2012 Integrated Report Data Submittal Information Form

Contact Information

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Submission Information

Submittal Date:	8/15/2010		
Region data intended for: (Check all that apply.)	☐ *(1) North Coast*	☐ *(2) San Francisco*	☐ *(3) Central Coast*
	☒ *(4) Los Angeles*	☐ *(5) Central Valley*	☐ *(6) Lahontan*
	☐ *(7) Colorado River*	☐ *(8) Santa Ana*	☐ *(9) San Diego*
GIS map layers included:	☐ Yes		
Pollutant Categories:	☐ *Hydromodification*	☐ *Other Organics*	☐ *Toxicity*
	☐ *Metals/Metalloids*	☐ *Pathogens*	☐ *Trash*
	☒ *Nuisance*	☐ *Pesticides*	☐ *Miscellaneous*
	☐ *Nutrients*	☐ *Salinity*	
	☐ *Other Inorganics*	☐ *Sediment*	
Time Period Data Collected:	–		

Summary of Data:

The following studies/correspondences are included in this submittal:
-Pollution Report (2002), EPA Region IX
-Correspondence (2002) from Michael P. Brown, Manager, Geotechnical Engineering Division, Bureau of Engineering, City of Los Angeles and attachment (Hydrocarbon Seep Investigation, Dec 19, 2001)
-Correspondence (2002) from Steven Poole, Claims Manager, United States Coast Guard, National Pollution Funds Center

The available information does not suggest an impairment of Los Angeles River Reaches 2 and 5 due to naturally occuring crude oil that cannot be controlled as opposed to fuel leaks. This conclusion is supported by results of investigations by various agencies including EPA. See summary of findings in the attached letter to EPA, Aug. 11, 2010. We request that the pollutant-waterbody combinations be removed from the 303 (d) list.

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CALIFORNIA

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August 18, 2010

Cindy Lin, EPA TMDL Liaison
US EPA Region IX, Southern CA Office
600 Wilshire Blvd, Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin:

INFORMATION TO SUPPORT REASSESSMENT AND DELISTING OF OIL IN LOS ANGELES RIVER REACH 2 AND REACH 5

The City of Los Angeles, Bureau of Sanitation, Watershed Protection Division (WPD) appreciates the opportunity to provide the following information to re-evaluate the status of the Los Angeles River Reach 2 and Reach 5 oil listings as they relate to USEPA's current process for developing TMDLs for these listings.

WPD requests that the US EPA make a finding of non-impairment for the oil listings for Los Angeles River reaches 2 and 5, based on the information provided in this letter which indicates that the occurrence of oil in these reaches is due to naturally-occurring crude oil that cannot be controlled. This finding will allow the City to focus its scarce resources on water bodies that are impaired and on pollutants causing the impairment. This letter provides a summary of the available reports (which are included as attachments) compiled by various agencies.

1. STUDIES USED IN THE ANALYSIS

The following studies/correspondences were used in the analysis:

- Pollution Report (2002), EPA Region IX
- Correspondence (2002) from Michael P. Brown, Manager, Geotechnical Engineering Division, Bureau of Engineering, City of Los Angeles
- Correspondence (2002) from Steven Poole, Claims Manager, United States Coast Guard, National Pollution Funds Center

Despite repeated efforts by WPD to obtain the historical information utilized to develop the original listing, the Regional Board has not provided the information for inclusion in the analysis. Therefore, the analysis is based solely on recent information available to WPD.

1.1 Summary of Findings

The source of oil seeping into the River was found to be naturally-occurring crude oil. This conclusion is supported by the results of investigations completed by various agencies, which are summarized below.

1.1.1 Investigations of the Geotechnical Engineering Division, Bureau of Engineering, City of Los Angeles – June 2001

An investigation was conducted following seeps of petroleum hydrocarbons into the engineered channel of the River across from the Piper Center in June 2001. Based on lab results and borings, this study concluded that the source of the Los Angeles River channel oil seeps is naturally-occurring crude oil from Puente formation sands.

The samples of the oil seeps and associated bacterial-growth scums revealed that the seeps were predominantly in the oil or heavy-hydrocarbon range. This supports the conclusion that the River oil seeps are natural crude oil as opposed to fuel leaks.

Drilling of wells along Mission St. (east of the river channel) confirmed that oil-bearing Puente formation sands and fractures are the source of crude oil and gases, which migrate into the shallow alluvial soils. The hydrocarbons, visible oil and PID readings generally increased with depth toward the Puente formation.

Oil was visible in Puente formation seams, partings and fractures, as well as sand lenses, and appeared to have migrated upward into sandy alluvial soils. Gasses encountered included hydrogen sulfide, commonly sources from crude oil reservoirs. The hydrocarbon seeps appeared to be concentrated where the Puente formation contacts with younger, less permeable units or layers.

1.1.2 Pollution Report, EPA – January 2002

The EPA On-Scene Coordinator (OSC) conducted extensive subsurface investigations of the oil seeps in the Los Angeles River during August and September 2001. Based on the investigation, the OSC found that the oil did not discharge to the River as a result of a spill, leak, or discharge from any facility. The oil has been discharging to the river since the least 1943 and there is no practical means of preventing this oil seep from discharging to the River.

The OSC also evaluated the use of epoxy or urethane sealants on the seeps to reduce the flow of oil. However, it was concluded that the use of sealants on the seeps would cause the oil to get into the subdrain system and eventually enter the River.

1.1.2 Correspondence from Steven Poole, Claims Manager, United States Coast Guard, National Pollution Funds Center – April 2002

On April 19, 2002, an email was sent to Steven Pederson of City of Los Angeles /Watershed Protection Division (WPD) by Steven Poole of US Coast Guard/National Pollution Funds Center (USGC/NPFC). Mr. Steven Poole stated that City of Los Angeles cannot submit to USGC/NPFC a claim for reimbursement for cost incurred by the City associated with May 2001 oil clean-up efforts in the LA River because Title 1 of the Oil Pollution Act does not allow for reimbursement for **naturally-occurring oil** (natural seepage).

In summary, WPD attempted to evaluate the original listing information in light of the currently available information. Although the Regional Board did not provide the information, the reports and correspondence discussed herein, and attached to this letter, indicate that multiple agencies believe that the oil found in the listed reaches of the Los Angeles River is associated with naturally occurring seepage. We request that USEPA make a finding of non-impairment based on this information.

Thank you for your consideration of this information. If you have any questions, please feel free to contact Shokoufe Marashi, Ph.D. at (213) 485-3937.

Sincerely,

for/ ENRIQUE C. ZALDIVAR, Director
Bureau of Sanitation

Attachments (4)

cc: Traci Minamide, Bureau of Sanitation/EXEC
Adel Hagekhalil, Bureau of Sanitation/EXEC
Mas Dojiri, Bureau of Sanitation/EMD
Omar Moghaddam, Bureau of Sanitation/RAD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

POLLUTION REPORT

Date: 15 JAN 2002

Subject: L.A. River Oil Seeps

From: Robert M. Mandel

To: Distribution List

POLREP # FOUR and FINAL

I. BACKGROUND

Response Authority: OPA
Category of Removal: Emergency Response
Site Status: non-NPL
Federal Project No: **A01026**
State Notification: RWQCB, CDFG,OES
Start Date: 05 June 01
Completion Date: TBD

II. SITE DESCRIPTION

A. Incident Category: Oil seeps

B. Site Location: Los Angeles River at Main St bridge and Los Angeles River at Cesar Chavez Bridge.

C. Site description: On 17 May 01, City of L.A. staff responded to reports of oil in the L.A. River near 445 N. Mission and Cesar Chavez St. They reported to NRC, State OES on 18 May and responded by sand-bagging the area to keep oil from reaching the low flow channel in the center of the River. This portion of the River is entirely within a concrete basin. Another seep was discovered 1 mile north near the Main St. bridge. On 24 May a sheen entered the L.A. River, prompting the City to hire a cleanup contractor for the response.

CA DFG collected oil samples on 25 May and the City increased its monitoring. On 30 May CA DFG ordered improved containment, and more monitoring. On 30 May, City completely removed all oil from affected areas.

Since 31 May, oil has re-appeared in the same seeps, and is being contained behind sand bags and in storm drains behind underflow dams.

III. RESPONSE INFORMATION

A. Current Situation

All sand bags and sorbent booms were removed from the seeps area prior to the onset of the rainy season. Since November 2001, the seeps area has been inundated most of the time and will continue to be until the end of the rainy season, about April 2002.

Based on extensive subsurface investigations conducted during August and September 2001, the OSC concluded that the oil seeps into the Los Angeles River were naturally-occurring oil, that this oil did not discharge to the River as the result of a spill or leak or discharge from any facility, that this oil has been discharging to the Los Angeles River since at least 1943, and that there is no practical means of preventing this oil seep from discharging to the River.

OSC approached the US Army Corps of Engineers, who built and now maintain the structures in and around the Los Angles River, with the idea of using epoxy or urethane sealants which could be applied to the seeps areas to reduce the flow of oil (estimated at 10 gals/week from both seeps combined). The Corps advised against the use of sealants on the concrete portion of the River stating, in part *"...The crude oil will get into the channel through the subdrain system which we are not going to seal. The crude oil would get into the channel by migrating underneath to joints and weepholes which are not sealed. A portion of the slab would be lifted resulting in displacement along a joint or fracturing of the slab. The crude oil would enter the channel through the new fracture.*

Getting crude oil into the subdrain system could result in the deposition of the heavier fractions which would then plug the subdrain system up. The subdrain system would then have to be cleaned most likely by removing the slab and processing the subdrain materials.

Should the slab be fractured, we would have to decide how to repair it."

A final meeting with interested Agencies was held in Los Angeles on 10 JAN 2002 to explain the findings, hear the Corps' comments and reasoning on the use of sealants, and to announce the de-mobilization of the response.

B. Future Plans
None.

IV. COSTS

Estimated Costs to Date:	EPA	$175,000
	PRFA	100,000
	Total	$275,000
	FPN Ceiling	$550,000

V. STATUS

Case Closed, contact FOSC Mandel at 415/ 972-3040

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Department of Fish and Game

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Los Angeles District

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Mark Caywood
Fish and Game Lieutenant

Guardians of Our Wildlife Heritage—A Proud Tradition of Wildlife Law Enforcement

U.S. Army Corps of Engineers
Los Angeles District
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(323) 839-0736

CITY OF LOS ANGELES
INTERDEPARTMENTAL CORRESPONDANCE

Date: January 2, 2002

To: Steve Pederson, Chief Industrial Waste Inspector
Stormwater Management Division
Bureau of Sanitation

From: Michael P. Brown, Manager
Geotechnical Engineering Division
Bureau of Engineering

Subject: PIPER TECHNICAL CENTER-DEEP BORINGS IN KELLER STREET –FOR LOS ANGELES RIVER CHANNEL OIL SEEP NEAR CESAR CHAVEZ AVENUE BRIDGE (File 00-007) W.O. EXX11145

PURPOSE OF THE INVESTIGATION

In response to your request of last summer when oil seeps were discovered, attached is the Geotechnical Engineering Division (GED) subsurface investigation report for the area west of the Los Angeles River channel. The purpose is to establish the origin of oil seeps in the Los Angeles River channel east of Piper Technical Center. This investigation, west of the channel, was undertaken to support the investigation of EPA's Superfund Technical Assessment and Response Team (START). The latter provided a subsurface investigation at two areas of oil seeps in the Los Angeles River channel and to the east of the channel. Oil was observed leaking at low flow rates from seams, cracks and previously-drilled bore holes in the concrete lining of the river channel in June 2001. Graffiti written in the oil and signed with dates indicates that the seeps date back to at least the 1940s. The oil appeared to be heavy crude-like oil, accompanied by groundwater flow and with only minor gas bubbles.

This investigation provides data from west of the river channel at the southern-most seep, located between Cesar Chavez Avenue and the 101 (Hollywood) Freeway. Keller Street is located east of the 70 acre Piper Technical Center and west of the Los Angeles River channel. The goal was to compare chemical and geologic data from both sides of the river channel to determine if the oil seeps are from natural crude deposits common in the area or from a man-made source such as leaking fuel oil tanks or pipelines.

BACKGROUND AND PREVIOUS INVESTIGATIONS IN THE AREA

The following is a discussion of petroleum hydrocarbon occurrences in the area, which is part of the very oil-rich Los Angeles Basin.

GED is in the process of providing a full Phase II site assessment and remedial plan for the Piper Technical Center. The Center, and at least portions of the surrounding MTA properties, Union Station Gateway Center and County "Twin Towers" jail, occupy the site of a former manufactured gas plant. The November 8, 2001, *Site Summary, Piper Technical Center,* by

Pinnacle Environmental, summarizes the results of 16 borings and 13 groundwater wells advanced by our consultant, chiefly to delineate leaks from underground fuel tanks. Fifteen current or former USTs in 7 locations have been investigated by GED. Groundwater occurs at an average 31 feet below existing ground surface (bgs), and flows to the south at an average gradient of 0.0017 ft/ft. Eight of the wells are impacted by dissolved-phase fuel hydrocarbons, volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCs). Additional wells are pending installation. Lead has been found in some soil locations at elevated levels. City forces have drilled several additional locations for UST or hydraulic hoist replacement at the Center. Bedrock has not been encountered in the borings; sand and gravel with some cobbles predominate the soil types. The office also investigated the MTA-owned lot east of Piper Center between Keller Street and the Los Angeles River. Eleven soil borings found jet fuel contaminating the upper 5 feet of soil in the southwest corner of the property, near a former above-ground jet fuel tank. The contamination in Piper Technical Center and the MTA lot are not of the type or quantity to have caused the Los Angeles River oil seeps.

Samples of the oil seeps and associated bacterial-growth scums were taken by the City of Los Angeles' Division of Standards, Department of General Services at your request and chemically analyzed. These samples revealed that the seeps were predominantly in the oil or heavy-hydrocarbon range (Standards Division report to your office dated June 14, 2001.) This also supports the conclusion that the River oil seeps are natural crude oil as opposed to fuel leaks.

This office drilled several relatively deep exploratory wells along Mission Street (east of the river channel) recently for a major sewer project. The results confirm that oil-bearing Puente formation sands and fractures are the source of crude oil and gases, which migrate into the shallow alluvial soils. The hydrocarbons, visible oil and PID readings, generally increase with depth toward the Puente formation. The Puente formation is well documented in the Los Angles Basin as a source and reservoir of crude oil and gas. The formation outcrops or is near the surface near Mission Road and Gallardo Street, north of the Cesar Chavez Bridge, but bedrock becomes deeper to the south, to about 90 feet near the 101 Freeway and Mission Road. Oil is visible in Puente formation seams, partings and fractures, as well as sand lenses, and appears to have migrated upward into sandy alluvial soils. Gasses encountered include hydrogen sulfide, commonly sourced from crude oil reservoirs. The hydrocarbon seeps appear to be concentrated where the Puente formation contacts with younger, less permeable units.

A soil boring advanced to 55 feet bgs for the seismic retrofit of the Cesar Chavez Bridge northeast of Piper Center (west bank) encountered gravelly fill and alluvium (no Puente formation bedrock), groundwater at 39. 5 feet bgs, and no obvious hydrocarbon contamination.

The area of investigation is surrounded by oil fields and exploratory wells. Oil Field Map number 119 of the California Division of Oil, Gas and Geothermal Resources indicates that the seep near the Cesar Chavez Avenue Bridge is near a 1923 abandoned wildcat well, the *F.F. Hoard #1.* There are individual and clusters of abandoned wildcat or exploratory wells throughout the area, suggesting that some subcommercial oil has been encountered, and thereby encouraged drillers in the past. Oil was and is abundant in the subsurface of the area, though not necessarily in sufficient flow rates to develop a commercial oil field. The area is approximately 1/2 mile northeast of the abandoned Union Station Oil Field, which is a faulted homocline

producing from the upper Puente formation sands at an average depth of 900 feet since 1890. This also indicates the presence of abundant shallow crude oil. The Union Station Oil Field produced less tarry (or "heavy") or more mobile crude oil and was driven by solution gas, which provided pressure within the oil reservoir. The area is slightly over 1 mile southeast of the Los Angeles City Oil field, which was discovered by surficial oil seeps. This field has produced heavy, tarry oil and much water from shallow upper Puente formation sands since 1890. The area is approximately 1 mile north-northwest of the abandoned Boyle Heights Oil Field, also a Puente formation oil reservoir. Oil-bearing sediments, whether economical or not, are therefore common in the area.

Oil seeps along the Los Angeles River north of the Freeway are reported by Yerkes, et al., 1977, U.S. Geological Survey Map MF-866.

RESULTS OF THE CURRENT INVESTIGATION

Two borings were advanced using continuous flight hollow-stem augers to 100 feet bgs; the locations in Keller Street are depicted on Figure 2 of the attached report, as a re the boring logs.

Lithology noted in the two borings, and the several other borings in the area of the Piper Technical Center, consists of alluvial and fluvial soils, chiefly sands and gravels with some cobbles. This contrasts with the Puente formation bedrock noted in shallow borings east of the Los Angeles River. Groundwater was encountered at 30 and 35 feet bgs. Visible oil staining was not evident in the two borngs.

Laboratory analysis of samples indicates that hydrocarbons, primarily heavy oils, up to a maximum of 2,238 parts per million (ppm) were measured, mostly at deeper zones. Only very small amounts of volatiles were measured. Metals were at normal background levels, including vanadium, which is typically elevated in crude oil. The hydrocarbons are likely from the former manufactured gas plant than either crude oil or underground fuel tank leaks.

CONCLUSIONS

This investigation indicates that Puente formation oil sands or related oil seeps in the area of Piper Technical Center do not come to within 100 feet of the surface as they do east of the channel, and underground tank leaks are not the source of seepages in the channel.

This office agrees with the START conclusions regarding the source of the Los Angeles River channel oil seeps as being naturally-occurring crude oil from the Puente formation sands. The role of groundwater flowing in the gravel fill below the concrete river channel facilitates the oil migration.

If you have any questions with this report, please contact Mike Mulhern, EG 1507, HG 306 of GED at (213) 847-4011.

Attachment: *Hydrocarbon Seep Investigation,* Dec. 19, 2001, Pinnacle Environmental Technologies

Cc: Raul Macias, Superintendent, Piper Technical Center, Department of General Services
Angela Sherrick, Fleet Re-engineering, Department of General Services
Benjamin Castellana, Ecology & Environment, Inc. (START team)
John Dorsey, City of L.A./SMD
Keith Pritsker, City Attorney's Office
Paul Frost, Division of Oil, Gas and Geothermal Resources
Peter Raftery, LA Regional Water Quality Control Board

HYDROCARBON SEEP INVESTIGATION

Piper Technical Center
555 Ramirez Street
Los Angeles, California

December 19, 2001

Prepared for:

Geotechnical Engineering Division

Prepared by:

PINNACLE
ENVIRONMENTAL TECHNOLOGIES
2 Santa Maria
Foothill Ranch, California 92610
(949) 470-3691

Keith G. Thompson, R.G., C.Hg.
Principal

REGISTERED GEOLOGIST
KEITH G. THOMPSON
No. 5513

William E. Malvey
Principal

EXECUTIVE SUMMARY

Pinnacle Environmental Technologies (Pinnacle) has completed an investigation of the subsurface along the right of way of Keller Street (Figure 1) adjacent to the Piper Technical Center. This report documents the field procedures and observations, laboratory methods and results, and conclusions of the investigation.

The following summary of work and conclusions are based on the results of this investigation:

- Pinnacle advanced two soil borings to a depth of 100 feet bgs in the right-of-way of Keller Street, immediately adjacent to the Piper Technical Center on September 13 and 14, 2001.

- The Piper Technical Center is located on the site of the former Towne Gas Plant – a coal gasification plant that operated for over four decades from around 1900 to 1945. That site is currently in an active investigation under the direction of the California EPA – DTSC.

- Soil types encountered were silts, silty-sands, sands, and gravels consistent with those expected to be deposited in a fluvial sedimentary environment such as the Los Angeles River. Bedrock (Fernando Formation) was not encountered, but is reported to be at approximately 105 to 110 feet bgs beneath Keller Street.

- Laboratory analysis of five soil samples collected from the two borings indicates that presence of heavy-end hydrocarbons typical of the known contaminants from the Towne Gas plant or crude oils and an absence of light-end hydrocarbons typical of motor fuels. Hydrocarbon speciation indicates that the majority of the hydrocarbon fraction is above C22.

- Volatile organic compounds were not detected with the exception of xylenes which was detected at very low concentrations.

- Metals detected in the five soil samples are consistent with those generally occurring as background in the Los Angeles Metropolitan area. Vanadium concentrations are typical of normal sediments and not of a source in natural crude oils.

- The detected hydrocarbons are likely the result of the former Towne Gas Plant and not natural petroleum seeps or recent activity at the Piper Technical Center.

TABLE OF CONTENTS

INTRODUCTION

Pinnacle Environmental Technologies (Pinnacle) has completed an investigation of the subsurface along the right of way of Keller Street (Figure 1) adjacent to the Piper Technical Center. This report documents the field procedures and observations, laboratory methods and results, and conclusions of the investigation.

BACKGROUND AND STUDY AREA INFORMATION

The Piper Technical Center is owned and operated by the City of Los Angeles and houses support services for a variety of City Departments and groups. These include the LAPD heliport; carpentry, electrical and sheet metal shops; communications and information technology support shops; vehicle repair shops; a portion of the City Department of Transportation; and, other miscellaneous support shops and storage areas. Several former and current underground storage tanks USTs) were/are operated at the site. The City is currently conducting a site investigation to determine the potential extent of possible contamination that may have resulted from the modern UST installations at the Piper Center site.

Keller Street borders the Piper Technical Center along its' southeast side. The Los Angeles River is located immediately adjacent to Keller Street (Figures 1 & 2) within 300 feet of the curb line. The Los Angeles River flows towards the south – southeast in the vicinity of the study area. The study area is at an approximate elevation of 280 feet above mean sea level.

The Piper Technical Center, and Keller Street, are located on the site of the former Towne Gas plant, which was a coal gasification plant operated from approximately the turn of the 20th Century until around the time of World War II. The Towne Gas Plant Site is currently under investigation by the SEMPRA Energy Company under the supervision of the California EPA – Department of Toxic Substances Control (DTSC).

The Towne Gas plant site has been recognized as having possibly contributed a significant environmental impact to the soil and groundwater beneath what is now the Piper Technical Center and several other surrounding properties including the Twin Towers Jail Complex and the adjacent Gateway Center. Heavy-end hydrocarbons produced during the coal gasification are present in the soil and groundwater in the vicinity of the Piper Center site.

OBJECTIVE

The objective of this investigation was to investigate the soil conditions at two locations along Keller Street to augment an emergency response the United States Environmental Protection Agency (USEPA) was conducting along portions of the Los Angeles River in the vicinity of the Piper Technical Center. The California Department of Fish and Game observed what appeared to be seeps of petroleum hydrocarbons into the engineered channel of the Los Angeles River across from the Piper Center. USEPA initiated an emergency response with the objective of determining the source of the seep and to propose possible mitigation. Seeps have not observed or documented on the western (Piper Center) side of the Los Angeles River channel.

FIELD METHODS

Pinnacle drilled and sampled two soil borings, designated HC-1 and HC-2, to depths of 100 feet below ground surface (bgs) on September 13 and 14, 2001 (Figure 2). The purpose of these two borings was to provide lithologic descriptions and to collect samples for laboratory analysis. A representative from the firm of Ecology and Environment (ENE), the USEPA emergency response contractor, was onsite during the drilling and sampling of boring HC-1.

Borings were accomplished using a truck-mounted CME 95 hollow-stem auger drill rig equipped with 12-inch O.D. continuous flight hollow-stem augers. Representative soil samples were collected at 5-foot intervals commencing at 5-feet bgs and continuing to the total depth of each of the two borings.

A 140-pound downhole hammer was used to drive a standard SPT split-spoon sampler at each sample interval. The sample interval, blow counts, sample time, and field screening values were recorded on the logs maintained by the onsite Pinnacle professional. Soils were logged in general accordance with the Unified Soil Classification System (USCS – ASTM D2487).

Splits of each soil sample interval were placed in a Ziploc® baggie and used for field screening for volatile organic vapors, hydrogen sulfide and methane. VOC screening was accomplished using a PhotoVac Model 2020 Photoionization detector (PID). Hydrogen sulfide and methane screening was completed suing a Gastech Model 302GT vapor analyzer. Each instrument was calibrated prior to the start of work each day.

Soil from selected intervals was placed in laboratory cleaned 4-ounce glass jars equipped with a Teflon® lined cap. All other samples were laid out on a plastic sheet for visual inspection and logging. Samples collected in the glass jars were labeled, sealed, and placed in an ice chest cooled with ice for transport to the laboratory. Five soil samples were collected and delivered to C&E Environmental Laboratories in Santa Fe Springs, California. C&E is a California state-certified environmental laboratory. Proper chain-of-custody protocol was followed for all sample collection and transport. Four samples were collected from discrete sample depth intervals (HC-1-75, HC-1-100, HC-2-40, and HC-2-90) and one sample (HC-2-COMP) was collected as a composite sample of the interval between 60 and 70 feet bgs in boring HC-2. Insufficient groundwater accumulated in the borings to allow for collection of groundwater grab samples.

Each hole was abandoned by using a tremmie pipe to pump a cement and bentonite grout mixture into the borehole. An asphalt patch was placed at the surface of each boring to match the exiting street surface.

General field procedures are presented in Appendix A. Boring logs are presented in Appendix B.

LABORATORY METHODS AND RESULTS

Five soil samples were delivered to C&E laboratories for analysis as follows:

- Total Recoverable Petroleum Hydrocarbons (TRPH) – EPA Method 418.1
- Total Recoverable Petroleum Hydrocarbons (full range) – EPA Method 8015M
- Volatile Organic Compounds and Fuel Oxygenates – EPA Method 8260
- CAM 17 Metals by the applicable EPA Methods

The following results were obtained on the samples analyzed during this investigation:

- TRPH was detected in all five soil samples at concentrations ranging from 72 parts per million (ppm) (HC-1-75) to 2,238 ppm (HC-2-COMP).

- TPH-G (gasoline range C6 – C12) was detected in three of the five samples at concentrations ranging from 1.6 ppm (HC-2-90) to 40.9 ppm (HC-2-40). TPH-G was not detected in the two soil samples analyzed from boring HC-1.

- TPH-D (diesel range C13 – C22) was detected in three of the five analyzed soil samples at concentrations ranging from 301 ppm (HC-2-90) to 930 ppm (HC-2-COMP). TPH-D was not detected in the two soil samples analyzed from boring HC-1.

- TPH-WO (heavy end TPH C23 – C40) was detected in three of the five analyzed soil samples at concentrations ranging from 319 ppm (HC-2-40) to 592 ppm (HC-2-COMP). TPH-WO was not detected in the two soil samples analyzed from boring HC-1.

- VOC's were detected in two of the five soil samples analyzed. The only VOC constituent detected was total xylenes, which were detected in samples HC-2-90 and HC-2-COMP at concentrations of 9 ppb and 8 ppb, respectively. All other VOC compounds analyzed by EPA Method 8260 were below the method detection limits.

- Metals were detected in all five soil samples analyzed as follows:
  Barium was detected at concentrations between 17 and 85 ppm in five samples.
  Chromium was detected at concentrations between 2 and 9 ppm in five samples.
  Copper was detected at concentrations between 3 and 16 ppm in four samples.
  Lead was detected at concentrations between 2 and 6 ppm in four samples.
  Nickel was detected at a concentration of 15 ppm in one sample.
  Vanadium was detected at concentrations between 5 and 23 ppm in five samples.
  Zinc was detected at concentrations between 9 and 44 ppm in five samples.

- These metals concentrations are all consistent with levels typically observed in the Los Angeles Metropolitan area.

DISCUSSION

The soil beneath the area of Keller Street were observed to be predominantly sand and gravels typical of those present near the Los Angeles River. Bedrock was not encountered in either of the two borings (HC-1 and HC-2) at depths up to 100 feet bgs. Gravels and cobbles up to several inches in diameter were observed in the soil cuttings. The study area apparently is located on a thick sedimentary alluvial section deposited by the Los Angeles River.

SEMPRA Energy reports (personal communication) that bedrock is likely to be present beneath Keller Street at an estimated depth of 105 to 110 feet bgs. This is based on drilling they have completed as part of their DTSC directed site assessment work.

Bedrock in the area is the Fernando Formation, which is typically a dark green Formation comprised of silts, silty-sands, and fine-grained sands. The Fernando Formation is usually very dense and does not contain free water.

Groundwater was observed in both borings at approximately 30 to 35 feet bgs. This is consistent with the information Pinnacle has obtained from wells installed in Keller Street and on the Piper Center site. This is approximately coincident with the current bottom of the engineered channel of the Los Angeles River.

The hydrocarbons detected in the soil samples analyzed during this investigation are generally lacking in light end compounds typical of refined motor fuels. Specifically benzene toluene, and ethylbenzene. The hydrocarbon ranges detected also indicate a heavier-end component versus a lighter-end component. TRPH averaged 1,039 ppm compared to an average TPH-G (gasoline range) concentration of 83 ppm. TPHD & TPHWO averaged 590 ppm and 429 ppm respectively. These results indicate that refined motor fuels are likely not the source of the hydrocarbons detected during this investigation.

The high average TRPH and TPH-D/WO concentrations, low TPH-G concentrations and lack of VOC compounds (except for xylenes) indicate that the source may be either residual contamination from the former Towne Gas Plant or may be sourced from natural petroleum seeps in the area.

Considering the very thick alluvial section that the site is located on and the presence of the former Towne Gas plant at the same location it is more likely that the detected hydrocarbon impact is a result of the Towne Gas Plant and not natural crude oil seeps. The sandy/gravelly alluvial sediments observed in the samples collected during this investigation did not show evidence of substantial staining or other physical evidence of natural hydrocarbon migration such as crude oil blebs.

In addition, the natural seeps noted in the vicinity of the study area are all located across the LA River to the east of the site. Bedrock was also observed to be at a significantly shallower depth on the east side of the LA River. Pinnacle observed bedrock at a depth of 40 feet bgs while observing drilling operations directly to the east, across the LA River, from the site.

The conclusion regarding the source is also supported by the generally low vanadium concentration detected in the soil samples. According the Freidman & Bruya (Personal communication, 2001) natural petroleum hydrocarbons from the LA Basin generally evidence higher concentrations of vanadium, generally in excess of 40 to 50 ppm. One sample (HC-1-75) had a vanadium concentration of 44 ppm, but the other four soil samples were all below 13 ppm for vanadium.

SUMMARY AND CONCLUSIONS

The following summary of work and conclusions are based on the results of this investigation:

- Pinnacle advanced two soil borings to a depth of 100 feet bgs in the right-of-way of Keller Street, immediately adjacent to the Piper Technical Center on September 13 and 14, 2001.

- The Piper Technical Center is located on the site of the former Towne Gas Plant – a coal gasification plant that operated for over four decades from around 1900 to 1945. That site is currently in an active investigation under the direction of the California EPA – DTSC.

- Soil types encountered were silts, silty-sands, sands, and gravels consistent with those expected to be deposited in a fluvial sedimentary environment such as the Los Angeles River. Bedrock (Fernando Formation) was not encountered, but is reported to be at approximately 105 to 110 feet bgs beneath Keller Street.

- Laboratory analysis of five soil samples collected from the two borings indicates that presence of heavy-end hydrocarbons typical of the known contaminants from the Towne Gas plant or crude oils and an absence of light-end hydrocarbons typical of motor fuels. Hydrocarbon speciation indicates that the majority of the hydrocarbon fraction is above C22.

- Volatile organic compounds were not detected with the exception of xylenes which was detected at very low concentrations.

- Metals detected in the five soil samples are consistent with those generally occurring as background in the Los Angeles Metropolitan area. Vanadium concentrations are typical of normal sediments and not of a source in natural crude oils.

- The detected hydrocarbons are likely the result of the former Towne Gas Plant and not natural petroleum seeps or recent activity at the Piper Technical Center.

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
TOTAL PETROLEUM HYDROCARBONS

PIPER TECHNICAL CENTER
555 Ramirez Street
Los Angeles, California

Sample ID	DEPTH	TRPH	TPH-G (C6-C12)	TPH-D (C13-C22)	TPH-WO (C23-C40)
	(feet)	EPA 418.1	EPA 8015M		
HC-1-75	75	**72**	ND	ND	ND
HC-1-100	100	**423**	ND	ND	ND
HC-2-40	40	**1,734**	**40.9**	**539**	**319**
HC-2-90	90	**640**	**1.6**	**301**	**395**
HC-2-COMP	Composite (60-70)	**2,328**	**40.5**	**930**	**572**
MDL		10	0.1	10.0	50.0

All values reported in milligrams per kilogram
ND - Not detected above the specified detection limit
MDL = Method Detection Limit

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS

PIPER TECHNICAL CENTER
555 Ramirez Street
Los Angeles, California

Sample ID	DEPTH (feet)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	MTBE (ppb)
		EPA 8260				
HC-1-75	75	ND	ND	ND	ND	ND
HC-1-100	100	ND	ND	ND	ND	ND
HC-2-40	40	ND	ND	ND	ND	ND
HC-2-90	90	ND	ND	ND	**9**	ND
HC-2-COMP	Composite (60-70)	ND	ND	ND	**8**	ND
MDL		5	5	5	5	10

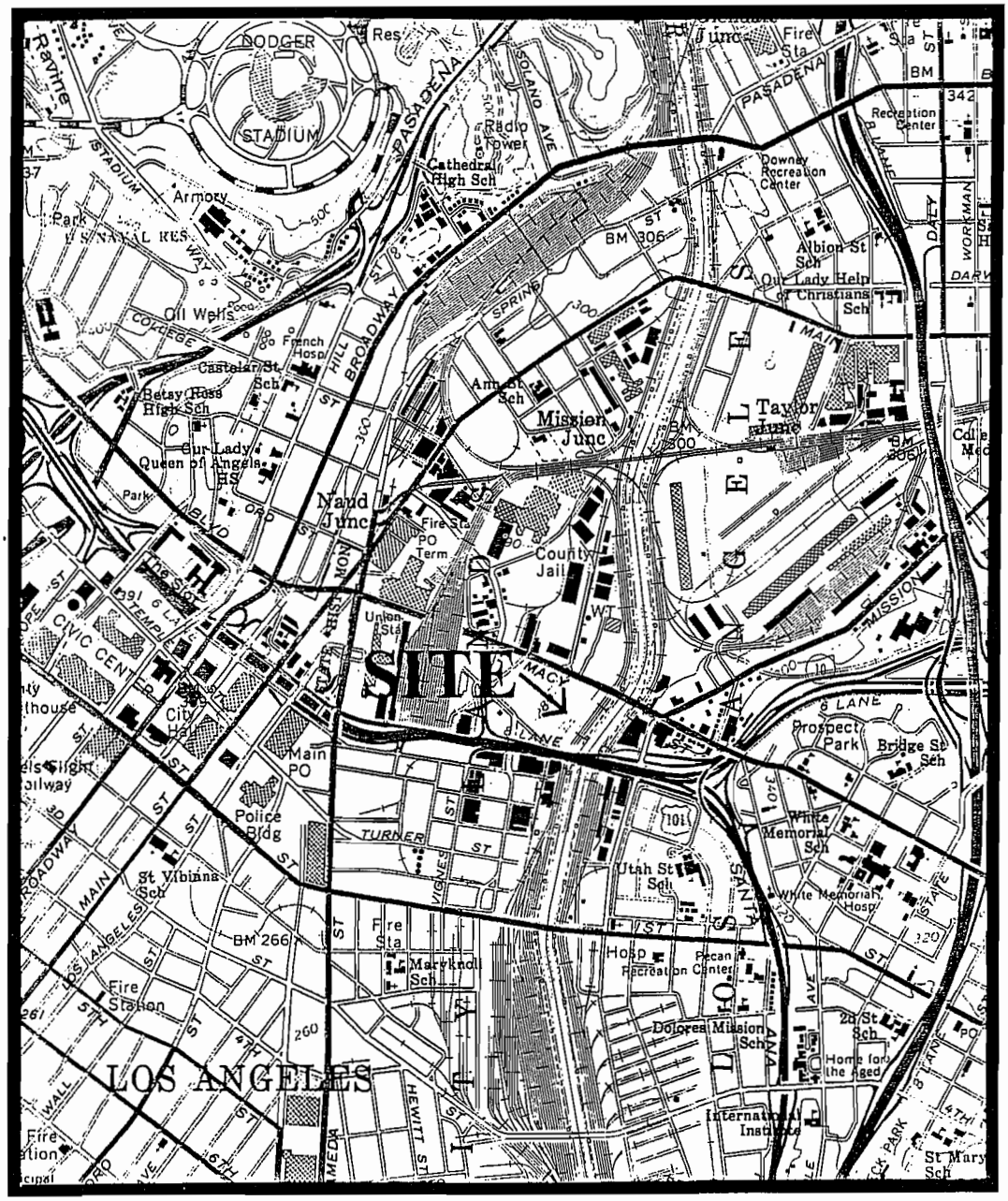
All values reported in micrograms per kilogram = parts per billion (ppb)
ND - Not detected above the specified detection limit
MDL = Method Detection Limit
All samples were below MDL for all other EPA Method 8260 Analytes.

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS
CAM METALS

PIPER TECHNICAL CENTER
555 Ramirez Street
Los Angeles, California

Parameter	Detection Limit	TTLC Action Level	10X STLC	HC-1-75	HC-1-100	HC-2-40	HC-2-90	HC-2-COMP
Antimony	10	500	150	ND	ND	ND	ND	ND
Arsenic	5	500	50	ND	ND	ND	ND	ND
Barium	5	10000	1,000	**85**	**27**	**17**	**30**	**27**
Beryllium	0.5	75	8	ND	ND	ND	ND	ND
Cadmium	0.5	100	10	ND	ND	ND	ND	ND
Chromium	5	2500	50	**9**	**3**	**2**	**5**	**5**
Cobalt	5	8000	800	ND	ND	ND	ND	ND
Copper	5	2500	250	**16**	ND	**3**	**3**	**4**
Lead	5	1000	50	**6**	ND	**2**	**2**	**3**
Mercury	0.1	20	20	ND	ND	ND	ND	ND
Molybdenum	5	3500	3,500	ND	ND	ND	ND	ND
Nickel	5	2000	200	**15**	ND	ND	ND	ND
Selenium	1	100	10	ND	ND	ND	ND	ND
Silver	5	500	50	ND	ND	ND	ND	ND
Thallium	5	700	70	ND	ND	ND	ND	ND
Vanadium	5	2400	240	**23**	**6**	**5**	**8**	**10**
Zinc	5	5000	2,500	**44**	**12**	**9**	**11**	**13**

STLC = Solubility Threshold Limit Concentration
TTLC - Total Threshold Limit Concentration
All values reported in milligrams per kilogram
ND = Not detected above the specified detection limit

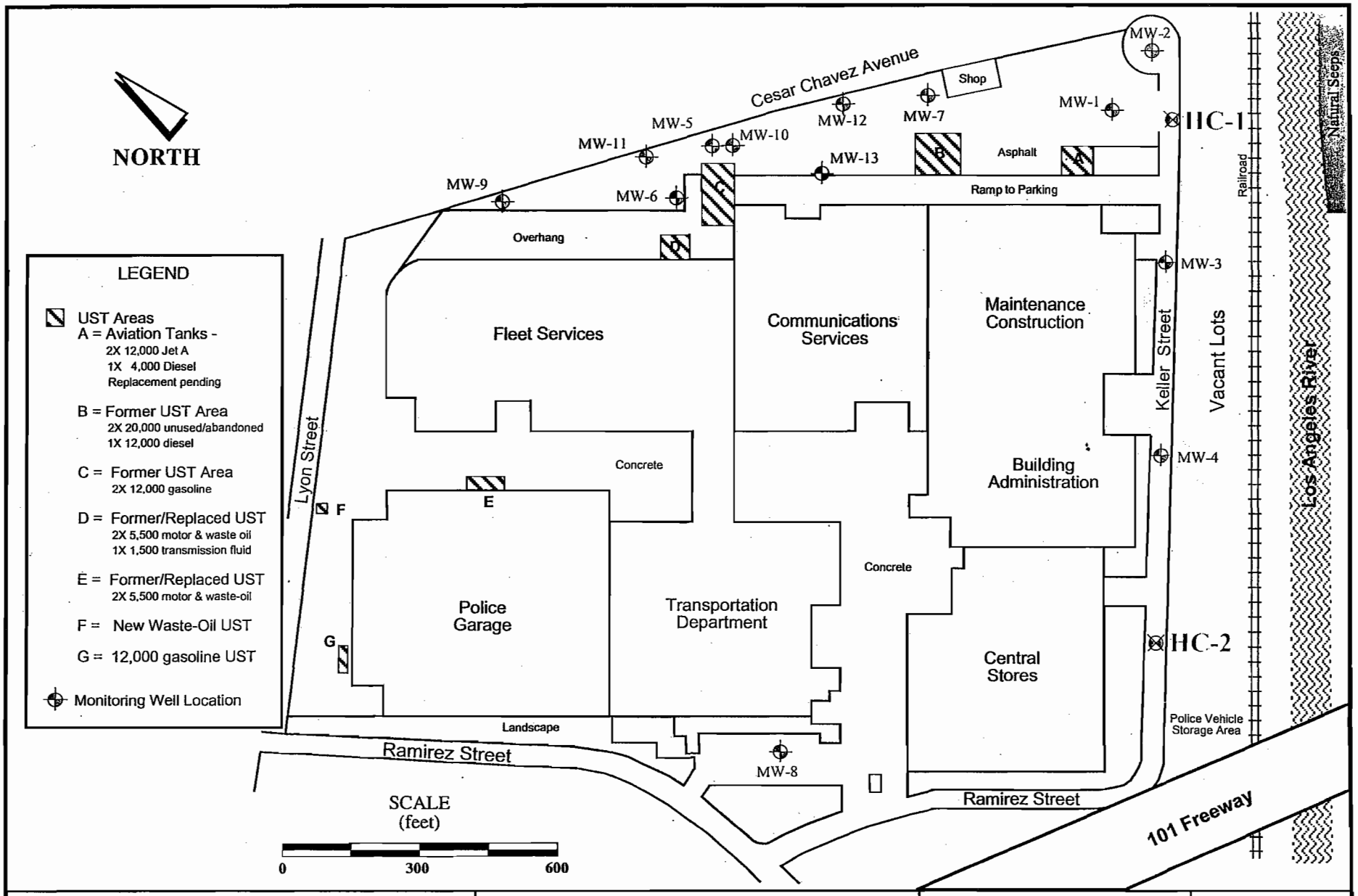


SCALE
(feet)

0 2,000

U.S.G.S. 7.5 Minute Series
Los Angeles, CA Quadrangle
Photorevised 1981

PINNACLE ENVIRONMENTAL TECHNOLOGIES #2 Santa Maria, Foothill Ranch, CA 92610 Tel: (949) 470-3691 Fax: (949) 595-0459	**Piper Technical Center** **555 Ramirez Street** **Los Angeles, California**	**Location Map**	**Figure 1**



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Tel: (949) 470-3691 • Fax: (949) 595-0459

Piper Technical Center
555 Ramirez Street
Los Angeles, California

Site Plan with Boring Locations

Figure 2

APPENDIX A
GENERAL FIELD PROCEDURES

The following sections outline the general field procedures and protocols followed by Pinnacle Environmental Technologies (Pinnacle) in the completion of field tasks. Any deviation from the procedures outlined here due to unique or unforeseen circumstances will be noted in the body of the applicable report. The following tasks are detailed:

- Soil Sample Collection - Direct Push Rigs, Hollow Stem Auger Sampling
- Soil Classification and Logging
- Groundwater Grab Sampling
- Small Diameter Well Installation
- Groundwater Level Monitoring
- Monitoring Well Purging and Sampling
- Chain-of-Custody Protocol

Soil Sample Collection

Soil samples are collected to allow soil description/classification and for laboratory analysis. Samples may be collected using a variety of different techniques including: hollow stem auger rigs (drop hammer samplers), direct push rigs, composite grab samplers, or excavation samples. The sampling technique utilized will be selected based on the particular phase of work and sample requirements. All soil samples collected during drilling operations are also monitored for volatile organic vapors. This is accomplished using a photo-ionization detector (PID) to monitor the soil either at the ends of sample tubes or after it has been placed in sealed Ziploc bags. The maximum PID reading is recorded on the boring log. Field headspace readings are also used to determine if a soil sample will be analyzed in the laboratory.

Direct-Push Drill Rigs

Samples collected using direct-push techniques are collected in either brass/stainless steel tubes or acetate sleeves. The sampling device is advanced using hydraulic pressure and a hammer into undisturbed soil ahead of the sampler. The sleeves or tubes are removed from the sampling device after retrieving the sampler from the boring. If acetate sleeves are used, the sleeve is examined and the sample portion selected for laboratory analysis is cut off from the main sleeve. A 4 to 6-inch portion is typically removed for laboratory analysis. After the sample tubes are retrieved from the sampler, each tube is sealed using Teflon tape and plastic end caps.

Each sample tube is labeled with the sample identification, date and time of sampling, and sample site identification. The sample is then placed in a cooler chilled with either blue ice or "wet" ice for transport to the laboratory.

Hollow Stem Auger Sampling

Hollow stem auger samples are typically collected in split tube samples, "California" samplers, or Shelby tubes. When a sample for laboratory analysis is required, the sampler is driven into undisturbed soil with a down hole or standard 140 pound geotechnical hammer. The sampler is lined with brass/stainless steel (if required for metal analysis) tubes for handling the undisturbed samples at the surface. After bringing the sampler to the surface and removing the tubes with sample, they are handled as described earlier in this section. Samples for description are released from the sampler shoe and placed into a Ziploc bag for headspace analysis and visual inspection.

EPA Method 5035 Sample Preparation

Samples collected in accordance with EPA Method 5035 protocols are collected using the EnCore® 5-gram sampler. Two to three 5-gram EnCore® samplers are collected at each sample interval. Each sampler is labeled and placed in the foil bag in which it was shipped. Each bag is sealed suing the built in seal strip and then placed in a chilled cooler for transport to the laboratory.

Soil Classification and Logging

Soils are classified in the field in conformance with the Unified Soil Classification System (USCS-ASTM D2487).

A boring log is maintained for soil borings and well installations. Each log records the sample identification, collection location, depth and interval; number of blows required for sample collection (drop hammer samplers only); USCS soil type, color, field density estimation, field moisture content estimation, physical characteristics (grain size, sorting, roundness, odors, and other distinguishing characteristics); and, time of sample collection.

If a boring is not converting to a well, it is backfilled with either hydrated bentonite chips, Volclay grout, bentonite cement, Portland cement, or a combination of the above. Borings are backfilled in accordance with any prevailing local standards and regulations.

Groundwater Grab Sampling

Groundwater grab samples may be collected from GeoProbe borings using bailers or polyethylene tubing. In either case, a temporary screen is lowered in the well bore to a depth at which the screen intersects the static water level. A decontaminated bailer may then be lowered in to he well to collect a sample. Standard purging in not normally performed prior to pulling grab samples, unless extremely turbid samples are initially collected. Alternatively, a polyethylene tube may be lowered into the temporary well screen to purge water from the well.
A check valve is placed on the bottom of the tubing to allow water to be removed from the well. This technique is more applicable to sites where the presence of concentrations of non-volatile constituents are being assessed. A peristaltic pump may also be used to purge larger quantities of water from the well before sampling

The water is decanted into the sample containers (40-milliliter VOAs or glass amber bottles, as required) in a manner which minimizes agitation and possible loss of volatiles. Each container is filled so that when the cover is tightened that a zero headspace sample has been collected with no trapped air bubbles visible in the container.

Each container is then labeled with the sample identification, sample date and time, and site name. The sample containers are then placed in a cooled ice chest for transport to the laboratory.

Small Diameter Well Installation

Small-diameter groundwater monitoring wells are typically constructed of one-inch PVC with .010 or .020-inch slotted screens. The PVC is threaded with rubber seals. No glue is used during construction. Screened intervals are selected in the same manner as with larger diameter wells. A sand pack is installed to a depth above the top of the screen. A two to three foot seal of bentonite chips is placed at the top of the sand pack. A concrete seal is poured to further seal the well from surface water infiltration, and a steel, traffic-rated well cover is installed at the surface.

Groundwater samples are collected from standard monitoring wells and small-diameter wells using similar methods. Sampling of groundwater monitoring wells is conducted in accordance with the EPA Technical Enforcement Guidance Document or with any other local protocols and procedures.

Groundwater Level Monitoring

The depth to groundwater is measured to the nearest 0.01 foot and recorded for use in determining the groundwater gradient and flow direction. Water level measurements are completed on all wells prior to purging any well at the site. Depth to groundwater is measured using either an electronic well sounding device (i.e. Solinst) or using an interface probe (i.e. MMC).

If a sounding device is used, the well is first checked for the presence of non-aqueous phase petroleum liquids (NAPLs) using hydrocarbon sensitive paste or an interface probe. The interface probe is capable of direct detection of trace thickness of NAPLs.

Monitoring Well Purging and Sampling

All wells are purged prior to the collection of groundwater samples to ensure that a representative groundwater sample is collected. Wells are typically purged using either a portable submersible pump or by using a vacuum truck and dedicated well stinger. Water temperature, pH, and conductivity are monitored during purging. Purging is considered complete once a minimum of three well casing volumes have been purged and the physical parameters have stabilized for successive readings to within 5 percent of temperature and conductivity and 0.05 pH units.

Many low yield aquifers are not capable of producing three well casing volumes of water. In these cases the well may be pumped dry. If this occurs, the well is only pumped dry once and samples are collected once the conditions specified below are achieved.

Care is taken not to overpump a well to dryness and to avoid the possibility of cascading water into the well. All wells are purged at the minimum rate necessary to adequately ensure that a representative groundwater sample will be collected.

In certain cases, regulatory agencies will request the collection of groundwater samples from wells without first purging them. "Pre-Purge" samples are identified as such on the Chain-of-Custody and in the sample identification section of the report.

Each well is allowed to recharge to 80% of its pre-purge volume prior to sampling, or for two hours, whichever occurs first. If a well does not recharge to 80% of its pre-purge volume within two hours, then a sample is collected as soon as sufficient water has collected in the well to fill the required sample containers.

Samples are collected by slowly lowering either a disposable Teflon or decontaminated stainless steel bailer into the water column. Care is taken to minimize agitating the water as the bailer enters. The bailer is removed from the well after filling, and a bottom emptying device attached. The water is decanted into the sample containers (40-milliliter VOAs or glass amber bottles, as required) in a manner which minimizes agitation and possible loss of volatiles. Each container is filled so that when the cover is tightened that a zero headspace sample has been collected with no trapped air bubbles visible in the container.

Each container is then labeled with the sample identification, sample date and time, and site name. The sample containers are then placed in a cooled ice chest for transport to the laboratory.

Chain-of-Custody Protocol

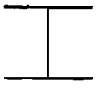
All soil and groundwater samples that are collected are documented using Chain-of-Custody (COC) procedures. Each sample is identified and entered onto the COC record along with the date and time of collection and the type and number of sample containers. COC documents also typically used to document which analyses are completed on each sample. The COC follows the samples from the field to the laboratory and is a legal document recording who had possession of the samples at all times.

UNIFIED SOIL CLASSIFICATION SYSTEM

ASTM D 2487

MAJOR DIVISIONS			TYPICAL NAMES		
COARSE-GRAINED SOILS MORE THAN HALF IS LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN #4 SIEVE SIZE	GRAVELS WITH LITTLE OR NO FINES	GW		WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			GP		POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM		SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
			GC		CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN #4 SIEVE SIZE	SANDS WITH LITTLE OR NO FINES	SW		WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP		POORLY-GRADED SANDS, GRAVELLY-SAND, LITTLE OR NO FINES
		SANDS WITH OVER 12% FINES	SM		SILTY SANDS, SAND-SILT MIXTURES
			SC		CLAYEY SANDS, SAND-CLAY MIXTURES
FINE-GRAINED SOILS MORE THAN HALF IS SMALLER THAN #200 SIEVE	SILTS AND CLAYS (liquid limit is less than 50)		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR VERY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL		ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (liquid limit is greater than 50)		MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
			CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAY
			OH		ORGANIC CLAYS OF HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt		PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

LEGEND



Sample Interval

Soil Sample Collected

Groundwater Encountered

Filter Pack Sand

Bentonite

Concrete

USCS = Unified Soils Classification System
CGI = Combustible Gas Indicator
PID = Photoionization Detector
OVA = Organic Vapor Analyzer

DESCRIPTORS

Trace = 1% - 5%
Some = 6% - 10%
With = 11% - 25%
-ly = 26% - 40%
And = >40%

SANDS

>50 blows = very dense
30 - 50 blows = dense
10 - 30 blows = medium
0 - 10 blows = loose

CLAST SIZE (Field Classification)

Gravel = > 0.25 inches
Sand = 0.003 - 0.25 inches
Silt = < 0.003 & not plastic
Clay = < 0.003 & plastic

SILTS & CLAYS

>30 blows = hard
15 - 30 blows = very stiff
8 -15 blows = stiff
4 - 8 blows = firm
0 - 4 blows = soft

PINNACLE

BORING LOG

PINNACLE
ENVIRONMENTAL TECHNOLOGIES
#2 Santa Maria, Foothill Ranch, CA
Tel: (949) 470-3691 Fax: (949) 595-0459

SITE: PIPER TECHNICAL CENTER
ADDRESS: 555 Ramirez Street
Los Angeles, CA
DRILLING METHOD: Hollow Stem Auger - CME95
DRILLING COMPANY: Cascade, Inc.

BORING No.: HC #1 / 0 - 30
DATE: 9/13/01
GEOLOGIST: W.E. Malvey
LOCATION: Keller Street
ELEVATION: Not Determined

Time	Blows	PID LEL H2S	Depth	Sample	DESCRIPTION	Graphic Log	Well Const
					4" Asphalt, 4" ABC		
					Clayey Silty Fill (AF), some sand, small gravels, black, loose, damp, faint HC odor		
0835	12-16-60	0/0/0	5		**Sand (SP)**, dark yellowish brown, very dense, damp, fine to medium-grained sand, sub angular to sub rounded, no HC odors.		
0840	16-48 50/3	0/0/0	10		**Sand (SP)**, trace gravel, brownish black, damp, very dense, fine-grained sand, faint sub-horizontal bedding +/- 0.25-inch, minor FeO2 stains, micaceous, sub angular to sub rounded, no HC odors.		
0845	20-28 50/6	0/0/0	15		**Sand & Gravel (SW-GW)**, dark yellowish brown, damp, very dense, medium-grained sand, sub angular to sub rounded sand, gravels up to 1-inch, well rounded, no HC odor.		
0850	20-30 50/4	0/0/0	20		**Gravel (GW)**, brownish black, interbedded with medium to coarse-grained sand, very dense, mottled blackish staining, well rounded gravels up to 2-inches in cuttings		
0855	16-36-50	0/0/0	25		**Gravel & Cobbles (GW-GP)**, medium gray, some sand, broken granitic clasts, gravels up to 3-inches in cuttings, no odor, damp to moist.		
0900	35-60	0/0/0	30		**Gravel & Cobbles (GW-GP)**, medium gray, some sand, broken granitic clasts, gravels up to 3-inches in cuttings, no odor, moist to wet.		
					First groundwater encountered at 30 feet bgs		

BORING LOG

PINNACLE
ENVIRONMENTAL TECHNOLOGIES
#2 Santa Maria, Foothill Ranch, CA
Tel: (949) 470-3691 Fax: (949) 595-0459

SITE: **PIPER TECHNICAL CENTER** BORING No.: **HC #1 / 31 - 60**
ADDRESS: 555 Ramirez Street DATE: 9/13/01
Los Angeles, CA GEOLOGIST: W.E. Malvey
DRILLING METHOD: Hollow Stem Auger - CME95 LOCATION: Keller Street
DRILLING COMPANY: Cascade, Inc. ELEVATION: Not Determined

Time	Blows	PID LEL H2S	Depth	Sample	DESCRIPTION	Graphic Log	Well Const
0910	40-60	0/0/0	35		**Sand & Gravel**,dark gray, very dense, gravels > 4-inches, well rounded, sand medium-grained, subangular, broken granitic clasts in sampler. Sand predominantly in sampler, gravels in cuttings.		
0920	40 60/5	0/0/0	40		**Sand & Gravel**,dark gray, very dense, gravels > 4-inches, well rounded, sand medium-grained, subangular, broken granitic clasts in sampler. Sand predominantly in smapler, gravels in cuttings.		
0930	13-28-50	0/0/0	45		**Sand & Gravel**,dark gray, very dense, gravels > 4-inches, well rounded, sand medium-grained, subangular, broken granitic clasts in sampler. Sand predominantly in smapler, gravels in cuttings, moist to wet, but no free water.		
0940	16-40-50	0/0/0	50		**Sand(SP)**,dark gray, trace silt,damp, dense, no free water, very fine-grained sand, faint odor of biological decay, no hydrocarbon odors.		
1000	30-35-42	0/0/0	55		**Silty Sand (SM)**,greenish gray, trace clay, moist, dense, no free water, very faint laminations (<1 mm), appearance similar to Puente Formation		
1015	30-38-40	0/0/0	60		**Sand(SP)**,dark gray, trace silt,moist, dense, no free water, medium-grained sand, no hydrocarbon odors.		

BORING LOG

PINNACLE
ENVIRONMENTAL TECHNOLOGIES
#2 Santa Maria, Foothill Ranch, CA
Tel: (949) 470-3691 Fax: (949) 595-0459

SITE: PIPER TECHNICAL CENTER
ADDRESS: 555 Ramirez Street
Los Angeles, CA
DRILLING METHOD: Hollow Stem Auger - CME95
DRILLING COMPANY: Cascade, Inc.

BORING No.: HC #1 / 61 - 90
DATE: 9/13/01
GEOLOGIST: W.E. Malvey
LOCATION: Keller Street
ELEVATION: Not Determined

Time	Blows	PID LEL H2S	Depth	Sample	DESCRIPTION	Graphic Log	Well Const
1025	12-16-34	0/0/0	65		**Sand(SP)**, dark gray, trace silt, moist, dense, no free water, medium-grained sand, no hydrocarbon odors.		
1050	12-17-37	0/0/0	70		**Sand(SP)**, dark gray, trace silt, moist, dense, no free water, medium-grained sand, no hydrocarbon odors.		
1100	12-36-40	0/0/0	75		**Silty Sand (SM)**, greenish gray, trace clay, moist, dense, no free water, very faint laminations (<1 mm), appearance similar to Puente Formation		
1115	36-36-42	0/0/0	80		**Sand(SP)**, grayish tan, trace silt, trace clay, damp, dense, no free water, very fine-grained sand, no hydrocarbon odors.		
1125	20-32-47	0/0/0	85		**Sand(SP)**, grayish tan, trace silt, trace clay, damp, dense, no free water, very fine-grained sand, no hydrocarbon odors.		
1130	15-17-25	0/0/0	90		**Sand(SP)**, grayish tan, trace silt, trace clay, damp, dense, no free water, very fine-grained sand, no hydrocarbon odors.		

BORING LOG

PINNACLE
ENVIRONMENTAL TECHNOLOGIES
#2 Santa Maria, Foothill Ranch, CA
Tel: (949) 470-3691 Fax: (949) 595-0459

SITE: PIPER TECHNICAL CENTER
ADDRESS: 555 Ramirez Street
Los Angeles, CA
DRILLING METHOD: Hollow Stem Auger - CME95
DRILLING COMPANY: Cascade, Inc.

BORING No.: HC #1 / 91 - 100
DATE: 9/13/01
GEOLOGIST: W.E. Malvey
LOCATION: Keller Street
ELEVATION: Not Determined

Time	Blows	PID LEL H2S	Depth	Sample	DESCRIPTION	Graphic Log	Well Const
1140	14-16-38	0/0/0	95		**Sand(SP)**,grayish tan, trace silt,trace clay, damp, dense, no free water, very fine-grained sand, no hydrocarbon odors.		
1150	17-19-36	0/0/0	100		**Sand(SP)**,grayish tan, trace silt,trace clay, damp, dense, no free water, very fine-grained sand, no hydrocarbon odors.		

BORING LOG

PINNACLE
ENVIRONMENTAL TECHNOLOGIES
#2 Santa Maria, Foothill Ranch, CA
Tel: (949) 470-3691 Fax: (949) 595-0459

SITE: PIPER TECHNICAL CENTER
ADDRESS: 555 Ramirez Street
Los Angeles, CA
DRILLING METHOD: Hollow Stem Auger - CME95
DRILLING COMPANY: Cascade, Inc.

BORING No.: HC #2 / 0 - 30
DATE: 9/14/01
GEOLOGIST: W.E. Malvey
LOCATION: Keller Street
ELEVATION: Not Determined

Time	Blows	PID LEL H2S	Depth	Sample	DESCRIPTION	Graphic Log	Well Const
					4" Asphalt, 4" ABC		
					Clayey Silty Fill(AF), some sand, small gravels, black, loose, damp, faint HC odor		
0910	12-18-50	0/0/0	5		**Sand(SP)**, trace gravel, dark yellowish brown, very dense, damp, fine to medium-grained sand, sub angular to sub rounded, no HC odors.		
0920	10-10-12	0/0/0	10		**Sand(SP)**, trace gravel, medium brown, damp, dense, fine-grained sand, micaceous, sub angular to sub rounded, no HC odors.		
0922	10-12-35	0/0/0	15		**Sand(SP)**, trace gravel, medium brown, damp, dense, fine-grained sand, micaceous, sub angular to sub rounded, no HC odors.		
0925	10-20-30	0/0/0	20		**Sand(SP)**, trace silt, dark brown, damp, dense, fine-grained sand, micaceous, sub angular to sub rounded, no HC odors.		
0932	12-19-42	0/0/0	25		**Sand(SP)**, dark brown, damp, dense, fine-grained sand, micaceous, sub angular to sub rounded, no HC odors.		
0930	10-27-37	0/0/0	30		**Sand(SP)**, trace gravel, dark brown, damp, dense, fine-grained sand, micaceous, sub angular to sub rounded, FeO2 stains, no HC odors.		

BORING LOG

PINNACLE
ENVIRONMENTAL TECHNOLOGIES
#2 Santa Maria, Foothill Ranch, CA
Tel: (949) 470-3691 Fax: (949) 595-0459

SITE: PIPER TECHNICAL CENTER
ADDRESS: 555 Ramirez Street
Los Angeles, CA
DRILLING METHOD: Hollow Stem Auger - CME95
DRILLING COMPANY: Cascade, Inc.

BORING No.: HC #2 / 31 - 60
DATE: 9/14/01
GEOLOGIST: W.E. Malvey
LOCATION: Keller Street
ELEVATION: Not Determined

Time	Blows	PID LEL H2S	Depth	Sample	DESCRIPTION	Graphic Log	Well Const
					First water in boring at 33 feet bgs		
0935	40-60	0/0/0	35		**Sand(SP)**,with gravels, grayish brown brown, wet, dense, fine-grained sand, micaceous, sub angular to sub rounded, FeO2 stains, no HC odors.		
0945	60/5	240/0/0	40		**Sand (SP)**,with gravel, dark gray, very dense, gravels > 2-inches, well rounded, sand medium-grained, wet, subangular, broken granitic clasts in sampler. Sand predominantly in sampler, gravels in cuttings.Faint hydrocarbon odor **2" - 3" gravels in cuttings. Well rounded granitic clasts.**		
0950	12-30-50	0/0/0	45		**Sand (SP)**,with gravel, dark gray, very dense, gravels > 2-inches, well rounded, sand medium-grained, wet, subangular, broken granitic clasts in sampler. No hydrocarbon odor		
1000	15-30-50	10/0/0	50		**Sand (SP)**,with gravel dark gray, very dense, gravels > 2-inches, well rounded, sand medium-grained, moist to wet, subangular, broken granitic clasts in sampler. No hydrocarbon odor, but slight "musty" odor.		
1010	30-35-45	0/0/0	55				
1025	30-40-40	0/0/0	60		**Sand & Gravel**,dark gray, very dense, gravels > 4-inches, well rounded, sand medium-grained, subangular, broken granitic clasts in sampler. Sand predominantly in smapler, gravels in cuttings, moist to wet, but no free water.		

BORING LOG

PINNACLE
ENVIRONMENTAL TECHNOLOGIES
#2 Santa Maria, Foothill Ranch, CA
Tel: (949) 470-3691 Fax: (949) 595-0459

SITE: PIPER TECHNICAL CENTER
ADDRESS: 555 Ramirez Street
Los Angeles, CA
DRILLING METHOD: Hollow Stem Auger - CME95
DRILLING COMPANY: Cascade, Inc.

BORING No.: HC #2 / 61 - 90
DATE: 9/14/01
GEOLOGIST: W.E. Malvey
LOCATION: Keller Street
ELEVATION: Not Determined

Time	Blows	PID LEL H2S	Depth	Sample	DESCRIPTION	Graphic Log	Well Const
1030	50/6	0/0/0	65		**Sand and Gravels**, dark gray to medium grayish brown, trace silt, moist to wet, very dense, medium-grained sand, no hydrocarbon odors. Sand mostly in sampler. Gravels observed in cuttings		
1040	12-50/6	0/0/0	70		**Sand and Gravels**, dark gray to medium grayish brown, trace silt, moist to wet, very dense, medium-grained sand, no hydrocarbon odors. Sand mostly in sampler. Gravels observed in cuttings		
1045	15-50/5	0/0/0	75		**Sand and Gravels**, dark gray to medium grayish brown, trace silt, moist to wet, very dense, medium-grained sand, no hydrocarbon odors. Sand mostly in sampler. Gravels observed in cuttings		
1100	25-35-50	0/0/0	80		**Sand and Gravels**, dark gray to medium grayish brown, trace silt, moist to wet, very dense, medium-grained sand, no hydrocarbon odors. Sand mostly in sampler. Gravels observed in cuttings		
1110	20-32-47	0/0/0	85		**Sand and Gravels**, dark gray to medium grayish brown, trace silt, moist to wet, very dense, medium-grained sand, no hydrocarbon odors. Sand mostly in sampler. Gravels observed in cuttings		
1120	15-17-25	0/0/0	90		**Sand and Gravels**, dark gray to medium grayish brown, trace silt, moist to wet, very dense, medium-grained sand, no hydrocarbon odors. Sand mostly in sampler. Gravels observed in cuttings Refusal at 92 feet on cobbles and gravels. Hammer stuck in auger		

CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- 8015M(HC-Range) ---

Client Name: Pinnacle Env. Technologies
Project Manager: William Malvey
Project Name: Piper Center
Sample Matrix: Soil

Date Sampled: 09/13/01
Date Analyzed: 09/13/01
Date Reported: 09/14/01

SAMPLE INFORMATION			RESULT (mg/kg or ppm)		
C&E ID	Sample ID	DF	C4-C12	C13-C22	C23-C40
10913A-1	HC-1-75	1	ND	ND	ND
10913A-2	HC-1-100	1	ND	ND	ND
Detection Limit:			0.1	10	50

ND = Not detected at the indicated detection limit.
DF = Dilution Factor
Reporting Limit = DF x Detection Limit

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

— EPA 418.1(TRPH) —

Client Name: Pinnacle Env. Technologies
Project Manager: William Malvey
Project Name: Piper Center
Sample Matrix: Soil

Date Sampled: 09/13/01
Date Analyzed: 09/14/01
Date Reported: 09/14/01

SAMPLE INFORMATION			RESULT
C&E ID	Sample ID	DF	(mg/kg or ppm)
10913A-1	HC-1-75	1	72
10913A-2	HC-1-1000	5	423
Detection Limit:			10

ND = Not detected at the indicated detection limit.
DF = Dilution Factor
Reporting Limit = DF x Detection Limit

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

QC REPORT

Spike/Spike Duplicate

— M8015(Diesel) —

Date Performed: 09/13/01
Lab Sample I.D.: 10913A

Unit: mg/kg

ANALYTE	SPK CONC	MS (mg/kg)	MS %	MSD (mg/kg)	MSD %	RPD	ACP %MS	ACP RPD
Diesel	1000	1069	107	1033	103	3.4	80-120	20

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

QC REPORT

Spike/Spike Duplicate

— EPA 418.1 —

Date Performed: 09/14/01
Lab Sample I.D.: 10913A

Unit: mg/kg

ANALYTE	SPK CONC	MS (mg/kg)	MS %	MSD (mg/kg)	MSD %	RPD	ACP %MS	ACP RPD
TRPH	50	50	100	51	102	2.0	70-120	20

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10413A

CHAIN OF CUSTODY RECORD

Site: PIPER CENTER
Address: 555 RAMIREZ
LOS ANGELES, CA

Project Manager: Malvey / Thompson
Sampled By: Malvey / Thompson
Laboratory: CTE

TURN AROUND TIME
24 HR / RUSH / NORMAL

Page 1 of 1

SAMPLE ID	TIME	DATE	Sample Matrix	No. & Type of Containers	TPH 8015M Full Scan	TRPH EPA 418.1	VOC EPA 8260B	MTBE & Oxygenates	PAH EPA 8270	Pesticides PCB's EPA 8081/8082	Title 22 Metals	EPA 160.1 TDS	EPA 150.1 pH		
1 HC-1-750	1100	9/13/01	SOIL	1-JAR	X	X									
2 HC-1-1000	1145	9/13/01	SOIL	1-JAR	X	X									

Relinquished By: [signature] Date/Time: 9/13/01 1230

Received By: [signature] Date/Time: 9/13/01 1230

Comments: CALC MEE with Results when Available / Return unused sample portion to Pinnacle

PINNACLE ENVIRONMENTAL TECHNOLOGIES
2 Santa Maria
Foothill Ranch, CA 92610
TEL: (949) 470-3691
FAX: (949) 595-0459

CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- EPA 8260 ---

Client Name: Pinnacle Env. Technologies
Project Manager: William Malvey
Project Name: Piper Center
Sample Matrix: Soil

Date Sampled: 09/13/01
Date Analyzed: 09/28/01
Date Reported: 10/01/01

C&E ID		10913A-1	10913A-2			
SAMPLE ID		HC-1-75	HC-1-1000			
DF		1	1			
COMPOUND	Detection Limit (ug/kg)	RESULT (ug/kg or ppb)				
Benzene	2	ND	ND			
Bromobenzene	2	ND	ND			
Bromochloromethane	2	ND	ND			
Bromodichloromethane	2	ND	ND			
Bromoform	2	ND	ND			
Bromomethane	2	ND	ND			
n-Butylbenzene	2	ND	ND			
sec-Butylbenzene	2	ND	ND			
tert-Butylbenzene	2	ND	ND			
Carbon Tetrachloride	2	ND	ND			
Chlorobenzene	2	ND	ND			
Chloroethane	2	ND	ND			
Chloroform	2	ND	ND			
Chloromethane	2	ND	ND			
2-Chlorotoluene	2	ND	ND			
4-Chlorotoluene	2	ND	ND			
Dibromochloromethane	2	ND	ND			
1,2-Dibromo-3-chloropropane	2	ND	ND			
1,2-Dibromoethane	2	ND	ND			
Dibromomethane	2	ND	ND			
1,2-Dichlorobenzene	2	ND	ND			
1,3-Dichlorobenzene	2	ND	ND			
1,4-Dichlorobenzene	2	ND	ND			
Dichlorodifluoromethane	2	ND	ND			
1,1-Dichloroethane	2	ND	ND			
1,2-Dichloroethane	2	ND	ND			
1,1-Dichloroethene	2	ND	ND			
cis-1,2-Dichloroethene	2	ND	ND			
trans-1,2-Dichloroethene	2	ND	ND			
1,2-Dichloropropane	2	ND	ND			

To be continued on page 2

CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

— EPA 8260 —

Client Name: Pinnacle Env. Technologies
Project Manager: William Malvey
Project Name: Piper Center
Sample Matrix: Soil

Date Sampled: 09/13/01
Date Analyzed: 09/28/01
Date Reported: 10/01/01

C&E ID		10913A-1	10913A-2			
SAMPLE ID		HC-1-75	HC-1-1000			
COMPOUND	Detection Limit (ug/kg)	RESULT (ug/kg or ppb)				
1,3-Dichloropropane	2	ND	ND			
2,2-Dichloropropane	2	ND	ND			
1,1-Dichloropropene	2	ND	ND			
cis-1,3-Dichloropropene	2	ND	ND			
trans-1,3-Dichloropropene	2	ND	ND			
Ethylbenzene	2	ND	ND			
Hexachlorobutadiene	2	ND	ND			
Isopropylbenzene	2	ND	ND			
4-Isopropyltoluene	2	ND	ND			
Methylene Chloride	2	ND	ND			
Naphthalene	2	ND	ND			
n-Propylbenzene	2	ND	ND			
Styrene	2	ND	ND			
1,1,1,2-Tetrachloroethane	2	ND	ND			
1,1,2,2-Tetrachloroethane	2	ND	ND			
Tetrachloroethene	2	ND	ND			
Toluene	2	ND	ND			
1,2,3-Trichlorobenzene	2	ND	ND			
1,2,4-Trichlorobenzene	2	ND	ND			
1,1,1-Trichloroethane	2	ND	ND			
1,1,2-Trichloroethane	2	ND	ND			
Trichloroethene	2	ND	ND			
Trichlorofluoromethane	2	ND	ND			
1,2,3-Trichloropropane	2	ND	ND			
1,2,4-Trimethylbenzene	2	ND	ND			
1,2,5-Trimethylbenzene	2	ND	ND			
Vinyl Chloride	1	ND	ND			
Total Xylenes	2	ND	ND			

ND = Not detected at the indicated detection limit.
DF = Dilution Factor
Reporting Limit = DF x Detection Limit

CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- EPA 8260(Oxygenated Compounds) ---

Client Name: Pinnacle Env. Technologies
Project Manager: William Malvey
Project Name: Piper Center
Sample Matrix: Soil

Date Sampled: 09/13/01
Date Analyzed: 09/28/01
Date Reported: 10/01/01

C&E ID		10913A-1	10913A-2			
SAMPLE ID		HC-1-75	HC-1-1000			
DF		1	1			
COMPOUND	Detection Limit (ug/kg)	RESULT (ug/kg or ppb)				
Ethyl Tertiary Butyl Ether	5	ND	ND			
Tertiary Amyl Methyl Ether	5	ND	ND			
Diisopropyl Ether	5	ND	ND			
Tertiary Butyl Alcohol	20	ND	ND			
MTBE	5	ND	ND			

ND = Not detected at the indicated detection limit.
DF = Dilution Factor
Reporting Limit = DF x Detection Limit

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

— CAM Metals —

Client Name:	Pinnacle Env. Technologies	Date Sampled:	09/13/01
Project Manager:	William Malvey	Date Analyzed:	09/28/01
Project Name:	Piper Center	Date Reported:	10/01/01
Sample Matrix:	Soil		

C&E ID			10913A-1	10913A-2			
SAMPLE ID			HC-1-75	HC-1-1000			
ELEMENT	METHOD	Detection Limit (mg/kg)	RESULT (mg/kg or ppm)				
Antimony (Sb)	6010	5	ND	ND			
Arsenic (As)	6010	5	ND	ND			
Barium (Ba)	6010	5	85	27			
Berryllium (Be)	6010	0.5	ND	ND			
Cadmium (Cd)	6010	0.5	ND	ND			
Chromium (Cr)	6010	1	9	3			
Cobalt (Co)	6010	5	ND	ND			
Copper (Cu)	6010	1	16	ND			
Lead (Pb)	6010	1	6	ND			
Mercury (Hg)	7471	0.1	ND	ND			
Molybdenum (Mo)	6010	5	ND	ND			
Nickel (Ni)	6010	5	15	ND			
Selenium (Se)	6010	1	ND	ND			
Silver (Ag)	6010	1	ND	ND			
Thallium (Tl)	6010	5	ND	ND			
Vanadium (V)	6010	5	23	6			
Zinc (Zn)	6010	1	44	12			

ND = Not detected at the indicated detection limit.

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

QC REPORT

Spike/Spike Duplicate

— EPA 8260 —

Date Performed: 09/28/01
Lab Sample I.D.: 10913A

Unit: ug/kg

ANALYTE	SPK CONC	MS (ug/kg)	MS %	MSD (ug/kg)	MSD %	RPD	ACP %MS	ACP RPD
DIPE	40.0	41.57	104	41.05	103	1.3	80-120	20
ETBE	40.0	40.41	101	40.33	101	0.2	80-120	20
Benzene	40.0	41.97	105	41.95	105	0.0	80-120	20
Toluene	40.0	42.63	107	42.05	105	1.4	80-120	20
Xylenes	40.0	45.94	115	45.39	113	1.2	80-120	20

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

QC REPORT

Spike/Spike Duplicate

— Metals —

Date Performed: 09/28/01
Lab Sample I.D.: 10913A

Unit: mg/kg

ANALYTE	SPK CONC	MS (mg/kg)	MS %	MSD (mg/kg)	MSD %	RPD	ACP %MS	ACP RPD
Arsenic	10	9.55	95.5	9.43	94.3	1.3	80-130	20
Selenium	10	8.98	89.8	9.20	92.0	2.4	80-130	20
Cadmium	10	10.76	107.6	10.80	108.0	0.4	80-130	20
Lead	10	9.71	97.1	9.77	97.7	0.6	80-130	20
Barium	10	8.75	87.5	9.30	93.0	6.1	80-130	20

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- EPA 418.1(TRPH) ---

Client Name: Pinnacle Env. Technologies
Project Manager: William Malvey
Project Name: Piper Center
Sample Matrix: Soil

Date Sampled: 09/14/01
Date Analyzed: 09/18/01
Date Reported: 09/19/01

SAMPLE INFORMATION			RESULT
C&E ID	Sample ID	DF	(mg/kg or ppm)
10917B-1	HC-2-40	20	1734
10917B-2	HC-2-90	20	640
10917B-3	HC-2-COMP	40	2328
Detection Limit:			10

ND = Not detected at the indicated detection limit.
DF = Dilution Factor
Reporting Limit = DF x Detection Limit

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

— 8015M(HC-Range) —

Client Name: Pinnacle Env. Technologies
Project Manager: William Malvey
Project Name: Piper Center
Sample Matrix: Soil

Date Sampled: 09/14/01
Date Analyzed: 09/18/01
Date Reported: 09/19/01

SAMPLE INFORMATION			RESULT (mg/kg or ppm)		
C&E ID	Sample ID	DF	C4-C12	C13-C22	C23-C40
10917B-1	HC-2-40	1	40.9	539	319
10917B-2	HC-2-90	1	1.6	301	395
10917B-3	HC-2-COMP	1	40.5	930	572
Detection Limit:			0.1	10	50

ND = Not detected at the indicated detection limit.
DF = Dilution Factor
Reporting Limit = DF x Detection Limit

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

QC REPORT

Spike/Spike Duplicate

--- M8015(Diesel) ---

Date Performed: 09/18/01
Lab Sample I.D.: 10917B

Unit: mg/kg

ANALYTE	SPK CONC	MS (mg/kg)	MS %	MSD (mg/kg)	MSD %	RPD	ACP %MS	ACP RPD
Diesel	1000	1075	108	974	97	9.9	80-120	20

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

QC REPORT

Spike/Spike Duplicate

--- EPA 418.1 ---

Date Performed: 09/18/01
Lab Sample I.D.: 10917B

Unit: mg/kg

ANALYTE	SPK CONC	MS (mg/kg)	MS %	MSD (mg/kg)	MSD %	RPD	ACP %MS	ACP RPD
TRPH	50	51	102	52	104	1.9	70-120	20

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CHAIN OF CUSTODY RECORD 10917B

Site: Piper Center
Address: 555 RAMIREZ ST
LOS Angeles, CA

Project Manager: Malvey / Thompson
Sampled By: Malvey / Thompson
Laboratory: C&E

TURN AROUND TIME
24 HR / RUSH / NORMAL

Page 1 of 1

	SAMPLE ID	TIME	DATE	Sample Matrix	No. & Type of Containers	TPH 8015M Full Scan	TRPH EPA 418.1	VOC EPA 8260B	MTBE & Oxygenates	PAH EPA 8270	Pesticides PCB's EPA 8081/8082	Title 22 Metals	EPA 160.1 TDS	EPA 150.1 pH		
1	HC-2-40	0910	9/17/01	Soil	1-JAR	X	X									
2	HC-2-90	1120	↓	↓	↓	X	X									
3	HC-2-COMP	1300	↓	↓	↓	X	X									

Relinquished By: NE Malvey 1310
Date/Time: 9/17/01 1310

Received By: Lmy Bet
Date/Time: 9/17/01 1310

Comments: Hold SAMPLES AFTER ANALYSIS.

PINNACLE ENVIRONMENTAL TECHNOLOGIES
2 Santa Maria
Foothill Ranch, CA 92610
TEL: (949) 470-3691
FAX: (949) 595-0459

CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- EPA 8260 ---

Client Name: Pinnacle Env. Technologies
Project Manager: William Malvey
Project Name: Piper Center
Sample Matrix: Soil

Date Sampled: 09/14/01
Date Analyzed: 09/28/01
Date Reported: 10/01/01

C&E ID		10917B-1	10917B-2	10917B-3		
SAMPLE ID		HC-2-40	HC-2-90	HC-2-COMP		
DF		2	1	2		
COMPOUND	Detection Limit (ug/kg)	RESULT (ug/kg or ppb)				
Benzene	2	ND	ND	ND		
Bromobenzene	2	ND	ND	ND		
Bromochloromethane	2	ND	ND	ND		
Bromodichloromethane	2	ND	ND	ND		
Bromoform	2	ND	ND	ND		
Bromomethane	2	ND	ND	ND		
n-Butylbenzene	2	ND	ND	ND		
sec-Butylbenzene	2	ND	ND	ND		
tert-Butylbenzene	2	ND	ND	ND		
Carbon Tetrachloride	2	ND	ND	ND		
Chlorobenzene	2	ND	ND	ND		
Chloroethane	2	ND	ND	ND		
Chloroform	2	ND	ND	ND		
Chloromethane	2	ND	ND	ND		
2-Chlorotoluene	2	ND	ND	ND		
4-Chlorotoluene	2	ND	ND	ND		
Dibromochloromethane	2	ND	ND	ND		
1,2-Dibromo-3-chloropropane	2	ND	ND	ND		
1,2-Dibromoethane	2	ND	ND	ND		
Dibromomethane	2	ND	ND	ND		
1,2-Dichlorobenzene	2	ND	ND	ND		
1,3-Dichlorobenzene	2	ND	ND	ND		
1,4-Dichlorobenzene	2	ND	ND	ND		
Dichlorodifluoromethane	2	ND	ND	ND		
1,1-Dichloroethane	2	ND	ND	ND		
1,2-Dichloroethane	2	ND	ND	ND		
1,1-Dichloroethene	2	ND	ND	ND		
cis-1,2-Dichloroethene	2	ND	ND	ND		
trans-1,2-Dichloroethene	2	ND	ND	ND		
1,2-Dichloropropane	2	ND	ND	ND		

To be continued on page 2

CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- EPA 8260 ---

Client Name: Pinnacle Env. Technologies
Project Manager: William Malvey
Project Name: Piper Center
Sample Matrix: Soil

Date Sampled: 09/14/01
Date Analyzed: 09/28/01
Date Reported: 10/01/01

C&E ID		10917B-1	10917B-2	10917B-3		
SAMPLE ID		HC-2-40	HC-2-90	HC-2-COMP		
COMPOUND	Detection Limit (ug/kg)	RESULT (ug/kg or ppb)				
1,3-Dichloropropane	2	ND	ND	ND		
2,2-Dichloropropane	2	ND	ND	ND		
1,1-Dichloropropene	2	ND	ND	ND		
cis-1,3-Dichloropropene	2	ND	ND	ND		
trans-1,3-Dichloropropene	2	ND	ND	ND		
Ethylbenzene	2	ND	13	15		
Hexachlorobutadiene	2	ND	ND	ND		
Isopropylbenzene	2	ND	ND	ND		
4-Isopropyltoluene	2	ND	ND	ND		
Methylene Chloride	2	ND	ND	ND		
Naphthalene	2	ND	ND	ND		
n-Propylbenzene	2	ND	ND	ND		
Styrene	2	ND	ND	ND		
1,1,1,2-Tetrachloroethane	2	ND	ND	ND		
1,1,2,2-Tetrachloroethane	2	ND	ND	ND		
Tetrachloroethene	2	ND	ND	ND		
Toluene	2	ND	ND	ND		
1,2,3-Trichlorobenzene	2	ND	ND	ND		
1,2,4-Trichlorobenzene	2	ND	ND	ND		
1,1,1-Trichloroethane	2	ND	ND	ND		
1,1,2-Trichloroethane	2	ND	ND	ND		
Trichloroethene	2	ND	ND	ND		
Trichlorofluoromethane	2	ND	ND	ND		
1,2,3-Trichloropropane	2	ND	ND	ND		
1,2,4-Trimethylbenzene	2	ND	ND	ND		
1,2,5-Trimethylbenzene	2	ND	ND	ND		
Vinyl Chloride	1	ND	ND	ND		
Total Xylenes	2	ND	9	8		

ND = Not detected at the indicated detection limit.
DF = Dilution Factor
Reporting Limit = DF x Detection Limit

CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- EPA 8260(Oxygenated Compounds) ---

Client Name: Pinnacle Env. Technologies
Project Manager: William Malvey
Project Name: Piper Center
Sample Matrix: Soil

Date Sampled: 09/14/01
Date Analyzed: 09/28/01
Date Reported: 10/01/01

C&E ID		10917B-1	10917B-2	10917B-3		
SAMPLE ID		HC-2-40	HC-2-90	HC-2-COMP		
DF		2	1	2		
COMPOUND	Detection Limit (ug/kg)	RESULT (ug/kg or ppb)				
Ethyl Tertiary Butyl Ether	5	ND	ND	ND		
Tertiary Amyl Methyl Ether	5	ND	ND	ND		
Diisopropyl Ether	5	ND	ND	ND		
Tertiary Butyl Alcohol	20	ND	ND	ND		
MTBE	5	ND	ND	ND		

ND = Not detected at the indicated detection limit.
DF = Dilution Factor
Reporting Limit = DF x Detection Limit

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

ANALYTICAL REPORT

--- CAM Metals ---

Client Name:	Pinnacle Env. Technologies	Date Sampled:	09/14/01
Project Manager:	William Malvey	Date Analyzed:	09/28/01
Project Name:	Piper Center	Date Reported:	10/01/01
Sample Matrix:	Soil		

C&E ID			10917B-1	10917B-2	10917B-3		
SAMPLE ID			HC-2-40	HC-2-90	HC-2-COMP		
ELEMENT	METHOD	Detection Limit (mg/kg)	RESULT (mg/kg or ppm)				
Antimony (Sb)	6010	5	ND	ND	ND		
Arsenic (As)	6010	5	ND	ND	ND		
Barium (Ba)	6010	5	17	30	27		
Berryllium (Be)	6010	0.5	ND	ND	ND		
Cadmium (Cd)	6010	0.5	ND	ND	ND		
Chromium (Cr)	6010	1	2	5	5		
Cobalt (Co)	6010	5	ND	ND	ND		
Copper (Cu)	6010	1	3	3	4		
Lead (Pb)	6010	1	2	2	3		
Mercury (Hg)	7471	0.1	ND	ND	ND		
Molybdenum (Mo)	6010	5	ND	ND	ND		
Nickel (Ni)	6010	5	ND	ND	ND		
Selenium (Se)	6010	1	ND	ND	ND		
Silver (Ag)	6010	1	ND	ND	ND		
Thallium (Tl)	6010	5	ND	ND	ND		
Vanadium (V)	6010	5	5	8	10		
Zinc (Zn)	6010	1	9	11	13		

ND = Not detected at the indicated detection limit.

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

QC REPORT

Spike/Spike Duplicate

--- EPA 8260 ---

Date Performed: 09/28/01
Lab Sample I.D.: 10917B

Unit: ug/kg

ANALYTE	SPK CONC	MS (ug/kg)	MS %	MSD (ug/kg)	MSD %	RPD	ACP %MS	ACP RPD
DIPE	40.0	41.57	104	41.05	103	1.3	80-120	20
ETBE	40.0	40.41	101	40.33	101	0.2	80-120	20
Benzene	40.0	41.97	105	41.95	105	0.0	80-120	20
Toluene	40.0	42.63	107	42.05	105	1.4	80-120	20
Xylenes	40.0	45.94	115	45.39	113	1.2	80-120	20

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CHEMICAL & ENVIRONMENTAL LABORATORIES, INC.

QC REPORT

Spike/Spike Duplicate

— Metals —

Date Performed: 09/28/01

Lab Sample I.D.: 10917B

Unit: mg/kg

ANALYTE	SPK CONC	MS (mg/kg)	MS %	MSD (mg/kg)	MSD %	RPD	ACP %MS	ACP RPD
Arsenic	10	9.55	95.5	9.43	94.3	1.3	80-130	20
Selenium	10	8.98	89.8	9.20	92.0	2.4	80-130	20
Cadmium	10	10.76	107.6	10.80	108.0	0.4	80-130	20
Lead	10	9.71	97.1	9.77	97.7	0.6	80-130	20
Barium	10	8.75	87.5	9.30	93.0	6.1	80-130	20

14148 E. Firestone Blvd., Santa Fe Springs, CA 90670 Tel: 562 921-8123, Fax: 562 921-7974

From: "Poole, Steven" <SPoole@ballston.uscg.mil>
To: Steven Pedersen <SSPedersen@SAN.LACITY.ORG>
Date: Fri, Apr 19, 2002 10:30 AM
Subject: RE: LA River Oil Seep

Mr. Pedersen:

I have confirmed the information I provided to you earlier during our phone conversation. Unfortunately, the claims process under Title 1 of the Oil Pollution Act is not available for naturally-occurring oil (natural seepage). Therefore, the City of Los Angeles cannot submit a claim to the NPFC for reimbursement of cleanup costs incurred in response to the seeps into the LA River.

Steve Poole
Claims Manager
USCG NPFC

-----Original Message-----
From: Steven Pedersen [mailto:SSPedersen@SAN.LACITY.ORG]
Sent: Friday, April 19, 2002 12:07 PM
To: SPoole@ballston.uscg.mil
Subject: LA River Oil Seep

Dear Mr. Poole:
As I mentioned in our telephone conversation, the City of Los Angeles desires to submit a claim for reimbursement for costs incurred associated with our clean-up efforts in the LA River. In May of 2001, we received a report of oil seeping into the concrete channel of the LA River from cracks and weep holes near downtown LA. Upon further investigation, we indentified two additional sites in the river near downtown. As the local responding agency, we contained the oil seeps in the affected areas and had our private contractor clean-up the sites on three different occasions.

Additional Information:

* On May 18, 2001, the following agencies were notified of the seep:
  - Office of Emergency Services [incident #01-2875, 01-3040]
  - California Department of Fish and Game
  - United States Coast Guard
  - United States Army Corps of Engineers
  - National Response Center [incident #566602-Bennet]
  - California Department of Oil and Gas
* United States EPA representative (Region 9): Mr. Bob M. Mandel, FOSC (415) 972-3040
* Federal Project No.: A01026
* Response Authority: OPA
* State of California, Department of Fish and Game representative: Lt. Penelope Liotta

Please comment on our status in regard to the request for reimbursement.

Steve Pedersen
Chief Industrial Waste Inspector
City of Los Angeles
Watershed Protection Division
(213) 847-4719