8021B	µg/kg	5	0.8J	1J	1J
TOLUENE	8021B	µg/kg	5	0.4J	0.5J	0.5J
O-XYLENE	8021B	µg/kg	5	0.6J	0.5J	0.5J
M,P-XYLENE	8021B	µg/kg	10	1J	1J	1J

Component Analyzed	Method	Unit	PQL	Analysis Result SB-4-5 03-04472-11	SB-5-3 03-04472-13	SB-5-5 03-04472-14
BTXE						
Dilution Factor				0.98	1.15	1.08
BENZENE	8021B	µg/kg	5	<5.1	<6.3	<6.0
ETHYLBENZENE	8021B	µg/kg	5	0.8J	0.8J	1J
TOLUENE	8021B	µg/kg	5	0.4J	0.5J	0.4J
O-XYLENE	8021B	µg/kg	5	0.4J	0.4J	2J
M,P-XYLENE	8021B	µg/kg	10	1J	1J	3J

PQL: Practical Quantitation Limit. MDL: Method Detection Limit. CRDL: Contract Required Detection Limit

N.D.: Not Detected or less than the practical quantitation limit. "-": Analysis is not required.

J: Reported between PQL and MDL.

† All results are reported on dry basis for soil samples.

Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

Respectfully submitted,

Dominic Lau
Laboratory Director
Applied P & Ch Laboratory

Applied P & Ch Laboratory

APCL

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Chain of Custody

Please Print in pen Page 1 of 3

Client: Parsons Contact: Stuart Michaels Tel #: (626)440-6000 Fax #:

Address: 100 W. Walnut St City: Pasadena State: CA Zip code: 91124

Bill to:

Project Name/Code LADWP Job # P.O. #

Project Address 5800 Figueroa St. APCL Quotation #

Due Date: [X] regular [ ] rush: ___ days ___ hours Sampled by: Nita & Stuart

Field Sample ID No.	Sample Description	Date Collected	Time	Sample Matrix	Preservation	# of Containers	BTEX (8021B)	TPH-g (8015m)	TPH-d (8015m)	TPH-ext. range (8015m)	Arsenic (6010B)	Lead (6010B)	Mercury (7471A)
SB-1-0.5	Subsurface Soil	8-5-03	0825	Soil	4°C	1		X	X	X	X	X	X
SB-1-3	"	"	0830	"	"	5	X	X	X	X	X	X	X
SB-1-5	"	"	0835	"	"	5	X	X	X	X	X	X	X
SB-2-0.5	"	"	0915	"	"	1		X	X	X	X	X	X
SB-2-3	"	"	0925	"	"	5	X	X	X	X	X	X	X
SB-2-5	"	"	0930	"	"	5	X	X	X	X	X	X	X
SB-3-0.5	"	"	0955	"	"	1		X	X	X	X	X	X
SB-3-3	"	"	1000	"	"	5	X	X	X	X	X	X	X
SB-3-5	"	"	1005	"	"	5	X	X	X	X	X	X	X
SB-4-0.5	"	"	1030	"	"	1	X	X	X	X	X	X	X
SB-4-3	"	"	1035	"	"	5	X	X	X	X	X	X	X
SB-4-5	"	"	1040	"	"	5	X	X	X	X	X	X	X
SB-5-0.5	"	"	1050	"	"	1		X	X	X	X	X	X
SB-5-3	"	"	1055	"	"	5	X	X	X	X	X	X	X
SB-5-5	"	"	1100	"	"	5	X	X	X	X	X	X	X

White – With report
Yellow – Lab copy
Pink – Originator

Remarks

4172

*Contact Tim Wendler (626) 440-4000

QC Requirement: [ ] Regular; [ ] QA/QC Report; [ ] WIP; [ ] Raw Data; [ ] Extended Raw Data [ ] CLP; [ ] ACE [ ] AFCEE [ ] NEESA ___ (E, C or D); [ ] Other _____ (Please specify)

Sample Disposal: [ ] Return [ ] Disposal by APCL [ ] Hold for _____ days after receiving date. **If not specified, samples will be discarded 45 days after samples are received.**

Sample Conditions: [ ] Intact; [ ] Broken. Cooler Seal: [ ] Intact; [ ] Broken; [ ] None. Tag # _____ Temperature: [ ] Room [ ] Cold (_____ °C).

Relinquished by Jane O. Knacke Date/Time 8-5-03 1620 Received by John Flippin Date/Time 8/5/03 1820

Relinquished by John Flippin Date/Time 8/5/03 1845 Received by Paul C Date/Time 8/5/03 1845

APCL USE ONLY Service # Note:

Clients understand that all terms described in the proposals, quotations for this project, and/or the general terms provided in the current APCL price schedules will be followed. APCL reserves the right to terminate its service or withhold delivery of any reports, if in APCL's sole discretion the terms of the project have been broken.

APCL Form 4-101, Ver. 4.0, Dec. 20, 1994. Root-file:/CUST_DATA_LA/CHAIN_ROOT.TEX

Applied P & Ch Laboratory
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APCL Analytical Report

Submitted to:
Parsons Engineering Science
Attention: Stuart Michener
100 W. Walnut Street
Pasadena CA 91124
Tel: (626)585-6000 Fax: (626)440-6200

Service ID #: 801-034474
Collected by: Nita/Stuart.
Collected on: 08/05/03

Received: 08/05/03
Extracted: 08/06/03
Tested: 08/06-11/03
Reported: 08/18/03

Sample Description: Soil and Water from 5800 Figueroa St.
Project Description: LADWP

Analysis of Water and Soil Samples

I . Analysis of Water Samples

Component Analyzed	Method	Unit	PQL	Analysis Result TB-080503 03-04474-27
BTXE				
Dilution Factor				1
BENZENE	8021B	µg/L	0.5	<0.5
ETHYLBENZENE	8021B	µg/L	0.5	<0.5
TOLUENE	8021B	µg/L	0.5	0.2J
O-XYLENE	8021B	µg/L	0.5	0.5J
M,P-XYLENE	8021B	µg/L	1	1

II . Analysis of Soil Samples

Component Analyzed	Method	Unit	PQL	Analysis Result SB-6-3 03-04474-1	SB-6-5 03-04474-2	SB-6-0.5 03-04474-3	SB-7-3 03-04474-4
MOISTURE	ASTM-D2216	%Moisture	0.5	8.4	7.4	14.0	12.5
Dilution Factor				1	1	1	1
ARSENIC	6010B	mg/kg	0.3	1.2	0.71	1.9	1.2
LEAD	6010B	mg/kg	0.3	3.2	2.9	173	108
MERCURY	7471A	mg/kg	0.2	0.047J	0.11J	0.061J	0.076J
Dilution Factor				0.93	0.94	1	1
PHC AS GASOLINE	M8015V	mg/kg	1	0.02J	<1.0	0.02J	<1.1
Dilution Factor				1	1	4	1
PHC AS DIESEL FUEL	M8015E	mg/kg	10	<11	<11	13J	11
Dilution Factor				1	1	4	1
MOTOR OILS	M8015E	mg/kg	10	9J	<11	590	74

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APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result SB-7-5 03-04474-5	SB-7-0.5 03-04474-6	SB-8-3 03-04474-7	SB-8-5 03-04474-8
MOISTURE	ASTM-D2216	%Moisture	0.5	22.3	7.0	11.0	14.8
Dilution Factor				1	1	1	1
ARSENIC	6010B	mg/kg	0.3	0.55	4.2	1.6	2.1
LEAD	6010B	mg/kg	0.3	1.7	126	46.5	126
Dilution Factor				1	1	3	1
MERCURY	7471A	mg/kg	0.2	0.022J	0.39	2.7	2.1
Dilution Factor				1	1	1	1
Dilution Factor				0.98	1	1.14	1.29
PHC AS GASOLINE	M8015V	mg/kg	1	<1.3	0.02J	0.05J	0.1J
Dilution Factor				1	50	5	5
PHC AS DIESEL FUEL	M8015E	mg/kg	10	2J	830	22J	28J
Dilution Factor				1	50	5	5
MOTOR OILS	M8015E	mg/kg	10	<13	1,900	220	180

Component Analyzed	Method	Unit	PQL	Analysis Result SB-8-0.5 03-04474-9	SB-8-10 03-04474-10	SB-9-3 03-04474-11	SB-9-5 03-04474-12
MOISTURE	ASTM-D2216	%Moisture	0.5	7.3	20.7	11.8	8.1
Dilution Factor				1	1	1	1
ARSENIC	6010B	mg/kg	0.3	2.7	7.0	1.3	1.5
LEAD	6010B	mg/kg	0.3	125	401	4.7	3.3
MERCURY	7471A	mg/kg	0.2	0.18J	0.54	0.060J	0.092J
Dilution Factor				1	1.35	0.92	0.96
PHC AS GASOLINE	M8015V	mg/kg	1	0.02J	0.04J	<1.0	<1.0
Dilution Factor				1	25	1	1
PHC AS DIESEL FUEL	M8015E	mg/kg	10	7J	560	<11	<11
Dilution Factor				1	25	1	1
MOTOR OILS	M8015E	mg/kg	10	67	1,300	6J	4J

Component Analyzed	Method	Unit	PQL	Analysis Result SB-9-0.5 03-04474-13	SB-10-3 03-04474-14	SB-10-5 03-04474-15	SB-10-0.5 03-04474-16
MOISTURE	ASTM-D2216	%Moisture	0.5	6.5	9.0	9.4	7.0
Dilution Factor				1	1	1	1
ARSENIC	6010B	mg/kg	0.3	1.6	0.62	1.2	1.3
LEAD	6010B	mg/kg	0.3	5.5	3.5	4.8	85.5
MERCURY	7471A	mg/kg	0.2	0.13J	0.075J	0.12J	0.12J
Dilution Factor				1	1.06	1.08	1
PHC AS GASOLINE	M8015V	mg/kg	1	0.02J	<1.2	<1.2	0.02J
Dilution Factor				1	1	1	5
PHC AS DIESEL FUEL	M8015E	mg/kg	10	<11	<11	<11	23J
Dilution Factor				1	1	1	5
MOTOR OILS	M8015E	mg/kg	10	<11	<11	<11	230

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APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result SB-11-3 03-04474-17	SB-11-5 03-04474-18	SB-11-0.5 03-04474-19	SB-12-4 03-04474-20
MOISTURE	ASTM-D2216	%Moisture	0.5	9.7	8.6	6.1	6.8
Dilution Factor				1	1	1	1
ARSENIC	6010B	mg/kg	0.3	2.1	0.39	0.77	1.7
LEAD	6010B	mg/kg	0.3	4.2	3.8	5.0	46.5
MERCURY	7471A	mg/kg	0.2	0.074J	0.070J	0.085J	0.17J
Dilution Factor				1.11	0.96	1	0.97
PHC AS GASOLINE	M8015V	mg/kg	1	<1.2	<1.1	0.02J	0.02J
Dilution Factor				1	1	4	25
PHC AS DIESEL FUEL	M8015E	mg/kg	10	<11	<11	44	200J
Dilution Factor				1	1	4	25
MOTOR OILS	M8015E	mg/kg	10	<11	<11	190	1,500

Component Analyzed	Method	Unit	PQL	Analysis Result SB-12-5 03-04474-21	SB-12-0.5 03-04474-22	SB-55-5 03-04474-23
MOISTURE	ASTM-D2216	%Moisture	0.5	9.7	5.8	9.6
Dilution Factor				1	1	1
ARSENIC	6010B	mg/kg	0.3	3.3	3.4	1.6
LEAD	6010B	mg/kg	0.3	115	140	2.8
MERCURY, HG	7471A	mg/kg	0.2	<0.22	0.0072J	0.0097J
Dilution Factor				1.01	1	0.97
PHC AS GASOLINE	M8015V	mg/kg	1	0.02J	<1.1	<1.1
Dilution Factor				1	5	1
PHC AS DIESEL FUEL	M8015E	mg/kg	10	14	64	<11
Dilution Factor				1	5	1
MOTOR OILS	M8015E	mg/kg	10	190	920	<11

Component Analyzed	Method	Unit	PQL	Analysis Result SB-66-0.5 03-04474-24	SB-99-0.5 03-04474-25	SB-100-0.5 03-04474-26
MOISTURE	ASTM-D2216	%Moisture	0.5	4.1	7.7	5.5
Dilution Factor				1	1	1
ARSENIC	6010B	mg/kg	0.3	2.3	3.2	2.0
LEAD	6010B	mg/kg	0.3	271	103	44.3
MERCURY	7471A	mg/kg	0.2	<0.21	0.038J	<0.21
Dilution Factor				1	1	1
PHC AS GASOLINE	M8015V	mg/kg	1	<1.0	<1.1	<1.1
Dilution Factor				10	4	5
PHC AS DIESEL FUEL	M8015E	mg/kg	10	65J	25J	28J
Dilution Factor				10	4	5
MOTOR OILS	M8015E	mg/kg	10	1,500	200	600

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APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result SB-6-3 03-04474-1	SB-6-5 03-04474-2	SB-7-3 03-04474-4	SB-7-5 03-04474-5
BTXE							
Dilution Factor				0.93	0.94	1	0.98
BENZENE	8021B	µg/kg	5	0.5J	< 5.1	< 5.7	< 6.3
ETHYLBENZENE	8021B	µg/kg	5	1J	1J	1J	1J
TOLUENE	8021B	µg/kg	5	0.6J	0.6J	0.5J	0.4J
O-XYLENE	8021B	µg/kg	5	0.6J	0.4J	0.5J	0.7J
M,P-XYLENE	8021B	µg/kg	10	1J	1J	1J	1J

Component Analyzed	Method	Unit	PQL	Analysis Result SB-8-3 03-04474-7	SB-8-5 03-04474-8	SB-8-10 03-04474-10	SB-9-3 03-04474-11
BTXE							
Dilution Factor				1.14	1.29	1.35	0.92
BENZENE	8021B	µg/kg	5	7	5J	0.5J	< 5.2
ETHYLBENZENE	8021B	µg/kg	5	2J	2J	2J	0.6J
TOLUENE	8021B	µg/kg	5	0.6J	1J	0.8J	0.4J
O-XYLENE	8021B	µg/kg	5	2J	2J	1J	< 5.2
M,P-XYLENE	8021B	µg/kg	10	4J	4J	2J	0.9J

Component Analyzed	Method	Unit	PQL	Analysis Result SB-9-5 03-04474-12	SB-10-3 03-04474-14	SB-10-5 03-04474-15	SB-11-3 03-04474-17
BTXE							
Dilution Factor				0.96	1.06	1.08	1.11
BENZENE	8021B	µg/kg	5	< 5.2	< 5.8	< 6.0	< 6.1
ETHYLBENZENE	8021B	µg/kg	5	0.7J	1J	1J	1J
TOLUENE	8021B	µg/kg	5	0.3J	0.4J	0.4J	0.6J
O-XYLENE	8021B	µg/kg	5	0.4J	0.5J	0.4J	0.5J
M,P-XYLENE	8021B	µg/kg	10	0.9J	1J	1J	1J

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APCL Analytical Report

Component Analyzed	Method	Unit	PQL	Analysis Result SB-11-5 03-04474-18	SB-12-4 03-04474-20	SB-12-5 03-04474-21	SB-55-5 03-04474-23
BTXE							
Dilution Factor				0.96	0.97	1.01	0.97
BENZENE	8021B	µg/kg	5	<5.3	0.4J	<5.6	<5.4
ETHYLBENZENE	8021B	µg/kg	5	0.5J	1J	0.9J	0.7J
TOLUENE	8021B	µg/kg	5	0.3J	0.6J	0.6J	0.3J
O-XYLENE	8021B	µg/kg	5	0.4J	0.8J	0.5J	0.4J
M,P-XYLENE	8021B	µg/kg	10	0.8J	2J	1J	1J

PQL: Practical Quantitation Limit. MDL: Method Detection Limit. CRDL: Contract Required Detection Limit

N.D.: Not Detected or less than the practical quantitation limit. "-": Analysis is not required.

J: Reported between PQL and MDL.

† All results are reported on dry basis for soil samples.

Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

Respectfully submitted,

Dominic Lau
Laboratory Director
Applied P & Ch Laboratory

Applied P & Ch Laboratory

APCL

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Chain of Custody

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Client: Parsons Contact: Stuart Michaels Tel #: (626) 440-6103 Fax #:

Address: 100 E. Walnut St City: Pasadena State: Zip code:

Bill to:

Project Name/Code LADWP Job # P.O. #

Project Address 5800 Figueroa St APCL Quotation #

Due Date: ☒ regular ☐ rush: ___ days ___ hours Sampled by: Nita & Stuart

Field Sample ID No.	Sample Description	Date Collected	Time	Sample Matrix	Preservation	# of Containers	BTEX (8021B)	TPH-g (8015m)	TPH-d (8015m)	TPH-extractables (8015m)	Arsenic (6010B)	Lead (6010B)	Mercury (7471A)	Remarks
SB-55-5	Subsurface Soil	8-5-03	1105	Soil	4°C	5	X	X	X	X	X	X	X	
SB-11-0.5	↓		1210	↓	↓	1		X	X	X	X	X	X	
SB-11-3			1215			5	X	X	X	X	X	X	X	
SB-11-5			1220			5	X	X	X	X	X	X	X	
SB-10-0.5			1230			1		X	X	X	X	X	X	4474
SB-100-0.5			1235			1		X	X	X	X	X	X	
SB-10-3			1240			5	X	X	X	X	X	X	X	
SB-10-5			1245			5	X	X	X	X	X	X	X	
SB-9-0.5			1247			1		X	X	X	X	X	X	
SB-99-0.5			1250			1		X	X	X	X	X	X	
SB-9-3			1255			5	X	X	X	X	X	X	X	
SB-9-5			1305			5	X	X	X	X	X	X	X	
SB-7-0.5			1315			1		X	X	X	X	X	X	
SB-7-3			1320			5	X	X	X	X	X	X	X	
SB-7-5	↓		1325	↓	↓	5	X	X	X	X	X	X	X	

White – With report
Yellow – Lab copy
Pink – Originator

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☐ Raw Data; ☐ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☐ NEESA ___ (E, C or D); ☐ Other _____ (Please specify)

Sample Disposal: ☐ Return ☐ Disposal by APCL ☐ Hold for _____ days after receiving date. **If not specified, samples will be discarded 45 days after samples are received.**

Sample Conditions: ☐ Intact; ☐ Broken. Cooler Seal: ☐ Intact; ☐ Broken; ☐ None. Tag # _____ Temperature: ☐ Room ☐ Cold (_____ °C).

Relinquished by Jane Odlode Date/Time 8-5-03 / 1600 Received by John Flippin Date/Time 8/5/03 / 1620

Relinquished by John Flippin Date/Time 8/5/03 / 1845 Received by Paul C Date/Time 8/5/03 / 1845

APCL USE ONLY Service # Note:

Clients understand that all terms described in the proposals, quotations for this project, and/or the general terms provided in the current APCL price schedules will be followed. APCL reserves the right to terminate its service or withhold delivery of any reports, if in APCL's sole discretion the terms of the project have been broken.

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APCL

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Chain of Custody

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Client: Parsons Contact: Stuart Michener Tel #: Fax #:

Address: 100 W. Walnut St Pasadena State: Zip code:

Bill to:

Project Name/Code LADWP Job # P.O. #

Project Address 5800 Figueroa St APCL Quotation #

Due Date: ☒ regular ☐ rush: ___ days ___ hours Sampled by: Nita & Stuart

Analysis Items

Field Sample ID No.	Sample Description	Date Collected	Time	Sample Matrix	Preservation	# of Containers	BTEX (8021B)	TPH-g (8015m)	TPH-d (8015m)	TPH ext. range (8015m)	Arsenic (6010B)	Lead (6010B)	Mercury (7471A)	Remarks
SB-6-0.5	Subsurface Soil	8-5-03	1335	Soil	4°C	1		X	X	X	X	X	X	
SB-6A-0.5		8-5-03	1340			1		X	X	X	X	X	X	
SB-6-3		8-5-03	1345			5	X	X	X	X	X	X	X	
SB-6-5			1350			5	X	X	X	X	X	X	X	
SB-12-0.5			1400			1		X	X	X	X	X	X	
SB-12-4			1405			5	X	X	X	X	X	X	X	4474
SB-12-5			1410			5	X	X	X	X	X	X	X	
SB-8-0.5			1435			1		X	X	X	X	X	X	
SB-8-3			1445			5	X	X	X	X	X	X	X	
SB-8-5			1450			5	X	X	X	X	X	X	X	
SB-8-10			1455			5	X	X	X	X	X	X	X	
TB-080503		8-5-03		H_2O	HCL	2								

White – With report
Yellow – Lab copy
Pink – Originator

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☐ Raw Data; ☐ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☐ NEESA ___ (E, C or D); ☐ Other _____ (Please specify)

Sample Disposal: ☐ Return ☐ Disposal by APCL ☐ Hold for _____ days after receiving date. **If not specified, samples will be discarded 45 days after samples are received.**

Sample Conditions: ☐ Intact; ☐ Broken. Cooler Seal: ☐ Intact; ☐ Broken; ☐ None. Tag # _____ Temperature: ☐ Room ☐ Cold (_____ °C).

Relinquished by Jane O. Tuttle Date/Time 8-5-03 / 1620 Received by John Flippin Date/Time 8/5/03 1620

Relinquished by John Flippin Date/Time 8/5/03 / 1845 Received by Paul C Date/Time 8/5/03 / 1845

APCL USE ONLY Service # Note:

APPENDIX E
Parsons Lab Analytical Data Validation Report

Laboratory Data Validation Report

Forty one subsurface soil samples (four of which are duplicate samples) and one trip blank water sample were collected on August 5, 2003 for the LADWP Figueroa Project. Samples were submitted to Applied P&CH Laboratory (APCL), Chino, California for the following tests:

(1) BTEX (EPA 8021B)
(2) TPH as Gasoline & Diesel (EPA 8015M)
(3) TPH for Extended Range (EPA 8015M)
(4) Arsenic and Lead (EPA 6010B)
(5) Mercury (EPA 7471)

Results for these samples are summarized in APCL report numbers **801-034472 and 801-034474.** The validation process included review of the following data as provided by the laboratory:

- Holding Times
- Method and Trip Blanks
- System Monitoring Compounds: Surrogate compounds for organic tests by GC and GC/MS
- Matrix Spike/Matrix Spike Duplicate
- Reporting Limits
- Duplicate Samples, and
- Laboratory Control Samples
- Data Anomalies
- Case Narrative: if necessary

1.0 HOLDING TIMES

Holding times were met for project samples. Sample **cooler temperatures were not registered** upon receipt at the laboratory. All analyses were performed within the required holding time.

2.0 METHOD AND TRIP BLANKS

Target compounds were not detected in any method blanks associated with project samples. They were all below the reporting limits. As a result, no corrective action was necessary.

3.0 SYSTEM MONITORING COMPOUNDS

Surrogate recoveries were within in-house generated acceptance limits for all designated analyses and associated QC samples.

4.0 MATRIX SPIKE (MS)/MATRIX SPIKE DUPLICATE (MSD)

MS/MSD analyses were performed with each analytical batch. MS/MSD results were within the acceptance criteria when reported except for the test of Silver. Since the corresponding LCS/ LCSD analyses and RPD are in control, the results are reportable.

5.0 REPORTING LIMITS

Reporting limits (RLs) were generally acceptable based on suggested reporting limits from EPA protocols and the SW-846 guideline.

6.0 DUPLICATES SAMPLES

Four duplicate samples were collected for this particular project. They are soil samples with IDs as follows: **SB-55-5, SB-100-0.5, SB-99-0.5, and SB-66-0.5**. Results of duplicate sample analysis were comparable to those of the prime samples.

7.0 LABORATORY CONTROL SAMPLES

All LCS recoveries associated with project sample analyses were within the in-house generated acceptance limits.

8.0 DATA ANOMALIES

No anomalies were identified during this sampling event

9.0 CASE NARRATIVES: COMMENTS ON SPECIAL ISSUES

Not applicable.