



COUNTY OF LOS ANGELES
FIRE DEPARTMENT

P. MICHAEL FREEMAN
FIRE CHIEF
FORESTER & FIRE WARDEN

Refer reply to
Health Hazardous Materials Division
5825 Rickenbacker Rd.
Commerce CA 90040-302

November 20, 2007

Amelia Soto
Carson Redevelopment Agency
1 Civic Plaza Drive, Suite 200
Carson, CA 90745

Dear Ms. Soto:

CITY OF CARSON PROPERTY, 17505 MAIN STREET, CARSON, CA 90248
(SMU FILE # 07-700/RO0000212)

This Department has completed a review of the "Soil Remediation Report", dated October 30, 2007, submitted by your consultant, Eco & Associates. Based on information provided in the report and with the provision that the information was accurate and representative of existing conditions, we concur with your consultant that the known site contamination has been satisfactorily mitigated for the current use. The Site Mitigation Unit of this Department has no further requirement or restriction relating to this site at this time.

This letter, however, does not relieve you of any liability under the California Health and Safety Code, the State Water Code, or other applicable laws and regulations for past, present or future operations at this site. Nor does it relieve you of responsibility for any additional or unidentified conditions at the site which could threaten public health or the environment.

If you have any questions, please feel free to call Kim Clark at (323) 890-4114.

Very truly yours,

SHAHIN NOURISHAD, SUPERVISOR
SITE MITIGATION UNIT
HEALTH HAZARDOUS MATERIALS DIVISION

SN:kc

cc: Mohammad Estiri, Eco & Associates

REMEDIAL ACTION PLAN

● FINAL ●

17505 S. Main Street
Carson, California 90248
APN 7339-003-900

Prepared for:
Carson Redevelopment Agency
One Civic Plaza, Suite 200
Carson, California 90749

Prepared by:
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REMEDIAL ACTION PLAN

17505 S. Main Street
Carson, California 90248
APN 7339-003-900

Prepared for:

**Carson Redevelopment Agency
One Civic Plaza, Suite 200
Carson, California 90749**

Prepared by:



Dawn Marshall

Reviewed by:



Quin Kinnebrew, CEG, REA II



Mohammad Estiri, Ph.D.

March 2007

Project No. ECO-06-228

TABLE OF CONTENTS

REMEDIAL ACTION PLAN	1
1.0 INTRODUCTION.....	1
1.1 SITE LOCATION	1
1.2 SITE GEOLOGY AND HYDROGEOLOGY	1
2.0 SITE INVESTIGATION	2
3.0 SOIL REMEDIATION.....	3
4.0 REMEDIAL ACTION SCOPE OF WORK.....	3
4.1 GENERAL EXCAVATION PROCEDURE.....	3
4.2 ODOR AND VAPOR EMISSIONS.....	4
4.3 DECONTAMINATION PROCEDURES	4
4.4 SUPPLEMENTAL ENVIRONMENTAL CONTROLS	5
4.5 HEALTH AND SAFETY PLAN	5
4.6 DOCUMENTATION OF REMOVAL ACTIVITIES	5
4.7 BACKFILL.....	6
5.0 CONFIRMATION SOIL SAMPLING	6
5.1 EXCAVATION SAMPLING.....	6
5.2 SAMPLE PACKAGING AND SHIPPING	7
5.3 QUALITY ASSURANCE AND QUALITY CONTROL MEASURES	8
5.4 LABORATORY ANALYSES	8
6.0 FIELD VARIANCE	9
7.0 REPORT PREPARATION	9
8.0 REFERENCES	9

FIGURES

- 1 SITE LOCATION MAP
- 2 BORING LOCATION MAP
- 3 PETROLEUM HYDROCARBON RESULTS
- 4 LEAD RESULTS
- 5 RECOMMENDED REMOVAL LIMITS

TABLES

- 1 SUMMARY OF CHEMICAL ANALYSES – JULY 2006
- 2 SUMMARY OF CHEMICAL ANALYSES – SEPTEMBER 2006

APPENDIX

- A HEALTH AND SAFETY PLAN

EXECUTIVE SUMMARY

SITE LOCATION – The subject site, Assessor Parcel No. 7339-003-900, is located on the western side of Main Street between Albertoni Street and the Artesia (91) Freeway in the City of Carson (Figure 1). The Site, rectangular in shape, includes approximately 0.65 acre of land (approximately 69 feet wide by 840 feet long). Site access is achieved through a chain-link gate located off of Main Street.

The Site is located approximately 26 feet above mean sea level (U.S. Geological Survey [USGS], 1981). The Site and immediate Site vicinity slope gently toward the south. The Site is reported to be underlain by the Lakewood Formation (California Department of Water Resources [CDWR], 1961). This formation, Pleistocene in age, is comprised of mixtures and layers of clay, silt, sand, and gravel. Soil encountered during Eco's previous soil investigation was primarily comprised of silt and clay to a depth of 5 feet (maximum depth of borings).

The depth to groundwater beneath the Site is anticipated to be between 16 and 34 feet. Groundwater depths measured in 24 monitoring wells located approximately 2,000 feet south of the Site (Chevron fuel station at 111 Victoria Street) were reported between 16.12 and 18.83 feet on January 5, 2006 (data from online source: geotracker.swrcb.ca.gov). Groundwater depths measured in 11 wells located approximately 3,000 feet northwest of the Site (OTY, Inc. at 16820 Figueroa Street) were reported between 29.7 and 33.88 feet between 2001 and 2004. The groundwater flow direction beneath the Site is anticipated to be toward the south, coincident with the regional topographic gradient (USGS, 1981).

SITE INVESTIGATIONS – In July 2006, GPT collected nine soil samples from the Site (Figure 2). Seven of the soil samples were collected from the Site's south-central portion, and two were collected from the Site's eastern portion. Each collected soil sample was submitted to Alpha Scientific Corporation and analyzed for total petroleum hydrocarbons (TPHs) using U.S. Environmental Protection Agency (EPA) Test Method 8015M, Title 22 metals using EPA Test Method 6010B, and chlordane using EPA Test Method 8081A. The results of these analyses are presented in Table 1. The analytical results indicated that relatively elevated levels of TPH (C24-C40) and lead were present in onsite soil (Figures 3 and 4). Elevated petroleum hydrocarbon concentrations (ranging from 2,910 to 16,400 milligrams per kilogram [mg/kg]) were reported in soil samples collected from the Site's western portion. Elevated lead concentrations (ranging from 54 to 4,950 mg/kg) were reported in each collected soil sample. The extent of impacted soil was not ascertained at the time of GPT's investigation.

On September 7 and 8, 2006, Eco conducted a field investigation that included collecting soil samples from 16 boring locations. Samples were collected from each boring at depths of 0.5, 1.5, 3.0, and 5.0 feet (Figure 2). The collected soil samples were analyzed for one or all of the following potential chemicals of concern:

- TPHs using EPA Test Method 8015 (carbon chain),
- Title 22 metals using EPA Test Method 6000/7000 series,



- Volatile organic compounds (VOCs) using EPA Test Method 8260B, and
- Polychlorinated biphenyls (PCBs) using EPA Test Method 8082.

Soil samples collected at depths of 0.5 and 1.5 feet were analyzed for TPHs, metals (inclusive of lead), and VOCs. The samples collected at 3.0 and 5.0 feet were put on hold until the results of the initial two depths were known. One sample (B-12-3) was taken off hold and analyzed for TPHs due to the presence of TPH concentrations detected in Sample B-12-1.5. No other samples were taken off hold and analyzed.

TPH concentrations (diesel to oil range; C13 to C40) exceeding the general cleanup goal for industrial and residential settings (1,000 mg/kg) were reported within the Site's western portion (Table 1, Figure 3). The TPH levels in soil collected from the Site's western portion ranged between 9,44J and 24,170 mg/kg. Soil samples collected from Boring GPT-B-9 at a depth of 0.5 and 1.5 feet in this area were reported to contain TPH concentration of 24,140 and 4,788 mg/kg, respectively.

Lead concentrations exceeding the lead preliminary remediation goal for industrial settings (800 mg/kg) were reported in the western portion of the Site and concentrations exceeding the lead preliminary remediation goal for residential settings (150 mg/kg) were reported in the south-central portion of the Site (Figure 4). The lead concentrations reported in soil collected from 0.5 and 1.5 feet ranged up to 4,950 mg/kg. The highest lead concentrations were reported in soil samples collected from the Site's south-central and western portions (Figure 5)

SOIL REMEDIATION – Soil impacted by TPH and lead concentrations that exceed remedial action goals (based on the preliminary remediation goal for lead and general cleanup goal for TPH) were detected in samples collected from the Site's surficial soil. Soil containing concentrations that exceeded the remedial action level for TPHs and lead are targeted for removal. The recommended remedial action areas and depth are presented on Figure 5.

As noted on this figure, an estimated 2,450 square feet of impacted soil is recommended for removal. The depth of this remedial excavation is generally 1.5 feet. Deeper excavation will be required in the immediate vicinity of Boring GPT-B-8 where lead was reported at 1,560 mg/kg at 1.5 feet below ground surface. Based on data collected during this and the previous investigation, the recommended volume of soil to be excavated is approximately 120 cubic yards (180 tons).

Eco will be conducting the remedial activities under the direct oversight of the Los Angeles County Fire Department as noted in their response letter dated February 5, 2007.

REMEDIAL ACTION PLAN

**City of Carson
17505 S. Main Street
Carson, California 90248
APN 7339-003-900**

1.0 INTRODUCTION

Eco & Associates, Inc. (Eco) was contracted by the Carson Redevelopment Agency (Agency) to further investigate and remediate petroleum hydrocarbon and lead encountered in soil beneath the vacant property located at 17505 S. Main Street in the City of Carson, California (hereafter referred to as the "Site").

Elevated lead and petroleum hydrocarbon concentrations were detected in soil samples collected at the Site in July 2006 by Geo Point Technologies, Inc. (GPT) of Santa Ana, California and in September 2006 by Eco. The following sections present a review of the Site, the previous investigations, and a plan to remediate the onsite impacted soils.

1.1 SITE LOCATION

The subject site, Assessor Parcel No. 7339-003-900, is located on the western side of Main Street between Albertoni Street and the Artesia (91) Freeway in the City of Carson (Figure 1). The Site, rectangular in shape, includes approximately 0.65 acre of land (approximately 69 feet wide by 840 feet long). Site access is achieved through a chain-link gate located off of Main Street.

1.2 SITE GEOLOGY AND HYDROGEOLOGY

The Site is located approximately 26 feet above mean sea level (U.S. Geological Survey [USGS], 1981). The Site and immediate Site vicinity slope gently toward the south. The Site is reported to be underlain by the Lakewood Formation (California Department of Water Resources [CDWR], 1961). This formation, Pleistocene in age, is comprised of mixtures and layers of clay, silt, sand, and gravel. Soil encountered during Eco's previous soil investigation was primarily comprised of silt and clay to a depth of 5 feet (maximum depth of borings).

The depth to groundwater beneath the Site is anticipated to be between 16 and 34 feet. Groundwater depths measured in 24 monitoring wells located approximately 2,000 feet south of the Site (Chevron fuel station at 111 Victoria Street) were reported between 16.12 and 18.83 feet

on January 5, 2006 (data from online source: geotracker.swrcb.ca.gov). Groundwater depths measured in 11 wells located approximately 3,000 feet northwest of the Site (OTY, Inc. at 16820 Figueroa Street) were reported between 29.7 and 33.88 feet between 2001 and 2004. The groundwater flow direction beneath the Site is anticipated to be toward the south, coincident with the regional topographic gradient (USGS, 1981).

2.0 SITE INVESTIGATION

In July 2006, GPT collected nine soil samples from the Site (Figure 2). Seven of the soil samples were collected from the Site's south-central portion, and two were collected from the Site's eastern portion. Each collected soil sample was submitted to Alpha Scientific Corporation and analyzed for total petroleum hydrocarbons (TPHs) using U.S. Environmental Protection Agency (EPA) Test Method 8015M, Title 22 metals using EPA Test Method 6010B, and chlordane using EPA Test Method 8081A. The results of these analyses are presented in Table 1. The analytical results indicated that relatively elevated levels of TPH (C24-C40) and lead were present in onsite soil (Figures 3 and 4). Elevated petroleum hydrocarbon concentrations (ranging from 2,910 to 16,400 milligrams per kilogram [mg/kg]) were reported in soil samples collected from the Site's western portion. Elevated lead concentrations (ranging from 54 to 4,950 mg/kg) were reported in each collected soil sample. The extent of impacted soil was not ascertained at the time of GPT's investigation.

On September 7 and 8, 2006, Eco conducted a field investigation that included collecting soil samples from 16 boring locations. Samples were collected from each boring at depths of 0.5, 1.5, 3.0, and 5.0 feet (Figure 2). The collected soil samples were analyzed for one or all of the following potential chemicals of concern:

- TPHs using EPA Test Method 8015 (carbon chain),
- Title 22 metals using EPA Test Method 6000/7000 series,
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- Polychlorinated biphenyls (PCBs) using EPA Test Method 8082.

Soil samples collected at depths of 0.5 and 1.5 feet were analyzed for TPHs, metals (inclusive of lead), and VOCs. The samples collected at 3.0 and 5.0 feet were put on hold until the results of the initial two depths were known. One sample (B-12-3) was taken off hold and analyzed for TPHs due to the presence of TPH concentrations detected in Sample B-12-1.5. No other samples were taken off hold and analyzed.

TPH concentrations (diesel to oil range; C13 to C40) exceeding the general cleanup goal for industrial and residential settings (1,000 mg/kg) were reported within the Site's western portion (Table 1, Figure 3). The TPH levels in soil collected from the Site's western portion ranged between 9.44J and 24,170 mg/kg. Soil samples collected from Boring GPT-B-9 at a depth of 0.5



and 1.5 feet in this area were reported to contain TPH concentration of 24,140 and 4,788 mg/kg, respectively.

Lead concentrations exceeding the lead preliminary remediation goal for industrial settings (800 mg/kg) were reported in the western portion of the Site and concentrations exceeding the lead preliminary remediation goal for residential settings (150 mg/kg) were reported in the south-central portion of the Site (Figure 4). The lead concentrations reported in soil collected from 0.5 and 1.5 feet ranged up to 4,950 mg/kg. The highest lead concentrations were reported in soil samples collected from the Site's south-central and western portions (Figure 5).

3.0 SOIL REMEDIATION

Soil remediation for the western portion of the site will meet the preliminary remediation goal for industrial settings (800 mg/kg) and the south-central portion will meet the preliminary remediation goal for residential settings (250mg/kg). As noted above, soil impacted by TPH and lead concentrations that exceed remedial action goals (based on the preliminary remediation goal for lead and general cleanup goal for TPH) were detected in samples collected from the Site's surficial soil. Soil containing concentrations that exceeded the remedial action level for TPHs and lead are targeted for removal. The recommended remedial action areas and depth are presented on Figure 5.

As noted on this figure, an estimated 2,450 square feet of impacted soil is recommended for removal. The depth of this remedial excavation is generally 1.5 feet. Deeper excavation will be required in the immediate vicinity of Boring GPT-B-8 where lead was reported at 1,560 mg/kg at 1.5 feet below ground surface. Based on data collected during this and the previous investigation, the recommended volume of soil to be excavated is approximately 120 cubic yards (180 tons).

Eco will be conducting the environmental studies under the direct oversight of the Los Angeles County Fire Department as noted in their response letter dated February 5, 2007.

4.0 REMEDIAL ACTION SCOPE OF WORK

4.1 GENERAL EXCAVATION PROCEDURE

Soil removal by excavation is a common practice at sites with relatively shallow soil contamination and can be accomplished using a wide variety of conventional earth-moving equipment. The primary types of equipment most suited for onsite work include a backhoe and front-end loader. For onsite remediation, it is recommended that a standard backhoe be the primary equipment piece used to excavate the impacted soil. The relatively shallow impacted soil and smaller excavation areas are considered best suited for this smaller equipment type. The limits of the planned excavation are shown on Figure 5. Excavation depths are anticipated to range up to at least 1.5 feet.

A front-end loader will be used to load impacted soil onto trucks as well as to backfill the excavation with clean soil. Due to its heavier weight, it is also recommended that the loader be used to compact the imported clean soil.

Dump trucks will be periodically used to export contaminated soil and import clean backfill soil. The dump trucks will transport the impacted soil offsite to an approved treatment facility. If soil must be stockpiled, it will be placed on plastic sheeting. All attempts will be made to prevent migration of water from the impacted soils to the underlying soil.

4.2 ODOR AND VAPOR EMISSIONS

Dust suppression may be implemented during remedial activities. By controlling dust, emissions from airborne contaminants will be significantly reduced to levels that pose no measurable risk to the health of the remediation personnel or adjoining properties. The water spray used to control dust will significantly reduce the emissions from any potential substances that may be present in the soil.

Soil will be removed from the Site on a continuing basis, no stockpiling is anticipated. In those rare cases when a stockpile of contaminated soil or exposed excavation must be left overnight at the Site, it will be properly covered with plastic so that any emissions of VOCs or dust are minimized or eliminated entirely.

As part of the health and safety requirement, monitoring of excavations will be conducted using a photoionization detector (PID). This instrument will be calibrated daily according to the manufacturer's specifications. If sustained elevated readings (greater than 50 parts per million) are recorded during remediation activities (although not anticipated), then proper engineering control measures will be implemented as needed to reduce the emission of volatiles.

4.3 DECONTAMINATION PROCEDURES

To prevent transfer of contaminated materials offsite or remove residual contamination from the Site itself (if left by construction equipment or personnel), the following decontamination procedures will be implemented:

- Before excavated materials are loaded into trucks, plastic sheeting will be placed on the ground to prevent spilled materials from contacting the ground surface. Upon completion of loading, any debris will be placed in the appropriate container for proper disposal and the plastic sheeting will be folded and disposed of.
- All equipment, particularly wheels, will be fully cleaned over plastic sheeting and metal grates using shovels, brushes, and stiff-bristled brooms. Afterward, all soil debris will be placed into an appropriate container for proper disposal.
- Personal protective equipment will be removed, and anything disposable will be discarded in the contamination-reduction zone. To decontaminate reusable items such as work boots, a two-stage decontamination process will be used. It will include washing in



a detergent solution with a stiff-bristled brush and rinsing with clean water. This wastewater may be used on contaminated soil (to be exported) or to control dust.

- The backhoe bucket will be decontaminated during this remedial process as judged necessary by Eco personnel. If, for example, excavation moves from a highly contaminated location to a location with relatively little to no contamination, the backhoe bucket and other excavation equipment will be decontaminated. Soil sampling equipment will also be decontaminated prior to use at each location.

Equipment decontamination will be performed according to the following procedures:

- Nonphosphate detergent and tap-water wash using a brush,
- Tap-water rinse, and
- De-ionized/distilled water rinse (twice).

Cleaned equipment will be stored on plastic sheeting in uncontaminated areas. Cleaned small equipment, such as soil sampling equipment, will be stored in plastic bags. Materials to be stored more than a few hours will also be covered. Disposable equipment intended for one-time use will not be decontaminated but will be packaged for appropriate disposal.

4.4 SUPPLEMENTAL ENVIRONMENTAL CONTROLS

Other environmental controls may be required if anticipated conditions at the Site change. Remediation will be conducted in a very proactive manner to identify unanticipated problems and develop appropriate engineering controls to mitigate them. A California registered geologist will be onsite at all times to supervise remediation activities.

4.5 HEALTH AND SAFETY PLAN

A site-specific health and safety plan developed for use during remediation activities at this Site is presented in the Appendix. It establishes policies and procedures to protect site workers and the environment from predicted or unpredicted site hazards. In the latter case, the plan will be modified as needed.

4.6 DOCUMENTATION OF REMOVAL ACTIVITIES

Prior to the start of remediation, photos will be taken using a digital camera to document the initial condition of the Site. Photographs will then show remediation progress as well as contamination encountered. The excavation limits will be surveyed and documented as remediation progresses.

During field activities, Eco will also maintain daily logs that include the following as a minimum:

- Sign-in and sign-out of all personnel at the Site,
- Activities conducted,
- Quantities and types of excavated materials,
- A list of materials hauled to the Site as well as materials used and excess material hauled offsite,
- Equipment used,
- Calibration and readings from field monitoring, and
- A record of all formal Site meetings such as health and safety meetings, daily tailgate meetings, and agency meetings.

4.7 BACKFILL

Following excavation, approximately 180 tons of clean soil will be transported to the Site and used to backfill the excavated area. The source of imported soil will be determined prior to the start of remediation activities. The imported soil will be placed within the excavation in lifts of 0.5 to 1 foot. These lifts will be wheel rolled (compacted) to minimize subsequent settlement prior to the placement of additional soil.

5.0 CONFIRMATION SOIL SAMPLING

5.1 EXCAVATION SAMPLING

Confirmation soil samples will be collected from the onsite excavation prior to backfilling and restoration activities to verify that all remedial action goals have been achieved.

After soil removal, confirmation samples will be collected from the walls and bottoms of the excavations. All sampling equipment will be decontaminated prior to the collection of each sample. Prior to sampling, any loose material or soil will be gently brushed off the surface of the excavation and care will be taken to collect the sample from an area unaffected by the excavation.

Sidewall samples will be collected at lateral intervals of approximately 10 feet (at least one sample per sidewall). Each sidewall soil sample will be collected approximately halfway down the wall. For example, if the excavation is 5 feet deep at the sidewall sample location, then the sample will be collected at a depth of approximately 2.5 feet. Sidewall soil samples will be collected directly into glass jars or stainless steel sleeves by scraping the excavation face into sampling jars or driving a sleeve into the face at each prescribed depth.

Bottom samples will be based on the size of the excavation. Because of this limited area, we propose to collect one randomly selected sample from every 100 square feet at the base of each excavation. If unexpected removal action increases the size of the excavation, additional samples will be collected. Additional sampling locations, if necessary, will be selected by the California registered geologist.

Confirmation soil samples will be collected by the directly inserting a stainless steel tube or a laboratory-supplied, 4-ounce glass sample jar into the soil. All sample jars or tubes will be fully filled with soil and sealed with Teflon-lined lids. The samples will be appropriately labeled, placed in resealable plastic bags, and stored on ice in a cooler until delivered under chain-of-custody protocol to the analytical laboratory. The laboratory will be instructed to homogenize each sample prior to analysis. Confirmation samples will be analyzed for petroleum hydrocarbons and metals (see Section 5.4).

5.2 SAMPLE PACKAGING AND SHIPPING

All samples collected will be labeled in a clear and precise way for proper identification in the field and tracking in the laboratory. The samples will have preassigned, identifiable, and unique numbers. At a minimum, the sample labels will contain the following information: project number, site name, site location, excavation number, sampler's initials, and date and time of collection.

Following collection and labeling, samples will be immediately placed in a sample cooler for temporary storage. The following protocol will be followed for sample packaging:

- A self-adhesive custody seal will be placed across the lid of each sample container.
- Sample containers will be placed in clear, plastic, leak-resistant bags prior to placement in the ice chest.
- Samples to be shipped will be placed in the cooler and filled with packaging materials to minimize the potential for disturbance and/or breakage of the sample containers.
- Ice or blue ice packs will be placed in leak-resistant bags and included in the coolers to keep samples at a chilled temperature during transport to the analytical laboratory. When ice is used, the drain plug of the cooler will be secured with fiberglass tape to prevent melting ice from leaking out of the cooler.
- The chain-of-custody form will be placed in a water-resistant plastic bag and taped on the inside of the cooler lid.
- Strapping tape will be placed around all coolers prior to transport to the laboratory.
- A self-adhesive custody seal will be placed across the front closure of the cooler.

Every effort will be made to transport the samples to the analytical laboratory at the end of the sampling day. If the sampling runs late and the laboratory is closed, the samples will be stored overnight in a secure location under appropriate chain-of-custody procedures and the samples will be shipped to the laboratory the next day. Prior to overnight storage, the cooler(s) will be restocked with new ice or blue ice to maintain the samples in a chilled state.

5.3 QUALITY ASSURANCE AND QUALITY CONTROL MEASURES

A quality assurance/quality control (QA/QC) program will be implemented during this remedial activity to ensure the reliability and compatibility of all data generated during confirmation sampling. Approximately 10 percent of the total number of samples collected will be accompanied by duplicate samples collected simultaneously with the standard samples from the same sources under identical conditions into separate sample containers. The duplicate samples will be collected by Eco personnel and submitted to the analytical laboratory.

A duplicate sample is treated independently of its counterpart to assess laboratory performance through comparison of the results. Every analytical group for which a standard sample is analyzed will also be tested for in the duplicate samples. The samples submitted as duplicates will be determined at the time of the investigation. Duplicate samples will be collected from areas of known or suspected contamination.

The duplicate samples will be preserved, packaged, and sealed in the same manner as other samples of the same location.

5.4 LABORATORY ANALYSES

The collected confirmation soil samples will be delivered to the American Environmental Testing Laboratory (AETL) for chemical analyses. Each collected soil sample will be analyzed using the following EPA methods:

- TPHs using EPA Test Method 8015 (carbon chain), and
- Title 22 metals using EPA Test Method 6000/7000 series.

For analytical results, various qualifiers pertaining to the quality of the data are attached to certain data by the laboratory conducting the analysis. All qualifiers will be discussed prior to using the chemical data for the screening evaluation.

The analytical laboratory will be instructed to report estimated concentrations, such as those above the method detection limit and below the reporting limit. The final report will include a signed statement by the laboratory and project QA manager certifying that all internal QA/QC goals have been met.

6.0 FIELD VARIANCE

Because conditions in the field may vary, it may become necessary to implement minor modifications to the remedial procedures described in this report. When modifications are considered warranted, an Agency representative will be notified of the modifications and verbal approval will be obtained before implementing the modifications. Modifications will be documented in the final report.

7.0 REPORT PREPARATION

At the completion of this remedial effort, Eco will prepare a report summarizing the fieldwork and results of the remediation. The report will include a description of the remediation procedures, final remedial excavation limits, confirmation sampling results, and a summary of our findings, conclusions, and recommendations.

8.0 REFERENCES

California Department of Water Resources (CDWR), 1961, Bulletin No. 104 – *Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County (Appendix A – Ground Water Geology)*, June 1961 (reprinted May 1991).

Geo Point Technologies, Inc. (GPT), 2006, Cover Letter and Alpha Scientific Corporation Environmental Laboratories Results, Santa Ana, California.

U.S. Environmental Protection Agency (Region IX), 2004, *Region 9 Preliminary Remediation Goals*, October 2004.

U.S. Geological Survey (USGS), 1981 (photorevised from 1964), Torrance, California Minute Quadrangle, Scale 1" = 2,000'.

TABLE 1
SCH. ANALYTICAL RESULTS FOR CAM TITLE 22 METALS (mg/kg)
AUGUST 2007

AUGUST 2017																		
Sample ID	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	
STLC Limit	15	5.0	100	0.75	1.0	5	80	25	5.0	0.2	360	20	1.0	5.0	70	24	250	
TCUP Limit	5.0	1.0	100	1.0	5.0	800	2500	1000	20	0.2	1200	2000	100	5.0	700	2400	5000	
05-17-07-BB-G4-EW8	ND<1.0	ND<1.0	79.5	ND<1.3	1.70J	11.8	8.25	15.8	32.7	ND<0.1	ND<2.5	7.80	ND<1.0	ND<2.5	ND<1.0	25.6	71.0	
05-17-07-BB-G4-E3	ND<1.0	ND<1.0	79.5	ND<1.3	1.75J	11.8	8.40	18.8	42.7	ND<0.1	ND<2.5	8.15	ND<1.0	ND<2.5	ND<1.0	24.0	83	
05-17-07-BB-G2-WW4	ND<1.0	ND<1.0	153	ND<1.3	5.15	14.6	8.10	38.3	319	ND<0.1	ND<2.5	22.7	ND<1.0	ND<2.5	ND<1.0	24.9	365	
05-17-07-BB-G1-B1	ND<1.0	ND<1.0	63.5	ND<1.3	1.30J	10.4	5.65	10.0	7.85	ND<0.1	ND<2.5	8.30	ND<1.0	ND<2.5	ND<1.0	22.2	48.2	
05-17-07-BB-G1-WW2	2.80J	4.40J	232	ND<1.3	20.3	18.8	5.75	41.4	177	0.150J	7.05	12.8	ND<1.0	ND<2.5	ND<1.0	18.8	428	
05-17-07-BB-G6-B11	ND<1.0	ND<1.0	72.0	ND<1.3	1.70J	11.8	8.55	23.5	33.5	ND<0.1	ND<2.5	7.85	ND<1.0	ND<2.5	ND<1.0	24.3	103	
05-17-07-BB-G6-EW12	1.00J	2.75J	157	ND<1.3	11.8	17.7	8.90	85.5	728	0.200	ND<2.5	28.2	ND<1.0	ND<2.5	ND<1.0	25.1	304	
05-17-07-B13-14-SV5	ND<1.0	ND<1.0	82.0	ND<1.3	1.55J	12.2	7.80	18.0	28.7	ND<0.1	ND<2.5	8.15	ND<1.0	ND<2.5	ND<1.0	26.6	85.0	
05-17-07-B13-14-WW4	ND<1.0	ND<1.0	81.0	ND<1.3	ND<1.3	11.4	7.60	11.8	8.95	ND<0.1	ND<2.5	8.80	ND<1.0	ND<2.5	ND<1.0	26.8	41.0	
05-17-07-B15-B1	ND<1.0	ND<1.0	86.5	ND<1.3	ND<1.3	14.4	6.20	10.3	4.85J	ND<0.1	ND<2.5	8.55	ND<1.0	ND<2.5	ND<1.0	31.7	33.3	
05-17-07-B15-EW2	ND<1.0	2.20J	112	ND<1.3	2.45J	15.8	7.85	77.0	77.5	ND<0.1	ND<2.5	11.1	ND<1.0	ND<2.5	ND<1.0	28.9	141	
05-17-07-B15-WW5	ND<1.0	ND<1.0	82.0	ND<1.3	2.25J	14.1	7.85	33.8	72.5	ND<0.1	ND<2.5	11.6	ND<1.0	ND<2.5	ND<1.0	28.1	140	
05-17-07-B15-WW4	ND<1.0	ND<1.0	84.5	ND<1.3	1.55J	13.0	7.50	21.0	33.7	ND<0.1	ND<2.5	9.7	ND<1.0	ND<2.5	ND<1.0	28.7	92.0	
05-17-07-B15-WW3	ND<1.0	3.25J	108	ND<1.3	3.85	18.1	9.30	54.5	220	ND<0.1	ND<2.5	12.0	ND<1.0	ND<2.5	ND<1.0	33.8	279	
05-17-07-BB-9-G5-B9	ND<1.0	ND<1.0	88.0	ND<1.3	1.45J	12.5	7.75	12.3	29.4	ND<0.1	ND<2.5	7.1	ND<1.0	ND<2.5	ND<1.0	27.7	51.5	
05-17-07-BB-9-G5-EW10	ND<1.0	ND<1.0	89.5	ND<1.3	ND<1.3	11.5	8.85	12.0	2.95J	ND<0.1	ND<2.5	8.35	ND<1.0	ND<2.5	ND<1.0	25.2	33.1	
05-17-07-BB-G3-B5	ND<1.0	ND<1.0	88.5	ND<1.3	2.05J	11.3	8.05	18.1	27.8	ND<0.1	ND<2.5	8.50	ND<1.0	ND<2.5	ND<1.0	23.8	106	
05-17-07-BB-G3-WW6	ND<1.0	2.50J	89.5	ND<1.3	8.90	18.3	8.10	55.0	88.0	ND<0.1	ND<2.5	7.70J	18.3	ND<1.0	ND<2.5	ND<1.0	22.9	387
05-17-07-BB-G4-B7	ND<1.0	1.95J	73.5	ND<1.3	2.25J	11.8	8.20	20.8	30.1	ND<0.1	ND<2.5	7.90	ND<1.0	ND<2.5	ND<1.0	23.9	78.0	
05-17-07-B1-B1	ND<1.0	ND<1.0	88.0	ND<1.3	ND<1.3	12.6	8.05	11.1	8.40	ND<0.1	ND<2.5	7.45	ND<1.0	ND<2.5	ND<1.0	26.8	35.8	
05-17-07-B1-EW2	ND<1.0	ND<1.0	87.5	ND<1.3	ND<1.3	12.2	8.20	17.2	52.5	ND<0.1	ND<2.5	8.00	ND<1.0	ND<2.5	ND<1.0	26.8	104	
05-17-07-B1-WW4	ND<1.0	ND<1.0	88.0	ND<1.3	ND<1.3	11.7	7.85	10.3	4.60J	ND<0.1	ND<2.5	8.80	ND<1.0	ND<2.5	ND<1.0	26.9	32.0	
05-17-07-B1-SV5	ND<1.0	ND<1.0	81.0	ND<1.3	ND<1.3	12.10	7.70	13.0	8.05	ND<0.1	ND<2.5	8.90	ND<1.0	ND<2.5	ND<1.0	27.5	36.3	
05-17-07-B1-WW3	ND<1.0	ND<1.0	78.5	ND<1.3	1.35J	11.8	7.60	14.0	28.2	ND<0.1	ND<2.5	8.20	ND<1.0	ND<2.5	ND<1.0	27.6	50.0	
05-17-07-B13-14-20-B2	ND<1.0	ND<1.0	90.5	ND<1.3	ND<1.3	12.7	8.20	13.0	8.70	ND<0.1	ND<2.5	7.35	ND<1.0	ND<2.5	ND<1.0	28.0	41.3	
05-17-07-B13-14-B-B1	ND<1.0	ND<1.0	90.0	ND<1.3	1.35J	14.1	8.85	12.4	8.05	ND<0.1	ND<2.5	8.40	ND<1.0	ND<2.5	ND<1.0	35.4	42.1	
05-17-07-B13-14-EW3	ND<1.0	ND<1.0	15.5	ND<1.3	ND<1.3	13.2	7.80	10.8	8.40	ND<0.1	ND<2.5	8.50	ND<1.0	ND<2.5	ND<1.0	29.5	31.5	
05-17-07-B13-14-WW6	ND<1.0	ND<1.0	84.0	ND<1.3	ND<1.3	12.8	8.10	23.7	7.20	ND<0.1	ND<2.5	7.80	ND<1.0	ND<2.5	ND<1.0	28.5	39.4	
05-17-07-FDUP-1	7.50J	ND<1.0	84.5	ND<1.3	2.58	12.4	8.45	28.5	78.5	ND<0.1	ND<2.5	10.1	ND<1.0	ND<2.5	ND<1.0	25.4	148	
05-17-07-FDUP-2	ND<1.0	4.20J	101	ND<1.3	1.80J	18.1	8.15	25.6	42.1	ND<0.1	ND<2.5	11.7	ND<1.0	ND<2.5	ND<1.0	31.5	112	
05-17-07-FDUP-3	ND<1.0	ND<1.0	87.0	ND<1.3	ND<1.3	12.8	8.45	18.8	41.8	ND<0.1	ND<2.5	8.50	ND<1.0	ND<2.5	ND<1.0	28.5	63.0	
05-17-07-SP-E-E4	ND<1.0	ND<1.0	79.5	ND<1.3	2.75	12.3	ND<2.5	57.5	72.5	ND<0.1	ND<2.5	29.3	ND<1.0	ND<2.5	ND<1.0	27.1	184	
05-17-07-SP-E-N-3	ND<1.0	ND<1.0	78.5	ND<1.3	1.50J	10.9	8.40	85.5	34.4	ND<0.1	ND<2.5	8.50	ND<1.0	ND<2.5	ND<1.0	23.7	118	
05-17-07-SP-E-W-2	ND<1.0	ND<1.0	91.5	ND<1.3	2.30J	12.0	8.95	87.0	87.0	ND<0.1	ND<2.5	8.05	ND<1.0	ND<2.5	ND<1.0	24.8	181	
05-17-07-SP-E-S-1	ND<1.0	ND<1.0	74.5	ND<1.3	1.75J	13.2	7.00	308	29.5	ND<0.1	ND<2.5	14.3	ND<1.0	ND<2.5	ND<1.0	27.1	205	

Notes
J = analyte was detected. However, analyte concentration is an estimated value between the method detection limit (MDL) and the practical quantitation limit (PQL).
ND<X = constituent(s) not detected at or above method detection limit

TABLE 2

SOIL ANALYTICAL RESULTS FOR LEAD AND TPH (mg/kg)

AUGUST 2007

Sample ID	Lead	TPH as Gasoline and Light Hydrocarbons (C4-C12)	TPH as Diesel (C13-C22)	TPH as Heavy Hydrocarbons (C23-C40)	Total TPH (C13-C40)
08-17-07-B8-G4-EW8	32.7	ND<5.00	821	1750	2570
08-17-07-B9-8-G2-B3	42.7	ND<5.00	ND<5.0	141	141
08-17-07-B9-8-G2-WW4	319	ND<5.00	123	847	970
08-17-07-B9-G1-B1	7.85	ND<5.00	ND<5.0	ND<5.0	ND<5.0
08-17-07-B9-G1-WW2	177	ND<5.00	37.2	332	369
08-17-07-B9-G6-B11	33.5	ND<5.00	ND<5.0	17.0	17.0
08-17-07-B9-G6-EW-12	728	ND<5.00	1150	3590	4740
08-17-07-B8-9-G5-B9	20.4	ND<5.00	ND<5.0	41.0	41.0
08-17-07-B8-9-G5-EW10	2.95J	ND<5.00	ND<5.0	ND<5.0	ND<5.0
08-17-07-B8-G3-B5	27.8	ND<5.00	ND<5.0	46.2	46.2
08-17-07-B8-G3-WW6	88.0	ND<5.00	ND<5.0	23.2	23.2
08-17-07-B8-G4-B7	30.1	ND<5.00	ND<5.0	133	133
08-17-07-B1-B1	6.40				
08-17-07-B1-EW2	52.5				
08-17-07-B1-NW4	4.60J				
08-17-07-B1-SW5	9.05				
08-17-07-B1-WW3	29.2				
08-17-07-B13-14-20-B2	6.70				
08-17-07-B13-14-8-B1	6.05				
08-17-07-B13-14-EW3	6.40				
08-17-07-B13-14-NW6	7.20				
08-17-07-B13-14SW5	26.7				
08-17-07-B13-14-WW4	6.95				
08-17-07-B15-B1	4.65J				
08-17-07-B15-EW2	77.5				
08-17-07-B15-NW5	72.5				
08-17-07-B15-SW4	33.7				
08-17-07-B15-WW3	220				
08-17-07-FDUP-1	78.5				
08-17-07-FDUP-2	42.1				
08-17-07-FDUP-3	41.8				

Notes:

Sample date = August 17, 2007

Laboratory Job Number = 43620

ND<X = indicates constituent not detected at or above method detection limit (MDL).

J = indicates analyte concentration is an estimated value between the MDL and the practical quantitation limit (PQL).

FDUP = Field Duplicate

Not all samples were analyzed for TPH.

Analysis performed by

TABLE 3

STOCKPILE RESULTS FOR CAM TITLE 22 METALS (mg/kg)
AUGUST 2007

Sample ID		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
STLC Limit		15	5.0	100	0.75	1.0	5	80	25	5.0	0.2	350	20	1.0	5.0	70	24	250
TCLP Limit	mg/L	5.0	5.0	100		1.0	5.0			5.0	0.2			1.0	5.0			
TTLC Limit		500	500	10000	75	100	2500	8000	2500	1000	20	3500	2000	100	500	700	2400	5000
08-17-07-SP-W-NE-2*		1.65J	1.65J	90.0	ND<1.3	4.65	11.8	5.10	38.4	274	ND<0.1	ND<2.5	12.7	ND<1	ND<2.5	ND<1.0	17.9	197
08-17-07-SP-W-NW-3*		1.40J	ND<1.0	72.0	ND<1.3	2.20J	10.9	5.75	25.5	89.0	ND<0.1	ND<2.5	9.55	ND<1	ND<2.5	ND<1.0	22.3	101
08-17-07-SP-W-SE-1*		ND<1.0	2.00J	92.5	ND<1.3	4.45	12.0	6.10	33.6	178	ND<0.1	ND<2.5	14.4	ND<1	ND<2.5	ND<1.0	22.8	206
08-17-07-SP-W-SW-4*		ND<1.0	1.30J	76.5	ND<1.3	2.30J	12.1	6.65	18.8	76.5	ND<0.1	ND<2.5	9.60	ND<1	ND<2.5	ND<1.0	25.3	148
08-17-07-SP-E-E-4**		ND<1.0	ND<1.0	79.5	ND<1.3	2.75	12.3	ND<2.5	573	72.5	ND<0.1	ND<2.5	20.3	ND<1.0	ND<2.5	ND<1.0	27.1	184
08-17-07-SP-E-N-3**		ND<1.0	ND<1.0	76.5	ND<1.3	1.55J	10.9	6.40	65.5	34.4	ND<0.1	ND<2.5	8.50	ND<1.0	ND<2.5	ND<1.0	23.7	118
08-17-07-SP-E-W-2**		ND<1.0	ND<1.0	91.5	ND<1.3	2.30J	12.0	6.95	292	67.0	ND<0.1	ND<2.5	9.05	ND<1.0	ND<2.5	ND<1.0	24.8	181
08-17-07-SP-E-S-1**		ND<1.0	ND<1.0	74.5	ND<1.3	1.75J	13.2	7.00	308	29.5	ND<0.1	ND<2.5	14.3	ND<1.0	ND<2.5	ND<1.0	27.1	205

Notes

* = sample taken August 16, 2007

** = sample taken August 17, 2007

J = analyte was detected. However, analyte concentration is an estimated value between the method detection limit (MDL) and the practical quantitation limit (PQL).

ND<X = constituent(s) not detected at or above method detection limit.

TABLE 4

**STOCKPILE RESULTS FOR TPH (mg/kg)
AUGUST 2007**

Sample ID		TPH as Gasoline and Light HC (C4-C12)	TPH as Diesel (C13-C22)	TPH as Heavy HC (C23-C40)	TPH as Diesel and Heavy HC (C13-C40)
STLC Limit	mg/L	15	5.0	100	0.75
TCLP Limit			5.0	100	
TTLCL Limit		500	500	10000	75
08-17-07-SP-W-NE-2*		ND<0.500	540	1,810	2,350
08-17-07-SP-W-NW-3*		ND<0.500	213	599	812
08-17-07-SP-W-SE-1*		ND<0.500	122	507	629
08-17-07-SP-W-SW-4*		ND<0.500	246	615	861
08-17-07-SP-E-E-4**		ND<0.500	ND<5.0	100	100
08-17-07-SP-E-N-3**		ND<0.500	ND<5.0	22.0	22.0
08-17-07-SP-E-W-2**		ND<0.500	269	911	1180
08-17-07-SP-E-S-1**		ND<0.500	15.2	124	139

Notes:

* = sample taken August 16, 2007

** = sample taken August 17, 2007

J = analyte was detected. However, analyte concentration is an estimated value between the method detection limit (MDL) and the practical quantitation limit (PQL).

ND<X = constituent(s) not detected at or above method detection limit.









