



PORT OF OAKLAND

November 30, 1995

Mr. Dale Klettke
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway
Alameda, CA 94502

**SUBJECT: STID #2485 TANK CLOSURE REPORT, TANK NO. EF-10, BERTH 63,
AMERICAN PRESIDENT LINE TERMINAL AREA**

Dear Mr. Klettke:

Enclosed is a report prepared by Alisto Engineering Group that documents a closure and removal of a 4,000 gallon underground diesel fuel tank (Port of Oakland Tank No. EF-10) that was located within the American President Line Terminal Area, Berth 63. In addition, diesel-affected soils and ground water were removed from the site. Findings from the soil sampling effort indicated that the excavation efforts have effectively removed TPH-D impacted soils with concentrations greater than 50 milligrams per kilogram. In addition only 5.3 milligrams per liter of TPH-D were detected in the ground water. BTEX constituents were not detected.

Based upon the findings from the Alisto Engineering Group report, the Port of Oakland requests that the County review the site for closure. If you have any questions regarding the enclosed report and/or the site, please contact the undersigned at 272-1373.

Sincerely,

John Prall, R.G.

Associate Environmental Scientist

Enclosure

bcc: Dave Adams
Neil Werner
David McAneny

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TANK CLOSURE REPORT

Port of Oakland Tank EF-10
Berth 63 - American President Line Terminal
1395 Middle Harbor Road
Oakland, California

Project No. 10-256-02-004

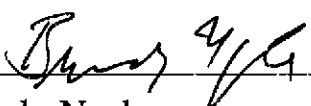
Prepared for:

Port of Oakland
530 Water Street
Oakland, California


Prepared by:

Alisto Engineering Group
1575 Treat Boulevard, Suite 201
Walnut Creek, California

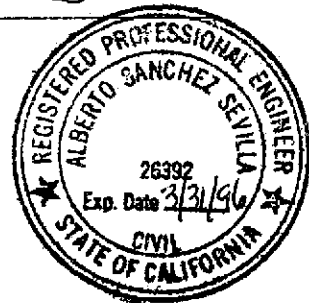
October 31, 1995



Brady Nagle
Project Manager



Al Sevilla, P.E.
Principal



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1.0 INTRODUCTION

The Port of Oakland retained Alisto Engineering Group to provide engineering consulting services during removal of an underground fuel storage tank, EF-10, piping, and dispenser system, and disposal of petroleum hydrocarbon-impacted soil at Berth 63, doing business as American President Terminal Lines, 1395 Middle Harbor Road, Oakland, California. This report presents the results of field activities and observations during tank closure. A site vicinity map is shown on Figure 1.

2.0 SCOPE OF WORK

The scope of work performed during tank closure included the following tasks:

- Visual inspection during removal of the underground storage tank, piping, and dispenser system
- Documentation of excavation and disposal of petroleum hydrocarbon-impacted soil
- Documentation of purging and disposal of approximately 2500 gallons of water from the tank cavity
- Collection of soil and groundwater samples for laboratory analysis
- Preparation of this report presenting the results of these activities

3.0 FIELD METHODS AND PROCEDURES

The field methods and procedures used were in accordance with the requirements and guidelines of the Alameda County Health Care Services Agency (ACHCSA) and the California Regional Water Quality Control Board, San Francisco Bay Region, including the Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Site, August 10, 1990.

Field activities were performed in accordance with the site-specific health and safety plan, a copy of which is presented in Appendix A. The site was secured with a temporary fence and stockpiled soil was placed on and covered by plastic sheeting.

3.1 Underground Storage Tank Removal

On July ²⁴25, 1995, one single-walled, tar-covered, steel 4000-gallon underground diesel fuel storage tank was removed from the site for disposal. The tank was approximately 20 feet long and 6 feet in diameter, and the bottom of the tank was at approximately 13 feet below grade. The former location of the tank is shown on Figure 2.



Tank removal and subsequent soil excavation were performed by Pacific Rim Engineering, San Francisco, California. Mr. Dale Swain of Alisto Engineering and Mr. Mark Vigeant of Pacific Rim Engineering were onsite during tank removal and soil excavation. Tank closure was initiated by removing product and disconnecting product distribution and electrical wiring systems. Dry ice was placed into the tank through the fill port to displace hydrocarbon vapor. The tank removal was observed by Mr. David McAneny of the Port of Oakland, Ms. Jennifer Eberle of the ACHCSA, and Mr. Gil Cody of the City of Oakland Fire Department.

Since the tank was used for diesel fuel storage, measurement of lower explosive limit and oxygen content in the tank before removal was not required.

Before loading on a flat-bed truck, the condition of the tank was noted. There were no holes, corrosion, or welding failure observed. The tank was transported by H & H Environmental Services, San Francisco, California, to Pacific Rim Corporation, Patterson, California. The certificate of disposal and uniform hazardous waste manifests for disposal of the tank and its contents are presented in Appendix B.

3.2 Soil Sampling

On July 25, 1995, immediately after removal of the tank and backfill material, Soil Samples S-1 and S-2 were collected from the native soil at the bottom of the cavity at 13.5 and 14.0 feet below grade. In addition, Soil Samples S-3 and S-4 were collected from the fill material at the bottom of the former electrical and fuel pump box locations and the piping trench at 2.5 and 3.0 feet below grade.

On August 7, 1995, the hose reel boxes were removed and Soil Samples S-5 and S-6 were collected from native soil at the bottom of the cavity. Based on the concentration of total petroleum hydrocarbons as diesel (TPH-D) detected in S-1 and S-3, additional soil was excavated near the west end of the tank cavity and the fuel pump box, and Soil Samples S-7 and S-8 were collected from the extent of the additional excavation.

On August 14, 1995, additional soil was excavated from the pump box based on the concentration of TPH-D detected in S-8; and Soil Sample S-9 was collected from the bottom of the cavity. Additional soil was also removed from the former location of the hose reel boxes based on the TPH-D levels detected in S-5 and S-6, and Soil Samples S-10 and S-11 were collected.

The results of each soil sampling event was provided to Ms. Jennifer Eberle of the ACHCSA to procure regulatory guidance before additional soil excavation. Ms. Eberle was onsite during tank removal and each soil excavation event.

Backfill used during original installation of the tank and trench lines consisted of imported sand. The material beyond the imported backfill consisted of fine-grained sand fill with occasional brick and timber. Below the fill material, native silty clay was observed at a depth of approximately 11 feet.



Petroleum hydrocarbon odors indicative of diesel were noticed during tank removal and soil excavation. A Thermo Environmental Instruments Model 580B photoionization detector was used to monitor volatile organic compound content in ambient air, and did not detect any above the detection limits of the instrument.

The procedures for soil sampling are presented in Appendix C. The sample locations, designations, and depths are shown on Figure 3, and the analytical results for the soil samples collected are presented in Table 1.

3.3 Grab Groundwater Sampling

Groundwater was not observed in the cavity during tank removal and initial excavation. However, after overexcavation on August 14, 1995, groundwater was in the cavity at approximately 8.5 feet below grade and was observed to rise and fall within the excavation during the field activities.

On August 16, 1995, approximately 2500 gallons of groundwater was pumped from the tank cavity by H & H Environmental Services. The water was brown in color and turbid. A hydrocarbon sheen was only observed on the groundwater in the tank cavity before the pumping event. The uniform hazardous waste manifest for water disposal is presented in Appendix B.

On August 16, 1995, a grab groundwater sample, TP-1, was collected from the tank cavity using a disposable bailer to be analyzed for specific constituents. The sample was collected after groundwater was pumped from the tank cavity and allowed to recharge. The results of grab groundwater sampling and analysis are presented in Table 2.

3.4 Stockpiled Soil Sampling

During tank removal on July 25, 1995, Stockpile A was accumulated from excavation of tank backfill material. Soil generated during subsequent excavation was designated as Stockpile B. On August 7, 1995, Soil Samples SP-2 through SP-5 were collected from Stockpile A and composited into one sample for analysis, and SP-6 through SP-9 were collected from Stockpile B and composited into one sample for analysis. Sample S-1 was not analyzed. The analytical results for the stockpiled soil samples are presented in Table 3.

Based on the results of stockpiled soil sample analysis, approximately 144 yards of excavated material was transported by Denbeste Transportation, Winsor, California, to Vasco Road Landfill, Livermore, California for disposal. The uniform hazardous waste manifest for soil disposal is presented in Appendix B.



3.5 Tank Cavity Backfilling

On August 16, 1995, after tank removal and soil and groundwater sampling, the cavity was backfilled to grade with compacted, imported pea gravel from Tidewater Sand & Gravel, Oakland, California. Backfilling was performed under the direction of Mr. Mark Vigeant of Pacific Rim Environmental.

4.0 ANALYTICAL METHODS

Soil and groundwater samples were analyzed by Pace Environmental Laboratories, Petaluma, California and Clayton Environmental Consultants, Pleasanton, California under direct contract with the Port of Oakland. The samples were analyzed using standard test methods of the United States Environmental Protection Agency (EPA) and the California Department of Health Services for the following constituents:

- TPH-D using EPA Methods 5030/8015 (modified)
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Methods 5030/8020

Additionally, composited Soil Samples SP-2 through SP-5 and SP-6 through SP-9 were analyzed for the following to comply with the acceptance requirements of the disposal site:

- Total lead using EPA Method 6010
- pH to determine corrosivity using EPA Method 9045
- Flash point to determine ignitability
- Reactivity to cyanide and sulfide using Method SW846

The results of the laboratory analysis are presented in Tables 1 and 2; and the field procedures for chain of custody documentation, the laboratory reports, and the chain of custody records are presented in Appendix D.

5.0 RESULTS AND FINDINGS

The findings, based on the results of sampling and analysis, are summarized as follows:

- The underground tank was observed to be intact with no holes.
- Analysis of Soil Samples S-1 and S-2, collected at the bottom of the sidewalls at the west end of the tank cavity, detected up to 2600 milligrams per kilogram (mg/kg) TPH-D. BTEX constituents were not detected above the reported detection limits.



- After overexcavation of the west end of the tank cavity, TPH-D was not detected above the reported detection limit in Sample S-7.
- Laboratory analysis of Soil Sample S-8, collected after initial excavation at the former fuel pump box, detected 1300 mg/kg TPH-D, 3.8 micrograms per kilogram (ug/kg) benzene, 13 ug/kg toluene, and 16 ug/kg total xylenes. After additional excavation, Soil Sample S-9 was collected. Analysis of S-9 detected 25 mg/kg TPH-D. BTEX constituents were not detected above the reported detection limits in this sample.
- Analysis of Soil Samples S-10 and S-11, collected after additional soil was removed from the former location of the hose reel boxes, did not detect petroleum hydrocarbons above the reported detection limits. *50 ppm TPHd!*
- TPH-D was detected at 5.8 milligrams per liter (mg/l) in Groundwater Sample TP-1, collected from the tank cavity. BTEX constituents were not detected above the reported detection limits in this sample.
- Analysis of the composited Soil Samples SP-2 through SP-5, collected from Stockpile A, detected up to 430 mg/kg TPH-D, 1.6 ug/kg toluene, 1.5 ug/kg ethylbenzene, and 7.1 ug/kg total xylenes. Analysis of composited Soil Samples SP-6 through SP-9, collected from Stockpile B, detected up to 4600 mg/kg TPH-D, 1.4 ug/kg toluene, and 17 ug/kg total xylenes.

6.0 CONCLUSIONS

Based on the results of the soil sampling and analysis, it appears that the petroleum hydrocarbon-impacted soil has been effectively removed from the former location of the underground tank, piping, and dispenser system.

Since BTEX constituents were not detected above the reported detection limits in the groundwater collected from the cavity, and groundwater is tidally influenced and probably of brackish quality, no further subsurface investigation is warranted at this time.



TABLE 1 - SUMMARY OF RESULTS OF SOIL SAMPLING
 PORT OF OAKLAND, TANK EF-10, BERTH 63
 1395 MIDDLE HARBOR ROAD, OAKLAND, CALIFORNIA

ALISTO PROJECT NUMBER 10-256

C20-42
 TPH-oil
 8015 Mod.

SAMPLE ID	SAMPLE DEPTH (fbg)	DATE OF SAMPLING	TPH-D (mg/kg)	B (ug/kg)	T (ug/kg)	E (ug/kg)	X (ug/kg)	LAB
S-1	13.5	07/25/95	2600 ✓	ND<500 ✓	ND<500 ✓	ND<500 ✓	ND<500 ✓	PACE
S-2	14.0	07/25/95	12 ✓	ND<1 ✓	ND<1 ✓	ND<1 ✓	ND<2 ✓	PACE
S-3	2.5	07/25/95	4600 ✓	11 ✓	8.1 ✓	ND<1 ✓	64 ✓	PACE
S-4	3.0	07/25/95	17 ✓	ND<1 ✓	1 ✓	ND<1 ✓	ND<2 ✓	PACE
S-5	6.5	08/07/95 ✓	580 ✓	ND<1 ✓	1.9 ✓	13 ✓	11 ✓	PACE
S-6	6.5	08/07/95 ✓	5800 ✓	ND<1 ✓	1.8 ✓	30 ✓	20 ✓	PACE
S-7	14.5	08/07/95 ✓	ND<10 ✓	ND<1 ✓	ND<1 ✓	ND<1 ✓	ND<2 ✓	PACE
S-8	7.0	08/07/95 ✓	1300 ✓	3.8 ✓	13 ✓	ND<1 ✓	16 ✓	PACE
S-9	8.5	08/14/95 ✓	25 ✓	ND<5 ✓	ND<5 ✓	ND<5 ✓	ND<5 ✓	CEC 61
S-10	8.5	08/14/95 ✓	50 ✓	ND<5 ✓	ND<5 ✓	ND<5 ✓	ND<5 ✓	CEC 50
S-11	8.0	08/14/95 ✓	ND<1 ✓	ND<5 ✓	ND<5 ✓	ND<5 ✓	ND<5 ✓	CEC 58

ABBREVIATIONS:

- TPH-D Total petroleum hydrocarbons as diesel
- B Benzene
- T Toluene
- E Ethylbenzene
- X Total xylenes
- fbg Feet below grade
- mg/kg Milligrams per kilogram
- ND Not detected above reported detection limit
- PACE Pace, Inc.
- CEC Clayton Environmental Consultants

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TABLE-2 SUMMARY OF GROUNDWATER SAMPLING AND ANALYSIS
 PORT OF OAKLAND, TANK EF-10, BERTH 63
 1395 MIDDLE HARBOR ROAD, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-256

SAMPLE ID	DATE OF SAMPLING	TPH-D (mg/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	LAB
TP-1 ✓	08/16/95 ✓	5.8 ✓	ND<0.5 ✓	ND<0.5 ✓	ND<0.5 ✓	ND<1 ✓	PACE
TB-1 ✓	08/16/95	--	ND<0.5 ✓	ND<0.5 ✓	ND<0.5 ✓	ND<1 ✓	PACE

ABBREVIATIONS:

- TPH-D Total petroleum hydrocarbons as diesel
- B Benzene
- T Toluene
- E Ethylbenzene
- X Total xylenes
- ug/l Micrograms per liter
- Not analyzed
- ND Not detected above reported detection limit
- TP Tank pit
- TB Trip blank
- PACE Pace, Inc.

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TABLE 3 - SUMMARY OF RESULTS OF STOCKPILED SOIL SAMPLING
 PORT OF OAKLAND, TANK EF-10, BERTH 63
 1395 MIDDLE HARBOR ROAD, OAKLAND, CALIFORNIA

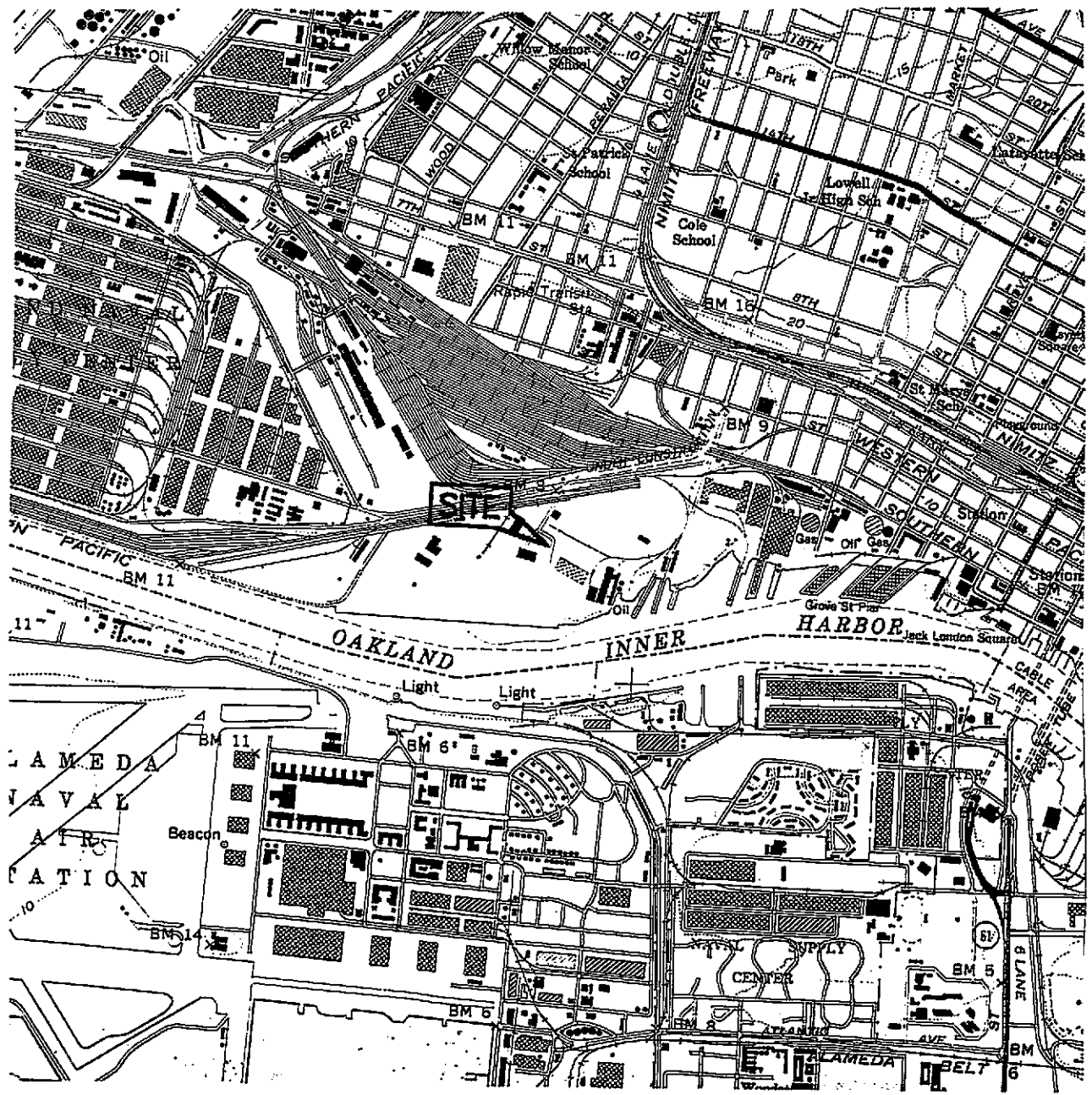
ALISTO PROJECT NO. 10-256

SAMPLE ID	DATE OF SAMPLING	TPH-D (mg/kg)	B (ug/kg)	T (ug/kg)	E (ug/kg)	X (ug/kg)	Total Lead (mg/kg)	ph	Flash Point	Reactivity Cyanide (mg/kg)	Reactivity Sulfide (mg/kg)	LAB
SP-2, SP-3 SP-4, SP-5	08/07/95	430	ND<1	1.6	1.5	7.1	28.5	8.13	Negative	ND<0.495	19.9	PACE
SP-6, SP-7 SP-8, SP-9	08/07/95	4600	ND<1	1.4	ND<1	17	41.2	7.83	Negative	ND<0.5	31.9	PACE

ABBREVIATIONS:

- TPH-D Total petroleum hydrocarbons as diesel
- B Benzene
- T Toluene
- E Ethylbenzene
- X Total xylenes
- mg/kg Milligrams per kilogram
- ug/kg Micrograms per killogram
- ND Not detected above reported detection limit
- PACE Pace, Inc.

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SOURCE:
 USGS MAP, OAKLAND WEST QUADRANGLE,
 7.5 MINUTE SERIES, 1959.
 PHOTOREVISED 1980.

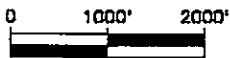


FIGURE 1

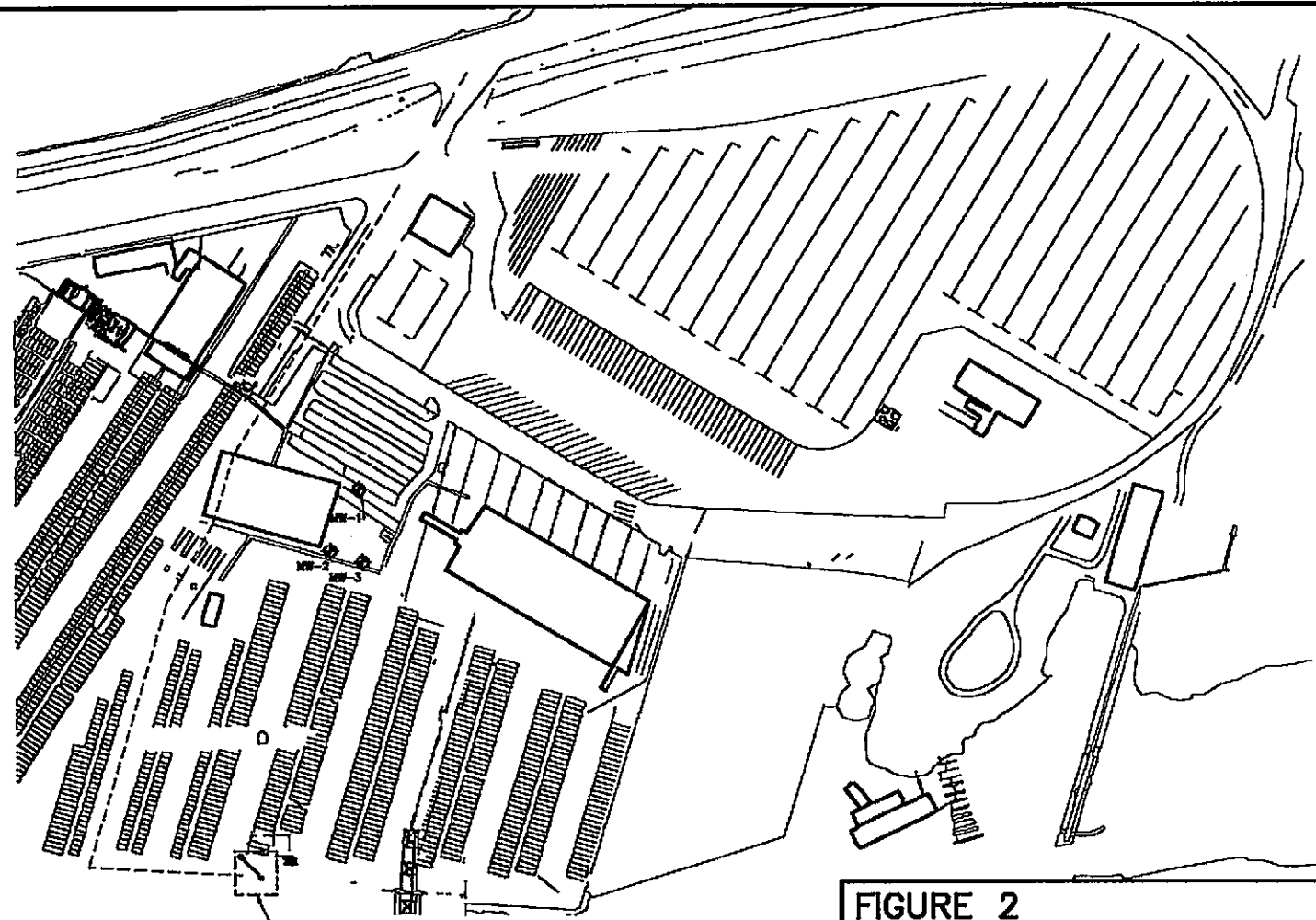
SITE VICINITY MAP

PORT OF OAKLAND
 AMERICAN PRESIDENT LINES TERMINAL
 1395 MIDDLE HARBOR ROAD
 OAKLAND, CALIFORNIA

PROJECT NO. 10-256



ALISTO ENGINEERING GROUP
 WALNUT CREEK, CALIFORNIA



LEGEND



GROUNDWATER MONITORING WELLS
 INSTALLED BY THE PORT OF OAKLAND

AREA OF FIGURE 3

N



NOT TO SCALE

FIGURE 2

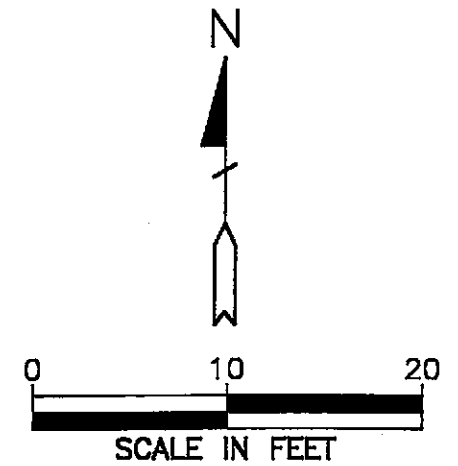
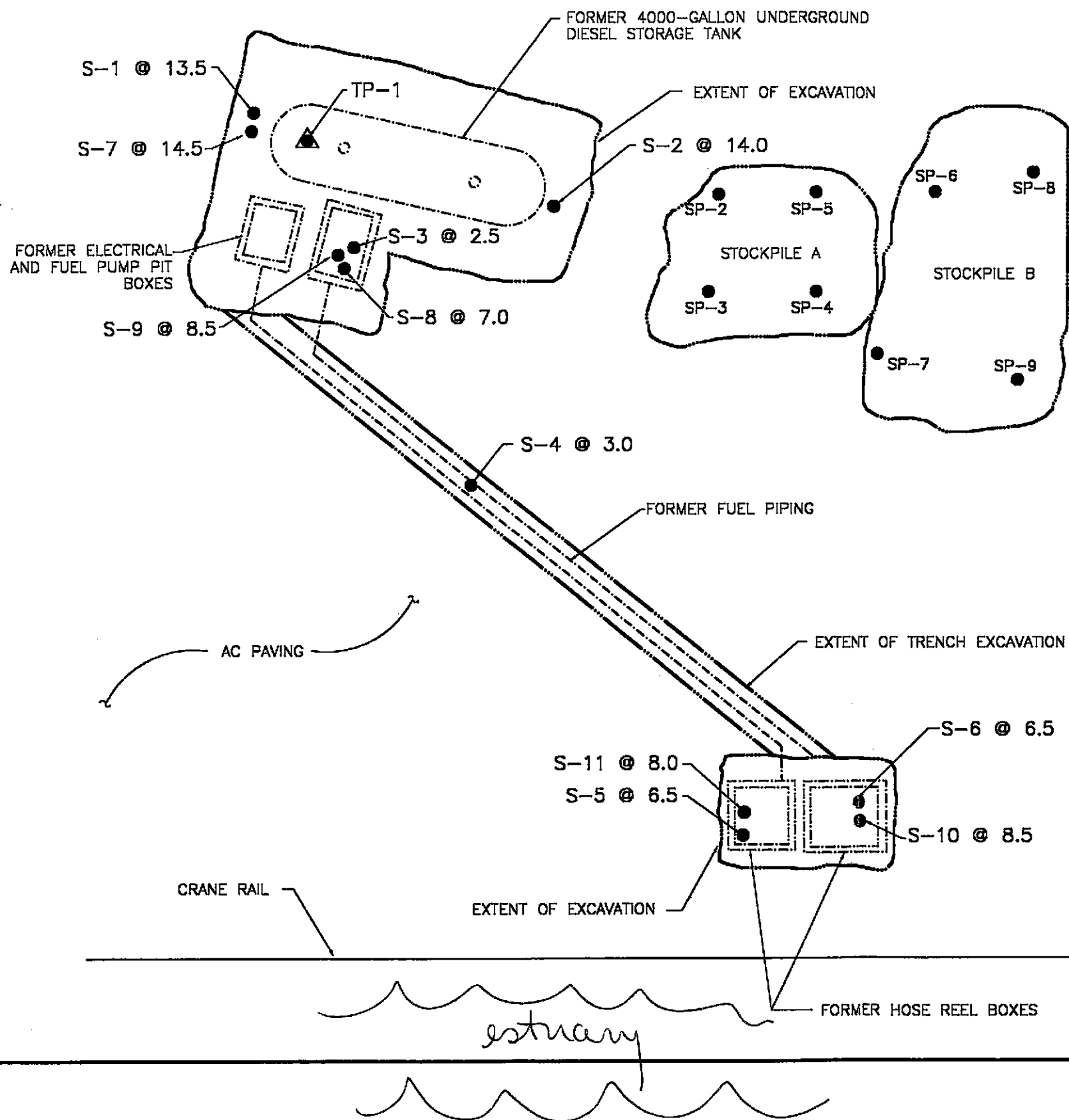
SITE PLAN

PORT OF OAKLAND
 AMERICAN PRESIDENT LINES TERMINAL
 TANK EF-10, BERTH 63
 1395 MIDDLE HARBOR ROAD
 OAKLAND, CALIFORNIA

PROJECT NO. 10-256-02



ALISTO ENGINEERING GROUP
 WALNUT CREEK, CALIFORNIA



LEGEND

● SOIL SAMPLE LOCATION, DESIGNATION, AND DEPTH IN FEET BELOW GRADE
 S-2 @ 14
 ▲ GRAB WATER SAMPLE LOCATION

FIGURE 3
SITE PLAN
 PORT OF OAKLAND
 TANK EF-10, BERTH 63
 1395 MIDDLE HARBOR ROAD
 OAKLAND, CALIFORNIA
 PROJECT NO. 10-256

10-4-05 MAP 1 of 1

SITE SAFETY PLAN

FOR

Port of Oakland
1385 Middle Harbor Road, Oakland

1.0 INTRODUCTION

This site safety plan (SSP), is designed to address safety provisions during the removal of a 4,000 gallon underground storage diesel tank and subsequent soil and groundwater sampling. The procedures provided in this SSP are intended to protect onsite personnel from physical and chemical hazards. The SSP establishes personnel responsibilities, general safe work practices, safe field procedures, personal protective equipment (PPE) standards, decontamination procedures, and emergency action plans.

The SSP is consistent with the health and safety requirements promulgated by the United States Occupational Safety and Health Administration (OSHA) and California Occupational Safety and Health Administration (Cal-OSHA). Alisto Engineering Group will perform the work for this project at the above property following the procedures set forth in this SSP.

2.0 RESPONSIBILITIES OF KEY PERSONNEL

Onsite personnel will have assigned responsibilities. The Project Manager, assigned to supervise field work, will serve as the site safety officer (SSO). The SSO or a designated alternate will ensure that all onsite personnel have received a copy of the SSP. The SSO will be responsible for ensuring that all personnel understand and comply with this SSP. Additionally, the SSO will be responsible for initiating emergency response procedures, if necessary.

Before the work begins, the SSO will conduct a site-specific training session to ensure all onsite personnel are aware of potential physical and chemical hazards and safe work practices.

Onsite personnel must initially complete a 40-hour hazardous materials training course as required by Code of Federal Regulations (CFR) 1910.120. Thereafter, they are required to complete an 8-hour hazardous materials refresher course annually. Additionally, personnel will be required site. Compliance with the SSP will be monitored at all times by the SSO. Appropriate PPE, listed in Section 7.0, will be available and used by onsite personnel.

Personnel will take reasonable precautions to avoid unforeseen hazards. They will be held responsible to perform only those tasks for which they are qualified. Each person will be responsible for strict adherence to all procedures described in the SSP. Any deviation will be reported to the SSO and corrected.

3.0 STANDARD OPERATING PROCEDURES

Excavation and tank removal site personnel will be briefed each day in "tail-gate" meetings as to the day's goals and equipment to be used. Anticipated contaminants, physical hazards, and emergency procedures will be reviewed. Appropriate PPE will be worn and verified correct by the SSO, including respirator fit. Onsite health and safety procedures will be discussed.

A qualified tank removal contractor will deliver and operate equipment. Only qualified personnel will have contact with this equipment. All onsite personnel are required to wear hard hats and steel-toed boots when close to excavation equipment. Additionally, safety glasses with side shields or goggles and hearing protection may be required. Nitrile or neoprene gloves will be worn by personnel collecting or handling samples, to prevent exposure to contaminants. Gloves will be changed between samples, and used ones discarded, to avoid cross-contamination.

Respiratory equipment will be worn if vapor contamination levels exceed action levels. No onsite smoking, open flame, or sparks will be permitted, to prevent accidental ignition of gasoline. All personnel will adhere to safety procedures and requirements.

4.0 JOB HAZARD ANALYSIS

Physical and chemical hazards which may be encountered onsite include those associated with operating mechanical equipment and dealing with potentially hazardous chemicals.

4.1 Physical Hazard Assessment

Physical hazards which may be encountered during drilling, excavation, site restoration, and system maintenance include the following:

1. Injury from moving machinery, or equipment placed in a walking area.
2. Explosion and fires resulting from punctured natural gas pipelines or combustion of flammable/combustible liquids.
3. Electrocution from buried or overhead power lines.
4. Explosion in excavation if tank contains flammable/combustible chemicals.
5. Asphyxiation or toxic inhalation resulting from entering confined spaces containing less than 19.5 percent oxygen or more than 25 percent oxygen or containing hazardous chemicals.
6. Hearing loss resulting from noise generated during operation of heavy equipment.
7. Heat stress associated with hot weather and/or use of PPE.

4.2 Chemical Hazard Assessment

Hazardous chemicals which may be encountered onsite include gasoline and diesel fuel hydrocarbons; benzene, toluene, ethylbenzene, and total xylenes (BTEX); tetraethyl lead, ethylene dibromide, and various halogenated hydrocarbons such as perchloroethane, tetrachloroethylene, and trichloroethylene. These chemicals are volatile, flammable, and moderately to extremely toxic. They present a possible inhalation, absorption, and ingestion hazard to onsite personnel. They may damage an unprotected individual's liver, kidneys, central nervous system, and bone marrow. Benzene is a known human carcinogen and ethylbenzene in vapor and liquid form is a skin irritant.

Gasoline vapors in concentrations greater than 300 parts per million (ppm) can cause eye, nose, and throat irritation, headaches, dizziness, and anesthesia. Skin contact with liquid gasoline may result in irritation, dermatitis, and absorption of specific toxic petroleum fractions.

OSHA and the American Conference of Governmental Industrial Hygienists (ACGIH) have established exposure limits for these chemicals. Threshold limit value (TLV) is the exposure limit determined by ACGIH to which workers may be repeatedly exposed without adverse effects. The permissible exposure limit (PEL) is the maximum permitted 8-hour time-weighted average (TWA) of airborne contaminant that a person may be exposed to. The short-term exposure limit (STEL) is a 15-minute TWA exposure which is not to be exceeded at any time during a workday even if the 8-hour TWA is below the PEL. The ceiling limit (CL) is the maximum concentration of an airborne contaminant to which an employee may be exposed at any time.

PEL, STEL, and CL are measured in ppm and/or milligrams per meter cubed (mg/m^3). Exposure limits established by OSHA and ACGIH for contaminants which may become airborne at this site are listed in the following table. Values are from OSHA unless otherwise noted. For purposes of health and safety, the strictest established exposure limit will be used for the following chemicals:

<u>Compound</u>	<u>TLV*</u> (ppm)	<u>PEL</u> (ppm)	<u>STEL</u> (ppm)	<u>CL</u> (ppm)
Gasoline	300	300	500	—
Benzene**	0.1	1.0	5.0	—
Ethylbenzene	100	100	125	—
Toluene	50	100	150	500
Total Xylenes	100	100	150	300
Tetraethyl Lead	0.15 mg/m^3	0.075 mg/m^3	—	—
Diesel	NA	NA	NA	NA

Note: *Values specified by ACGIH.
**Suspected or known human carcinogen.
ppm: parts per million

5.0 SITE MONITORING

Physical and chemical hazards must be monitored at the site to ensure workers are not exposed to hazardous situations. Monitoring will be performed during this project as described below.

5.1 Monitoring of Physical Hazards

Exposure to excessive heat, noise, and hazardous work conditions will be monitored throughout the project. Personnel entering areas where people cannot carry on a normal conversation will be required to wear hearing protection. If heat stress is anticipated due to hot weather or use of PPE, personnel will be monitored by the SSO and provided water, shaded rest areas, and breaks.

Work area safety inspections will be conducted daily before start of work and as conditions change by the SSO. Hazardous conditions reported to or observed by the SSO will be corrected immediately.

5.2 Exposure Monitoring Plan

Fire, explosive, and toxic inhalation hazards will be evaluated throughout the project. A direct-reading combustible gas indicator (CGI) or organic vapor meter (OVM) will be used to evaluate possible formation of flammable atmospheres in the work area. Continuous flammability measurements will be taken near the work crew, throughout the tank removal operation.

6.0 SAFETY PRACTICES AND PRECAUTIONS

Simple precautions will reduce or eliminate physical and chemical hazards associated with excavation and restoration activities. Precautions include using qualified trained personnel, ensuring compliance with the SSP, ensuring proper engineering controls, good housekeeping procedures, using PPE, and familiarity with emergency response procedures.

To prevent injury from moving machinery, automobiles, fires, or other physical hazards, the following procedures will be implemented:

1. Keep backhoe at least 10 feet away from overhead electrical power lines.
2. Identify underground utilities before work begins. Shut down, lock out, and tag power lines and pipelines as appropriate, particularly power supply and emergency shutoffs" for dispenser pumps and associated delivery lines.
3. Bond and ground excavation equipment during all operations. Bond and ground handling and transportation equipment during loading of soils and pumping and transfer of leachate.
4. Maintain equipment in proper working order and inspect before to each use.

5. Use spark-resistant tools in areas where an ignition source could start a fire.
6. If volatile substances are stored in the tank, it will be vented to allow excess pressure to escape. A protective shield will be placed between workers and the opening to prevent direct contamination of workers by material forced out by pressure when the tank is opened.
7. For large tanks, manholes or access portals will be guarded to prevent personnel from falling into the tank. If it is essential that workers enter tank, confined space procedures must be adhered to.
8. Through sampling and analysis, contents will be identified. If characterizations indicates that the contents can be safely moved, they will be vacuumed into a trailer for transportation to a disposal or recycling facility. Tank will be empty and decontaminated before being disposed.
9. If it is necessary to enter the tank (it is a confined space) or the bottom of the tank pit, (to clean off solid materials or sludges on the bottom or side of the tank), the following precautions shall be taken.
 - Ventilate thoroughly
 - Disconnect connecting pipelines
 - Take air samples prior to entry to prove the absence of flammable or hazardous vapors and to demonstrate that adequate levels of oxygen exist.
 - Equip entry personnel with appropriate PPE, safety harnesses, and extricated devices.
 - Dedicate a hole watch, communication system and have emergency response plan available.
10. Monitoring with a PID for organic vapor will be continuous during the tank excavation.
11. Dry ice will be introduced into the tank before it is transported to render it non-explosive.
12. Water down, if necessary, working areas, excavated material, and unpaved roadways during excavation, handling, stockpiling, and backfilling, to minimize dust.
13. Excavated shall be stored under plastic sheeting to prevent any volatile organic compounds (VOCs) from escaping into the atmosphere.
14. Remove materials which may fuel a fire or impede regress of a fire from the work area.
15. Keep access to fire extinguisher (20 lb: B-C dry) clear. Use fire extinguishes on equipment or small fires only.
16. Maintain an adequately stocked first aid kit onsite at all times.

17. Keep the work area clean and free of obstacles.
18. Use a traffic vest in areas of high automobile traffic.
19. Wear ear plugs in areas of high noise (whenever noise makes it difficult for a normal conversation to be carried on).
20. Do not use drugs or alcohol during response operations.

The following procedures must be followed when working with or around hazardous materials or soils which may be contaminated with hazardous chemicals:

1. Do not smoke, eat, drink, or engage in any other activity which would increase hand to mouth contact.
2. Wear respiratory protective equipment and clothing as deemed necessary by the SSO. Do not wear a respirator over facial hair as this prevents a proper seal.
3. Do not walk, sit, lean, or kneel in puddles, leachate, or discolored surfaces.
4. Wash hands and face when leaving the work area.
5. Wash the entire body if decontamination procedures are in effect for outer garments.
6. Clean, sanitize, inspect, and maintain respirators after each use.
7. Establish work areas including the hot (contaminated area) zone, decontamination zone, and safe zone, as necessary. Minimize personnel and equipment in the hot zone.
8. Establish procedures for exiting the hot zone before commencing onsite activities.

7.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) may be required to safely perform onsite work. Onsite personnel will have access to respirators with organic vapor cartridges. Replacement cartridges will be available onsite as needed. When handling samples, the geologist will wear nitrile or neoprene gloves. Personnel will wear hard hats and steel-toed boots when in the proximity of drilling equipment. At the minimum, PPE required for environmental investigation projects and related field activities includes:

- Half-face air purifying respirator with organic vapor cartridges and dust/mist filters
- Hard hat
- Steel-toed boots or chemically-resistant booties
- Safety glasses with side-shields or safety goggles
- Nitrile or Neoprene gloves

- Ear plugs or muffs
- Coveralls or other suitable work clothing such as Tyvek suits

8.0 WORK ZONES AND SECURITY MEASURES

Access to the site will be restricted to authorized personnel. Barricades and/or traffic cones will be placed to form a barricade at least 50 feet away from and surrounding the site during drilling operations. The SSO will be responsible for site security.

9.0 DECONTAMINATION MEASURES

The best method for protection is to avoid contamination. To achieve this, comply with the safety precautions discussed in Section 6.0. Excavation and sampling equipment will be decontaminated by steam cleaning before being brought onsite. Sampling equipment will be decontaminated before each sample is taken. The Project Geologist will oversee operations and log soil samples. He or she will also ensure that proper protocol is used when collecting and handling samples.

10.0 TRAINING

The SSO will conduct a pre-job training session to discuss all points of the SSP. The SSO will ensure that everyone fully understands site hazards before work begins. Onsite personnel will be trained in:

- Anticipated hazards
- Safety practices to be followed
- PPE
- Emergency procedures and location of posted phone numbers

Onsite personnel must initially complete a 40-hour hazardous materials training course as required by Code of Federal Regulations (CFR) 1910.120. Thereafter, personnel are required to annually complete an 8-hour hazardous materials refresher course. Use of respirators must be in accordance with the written respiratory protection program. Personnel must be properly trained and fit-tested for the respirator worn.

11.0 MEDICAL SURVEILLANCE

According to CFR 29, 1910.120, Paragraph (f), employees who wear respirators 30 days or more during 1 year or who have been exposed to hazardous substances or health hazards above established PELs are required to be medically monitored. While airborne contamination levels are anticipated below permissible PELs, respirators fitted with organic vapor cartridges should be worn whenever the smell of gasoline is present. Consequently, onsite personnel must participate in a medical surveillance program.

12.0 RECORD-KEEPING

Documentation will be kept on all personnel exposed to contaminant hazards on the job site according to OSHA regulations. This will include documentation that employees have received training on the SSP, respiratory protection, and all emergency procedures. These will be reviewed during the pre-site training meeting.

Exposure records on each job will be kept for 30 years to meet regulatory requirements. Included will be names and Social Security numbers of employees, medical evaluations, on-the-job logs from entry to exit, first aid administered, visits onsite by non-employees, and personal air monitoring records.

13.0 EMERGENCY RESPONSE AND CONTINGENCY PLAN

In the event of accident, injury, fire, explosion, or other emergency, the Project Geologist, SSO, or designated representative will be responsible for coordinating emergency response activities. The SSO or representative will call 911, and will contact the hospital during a medical emergency, and the appropriate government agencies. During an emergency situation the following steps will be implemented:

1. The SSO will verbally notify onsite personnel of the emergency and direct personnel to perform any required duties, including shutdown of site utilities, if necessary.
2. If the emergency cannot be readily contained, extinguished, or controlled by onsite personnel, the SSO will call 911 and inform them of the location and details of the emergency situation.
3. The SSO will notify the Project Manager and Principal, if necessary.
4. The SSO, with the assistance of the Project Manager, will decide when to resume operations after an incident has been controlled.

13.1 Flammable Atmosphere

Monitoring of the site continuously with a L.E.L. will not be required due to the low volatility of diesel. If odors are indicated, the following procedures will be utilized to minimize vapors being generated during the tank removal excavation.

1. Contaminated soils will be sprayed down, if necessary, with deodorizing chemicals to reduce vaporization of volatile organic compounds (VOCs) or permeation of other gases.
2. Vapors from pooled petroleum product will be suppressed, if necessary, by spraying with foam or an appropriate chemical suppressant.
3. Portions of the stockpiled soil will be covered with plastic sheeting.

13.2 Toxic Atmosphere

In the event that airborne concentrations of the chemicals of concern exceed the TLV, the above engineering control measures will be implemented to reduce concentrations to or below the TLVs, if practical. If such reduction is not possible, PPE will be used to limit worker exposure during operations.

In the event that airborne concentrations of the chemicals exceed twice the TLV, work will be suspended and appropriate engineering controls will be implemented to reduce concentrations to or below twice the TLV.

14.0 RESPONSIBLE PARTIES

Responsible parties involved with installation of the ground water recovery well are:

Client

Port of Oakland
530 Water Street
Oakland, California 94607

Contact: Susa Gates
Title: Associate Environmental Scientist
Phone: (510) 272-1118

Alisto Engineering Group
1575 Treat Blvd., Suite 201
Walnut Creek, California 94598

Contact: Brady Nagle
Title: Project Manager
Phone No.: (510) 295-1650

15.0 SUMMARY OF SITE ORGANIZATION AND COORDINATION

Site Safety Officer (SSO) - Brady Nagle, Alisto Engineering

Excavation Subcontractor - Mark Vigeant, Pacific Rim

16.0 EMERGENCY MEDICAL CARE AND PROCEDURES

Nearest Emergency Medical Facility

Name: Summit Medical Center

Address: 350 Hawthorne Avenue

Phone Number: 650-4000

Directions: Take Middle Harbor to 3rd Street, follow 3rd to Broadway. Go East on Broadway to Webster. Hospital is at the corner of Webster and Hawthorne.

Emergency Telephone Numbers

Fire Department: 911

Police Department: 911

Other: Poison Control (800) 523-2222

APPENDIX B

UNIFORM HAZARDOUS WASTE MANIFESTS

PORT of OAKLAND

Interoffice Memo



Fusa

TO: Dan Schoenholz

FROM: Hope E. Samaras

DATE: September 1, 1995

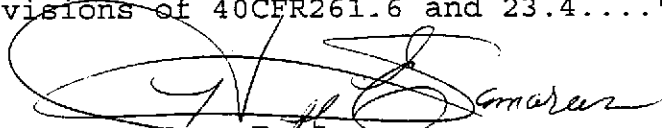
SUBJECT: Removal of Underground Fuel Storage
Tank EF-10, Berth 63, Oakland, California,
Contractor: Pacific Rim Environmental Services Inc.
Contract No.: 95156

"Uniform Hazardous Waste Manifest"
Generator's EPA ID No. CAC001011344

05 SEP 1 11:53
RECEIVED
PORT OF OAKLAND
ENVIRONMENTAL DEPT.

The attached yellow copy of the "Uniform Hazardous Waste Manifest Generator's Copy", Manifest Document No. 95208632 has been received from Petroleum Recycling Corporation (PRC).

The copy certifies that delivery has been made to PRC, Patterson, California and that "...the materials were recycled in accordance to Provisions of 40CFR261.6 and 23.4...."


Hope E. Samaras
Contract Administrator

HES:eu

Attachment

cc: McAneny
Bonifield

RECEIVED
SEP 12 1995

State of California - Environmental Protection Agency
 Form Approved OMB No. 2060-0037 (Expires 9-30-96)
 Please print or type. Form designed for use on site (12-pinch) typewriter.

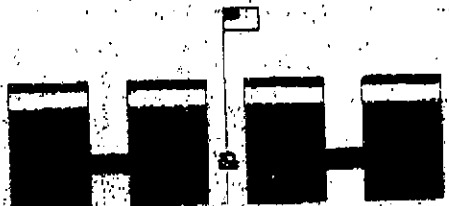
See instructions on back of page 6.

Department of Toxic Substances
 Sacramento, California

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7550

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. C A C D 0 0 1 0 1 1 3 4 4 0 8 5 4 0		Manifest Document No.		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address PORT OF OAKLAND 530 WATER STREET, P.O. 2064, OAKLAND, CA 94604						A. State Manifest Document Number 95208540							
4. Generator's Phone (510) 272-1308 D. McAneny						B. State Generator's ID							
5. Transporter 1 Company Name H & H SHIP SERVICE COMPANY			6. US EPA ID Number C A D 0 0 4 7 7 1 1 6 8			C. State Transporter's ID 600934		D. Transporter's Phone (415) 543-4835					
7. Transporter 2 Company Name						E. State Transporter's ID							
9. Designated Facility Name and Site Address H & H SHIP SERVICE COMPANY 220 TERRY FRANCOIS/CHINA BASIN SAN FRANCISCO, CA. 94107						10. US EPA ID Number C A D 0 0 4 7 7 1 1 6 8			G. State Facility's ID				
						H. Facility's Phone (415) 543-4835							
11. US DOT Description (including proper shipping name, hazard class, and ID number)						12. Commodity		13. Total Quantity		14. Unit Wt/Vol		15. Waste Number	
						No. Type		Quantity		Wt/Vol		Waste Number	
RESIDUE DIESEL TANK NON-RCRA HAZARDOUS WASTE SOLID						0 0 1 T P		0 4 0 0 0		P		State 512 EPA/Other	
RESIDUE ASSOCIATED PIPING NON RCRA HAZARDOUS WASTE SOLID						0 0 1 B A		1 5 0		P		State 513 EPA/Other	
16. Additional Descriptions for Materials Listed Above EMPTY 4,000 gallon tank last containing diesel. Tank inerted with dry ice for safe transport. PROFILE #A4896						K. Handling Codes for Wastes Listed Above: a. 01 b. 01 c. d.							
13. Special Handling Instructions and Additional Information JOB #16009 24 Hr. Emergency Contact: H & H #(415) 543-4835 APPROPRIATE PROTECTIVE CLOTHING AND RESPIRATOR						JOB SITE: PORT OF OAKLAND Berth 63, 1395 Middle Harbor Road Oakland, California							
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.													
Printed/Typed Name Dan Bonifield in Port of Oak				Signature <i>[Signature]</i>				Month 0 7		Day 2 4			
Printed/Typed Name ROBERT M. BREWSTER				Signature <i>[Signature]</i>				Month 0 7		Day 2 4			
Printed/Typed Name				Signature				Month		Day			
19. Discrepancy Indication Spots													
Printed/Typed Name J H Parsons				Signature <i>[Signature]</i>				Month 0 7		Day 2 4			

DO NOT WRITE BELOW THIS LINE.



H&H SHIP SERVICE COMPANY
dba H&H Environmental Services

CERTIFICATE OF DESTRUCTION

JULY 26, 1995

H & H Ship Service Company hereby certifies to PACIFIC RIM ENV.
that:

1. The storage tank(s), size(s) ONE (1) 4,000 GALS. AND
RESIDUE ASSOCIATED PIPING

removed from the PORT OF OAKLAND
facility at 1395 MIDDLE HARBOR ROAD
OAKLAND, CALIFORNIA

were transported to H & H Ship Service Company, 220 Terry Francois/
China Basin Street, San Francisco, California 94107.


2. The following tank(s), H & H Job Number 16009
have been cleaned, rendered harmless, cut with approximately 2' x
2' holes and disposed of as scrap metal.

3. Disposal site: LEVIN METALS CORPORATION, RICHMOND, CALIFORNIA

4. The foregoing method of destruction/disposal is suitable for the
materials involved, and fully complies with all applicable
regulatory and permit requirements.

5. Should you require further information, please call (415) 543-4835
or (415) 905-5510.

Very truly yours,


S. H. Parsons
Operations Coordinator

220 TERRY FRANCOIS/CHINA BASIN STREET, SAN FRANCISCO, CA 94107-2106 (415) 543-4835 FAX (415) 543-8285

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-9802; WITHIN CALIFORNIA, CALL 1-800-832-7550

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. C A C 0 0 1 0 1 1 3 4 4 0 8 6 3 2	Manifest Document No. 0 8 6 3 2	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address PORT OF OAKLAND 530 Water Street, Oakland, CA. 94604			A. State Manifest Document Number 95208632		
4. Generator's Phone (510) 272-4308 ATTN: D. MCANENY			B. State Generator's ID		
5. Transporter 1 Company Name H & H SHIP SERVICE COMPANY		6. US EPA ID Number C A D 0 0 4 7 7 1 1 8 8		C. State Transporter's ID 600952	
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone (415) 543-4835	
9. Recycler's Name and Mailing Address PRC PATTERSON, INC. 13331 N. Highway 33 Patterson, CA. 95363		10. US EPA ID Number C A D 0 8 3 1 8 8 7 2 8		E. State Facility ID 0 0 8 2 1 0 0 2 8 F. Facility Phone (916) 374-4444	
11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number) OIL AND WATER NON-RCRA HAZARDOUS WASTE LIQUID		12. Containers New Type 0 0 1 T T		13. Total Quantity 02500	
				14. Unit G	
<p>Petroleum Recycling Corporation certifies that the above mentioned waste(s), more specifically identified by reference to the waste manifest set forth above, was/were recycled in accordance with the provisions of 40CFR261.6 and 23.4 pursuant to 40CFR261.3(c) (2) hazardous waste generated from the recycling efforts was also recycled in accordance with the provision of 40CFR266 Subpart D.</p> <p>PETROLEUM RECYCLING CORPORATION</p>					
<p>15. Special Handling Instructions and Additional Information JOB #18078 24 Hr. Emergency Contact: H&H #(415) 543-4835 APPROPRIATE PROTECTIVE CLOTHING AND RESPIRATOR. JOB SITE: PORT OF OAKLAND/Berth 63 1395 Middleharbor Road Oakland, California</p>					
<p>16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.</p> <p>If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.</p>					
Printed/Typed Name JON BONIFIELD		Signature <i>[Signature]</i>		Month Day Year 10 8 95	
17. Transporter 1 Acknowledgment of Receipt of Materials Printed/Typed Name V. PETRUCCI		Signature <i>[Signature]</i>		Month Day Year 10 8 95	
18. Transporter 2 Acknowledgment of Receipt of Materials Printed/Typed Name		Signature		Month Day Year	
19. Discrepancy Indication Space <i>[Handwritten: Material per manifest 1715]</i>					
20. Facility Owner or Operator Certification of receipt of hazardous material covered by this manifest except as noted in Item 19: Printed/Typed Name R.M. Ouedjido		Signature <i>[Signature]</i>		Month Day Year 10 11 95	

DO NOT WRITE BELOW THIS LINE.



NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III and IV.
If waste is NOT asbestos waste, complete only Sections I, II and III.

No. 785404

Section I. GENERATOR (Generator completes all of Section I)

a. Generator Name: PORT OF OAKLAND b. Generating Location: _____
 Address: 300 WATER ST. WAREHOUSE 1 d. Address: _____
 Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: _____ h. Owner's Phone No.: _____

i. BFI WASTE CODE: CA 405 090595 47609K Containers: 2
 Description of Waste: NON HAZARDOUS SOIL k. Quantity: 000/8 Units: Y No. 2 TYPE: T
 TYPE: DM - METAL DRUM, DP - PLASTIC DRUM, B - BAG, BA - 6 MIL. PLASTIC BAG or WRAP, T - TRUCK, O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name: DAVID McAnany Signature: [Signature] Shipment Date: 09/19/95

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I		TRANSPORTER II	
a. Name: _____	e. Truck No.: <u>JK-1</u>	h. Name: _____	i. Truck No.: _____
b. Address: <u>DENVYSTE TRANSPORTATION, INC</u>	f. Vehicle License No./State: <u>JACA TAC/CA</u>	i. Address: _____	j. Driver Name/Title: _____
c. Driver Name/Title: <u>WINDSOR, CA 95492</u>	g. Acknowledgement of Receipt of Materials: <u>[Signature]</u>	k. Phone No.: _____	k. Phone No.: _____
d. Phone No.: <u>916-390-1107</u>	h. Shipment Date: <u>09/19/95</u>	l. Vehicle License No./State: _____	l. Vehicle License No./State: _____
		m. Acknowledgement of Receipt of Materials: _____	m. Acknowledgement of Receipt of Materials: _____
		n. Driver Signature: _____	n. Driver Signature: _____
			Shipment Date: _____

Section III. DESTINATION (Generator completes a-d, destination site completes e-f)

a. Site Name: _____ c. Phone No.: _____
 b. Physical Address: BFI, VASCO RD LANDFILL d. Mailing Address: _____
4001 N. VASCO RD
LIVERMORE, CA
 e. Discrepancy Indication Space: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent: _____ Signature: _____ Receipt Date: _____

Section IV. ASBESTOS (Generator complete a-d, f, g; Operator* completes e)

a. Operator's* Name: _____ b. Operator's* Phone No.: _____
 c. Operator's* Address: _____
 d. Special Handling Instructions and additional information: _____

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's* Name & Title: _____ Operator's* Signature: _____ Date: _____



NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III and IV.
If waste is NOT asbestos waste, complete only Sections I, II and III.

No. 785405

Section I GENERATOR (Generator completes all of Section I)

Generator Name: _____ b. Generating Location: _____
 Address: _____ d. Address: _____
 Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

Owner's Name: _____ h. Owner's Phone No.: _____

i. BFI WASTE CODE:

CA	405	090595	97609X
----	-----	--------	--------

 Containers
 Description of Waste: _____ k. Quantity:

00018	Units	No.	TYPE
		201	7

 TYPE
 DM - METAL DRUM
 DP - PLASTIC DRUM
 B - BAG
 BA - 6 MIL. PLASTIC BAG or WRAP
 T - TRUCK
 O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name: David Harty Signature: [Signature] Shipment Date:

09	19	5
----	----	---

Section II TRANSPORTER (Generator complete a-f; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I		TRANSPORTER II				
Name: _____	h. Name: _____	i. Address: _____	j. Driver Name/Title: _____			
Address: _____	i. Address: _____	k. Phone No.: _____	l. Truck No.: _____			
Driver Name/Title: <u>DAVID Harty</u>		m. Vehicle License No./State: <u>SP33657 CA</u>	n. _____			
d. Phone No.: _____	e. Truck No.: <u>094</u>	Acknowledgement of Receipt of Materials: _____	Shipment Date: <table border="1"><tr><td>09</td><td>19</td><td>5</td></tr></table>	09	19	5
09	19	5				
Vehicle License No./State: <u>SP33657 CA</u>						

Section III DESTINATION (Generator completes a-d, destination site completes e-f)

a. Site Name: _____ c. Phone No.: _____
 b. Physical Address: _____ d. Mailing Address: _____
 Discrepancy Indication Space: _____
 I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.
 f. Name of Authorized Agent: _____ Signature: _____ Receipt Date:

--	--	--	--	--

Section IV ASBESTOS (Generator completes a-d, f, g; Operator* completes e.)

a. Operator's* Name: _____ b. Operator's* Phone No.: _____
 Operator's* Address: _____
 d. Special Handling Instructions and additional information: _____
 OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.
 e. Operator's* Name & Title: _____ Operator's* Signature: _____



NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III and IV.
If waste is NOT asbestos waste, complete only Sections I, II and III.

No. 785406

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: WASTE MANAGEMENT b. Generating Location: 1170 WOODLAND BLVD
 c. Address: 1170 WOODLAND BLVD, SUITE 500 d. Address: SAN JUAN, CA 94080
 e. Phone No.: 415-281-9977 f. Phone No.: 415-281-9977

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: BOB JAMES h. Owner's Phone No.: BOB JAMES

i. BFI WASTE CODE:

CA	405	090	595
----	-----	-----	-----

 Containers:

27609

 Description of Waste: NON-HAZARDOUS SOLID k. Quantity:

00018

 Units: YD No.:

01

 TYPE:

7

- TYPE**
 DM - METAL DRUM
 DP - PLASTIC DRUM
 B - BAG
 BA - 6 MIL. PLASTIC BAG or WRAP
 T - TRUCK
 O - OTHER
- UNITS**
 P - POUNDS
 Y - YARDS
 M³ - CUBIC METERS
 Y³ - CUBIC YARDS
 O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name: [Signature] Signature: [Signature] Shipment Date:

09	11	95
----	----	----

Section II TRANSPORTER (Generator completes a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: WASTE MANAGEMENT
 b. Address: 1170 WOODLAND BLVD, SUITE 500
 c. Driver Name/Title: Richard W. Martin PRINT/TITLE
 d. Phone No.: 415-281-9977 e. Truck No.: 975
 f. Vehicle License No./State: 9C15160
 Acknowledgement of Receipt of Materials.

TRANSPORTER II

h. Name: _____
 i. Address: _____
 j. Driver Name/Title: _____ PRINT/TITLE
 k. Phone No.: _____ l. Truck No.: _____
 m. Vehicle License No./State: _____
 Acknowledgement of Receipt of Materials.

n. Driver Signature: [Signature] Shipment Date:

09	12	95
----	----	----

Section III DESTINATION (Generator completes a-d, destination site completes e-f)

a. Site Name: _____ c. Phone No.: _____
 b. Physical Address: _____ d. Mailing Address: _____
 e. Discrepancy Indication Space: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent: _____ Signature: _____ Receipt Date:

--	--	--	--

Section IV ASBESTOS (Generator completes a-d, f, g, Operator* completes e.)

a. Operator's* Name: _____ b. Operator's* Phone No.: _____
 c. Operator's* Address: _____
 d. Special Handling Instructions and additional information: _____

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's* Name & Title: _____ Print/Type _____ Operator's* Signature _____ Date:

--	--	--	--



NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III and IV.
If waste is NOT asbestos waste, complete only Sections I, II and III.

No. 785412

Section I. GENERATOR (Generator completes all of Section I)

a. Generator Name: _____ b. Generating Location: _____
 Address: _____ d. Address: _____
 Phone No.: _____ f. Phone No.: _____

If owner of the generating facility differs from the generator, provide:

Owner's Name: _____ h. Owner's Phone No.: _____

BFI WASTE CODE

CA	405	09055	5	47607X
----	-----	-------	---	--------

Containers

Description of Waste: _____

NON HAZARDOUS SOIL

k. Quantity	Units	No.	TYPE
00018	Y ³	01	T

TYPE
 DM - METAL DRUM
 DP - PLASTIC DRUM
 B - BAG
 BA - 6 MIL. PLASTIC BAG
 or WRAP
 T - TRUCK
 O - OTHER

UNITS

P - POUNDS
 Y - YARDS
 M³ - CUBIC METERS
 Y³ - CUBIC YARDS
 O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name: David M. [Signature] Signature: [Signature] Shipment Date: 09/11/95

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

Name: _____
 Address: _____
 Driver Name/Title: _____
 d. Phone No.: _____ e. Truck No.: _____

TRANSPORTER II

h. Name: _____
 i. Address: _____
 j. Driver Name/Title: _____
 k. Phone No.: _____ l. Truck No.: _____

Vehicle License No./State: _____

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials.

Acknowledgement of Receipt of Materials.

Driver Signature: _____ Shipment Date: 09/11/95

n. Driver Signature: _____ Shipment Date: _____

Section III. DESTINATION (Generator completes a-d, destination site completes e-f.)

a. Site Name: _____ c. Phone No.: _____

b. Physical Address: _____ d. Mailing Address: _____

Discrepancy Indication Space: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent: _____ Signature: _____ Receipt Date: _____

Section IV. ASBESTOS (Generator complete a-d, f, g, Operator* completes e.)

a. Operator's* Name: _____ b. Operator's* Phone No.: _____

Operator's* Address: _____

d. Special Handling Instructions and additional information: _____

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's* Name & Title: _____ Operator's* Signature: _____ Date: _____



NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III and IV.
If waste is NOT asbestos waste, complete only Sections I, II and III.

No. 785413

Section I. GENERATOR (Generator completes all of Section I)

a. Generator Name: WASTE MANAGEMENT b. Generating Location: 1000 W. 10TH ST

Address: 1000 W. 10TH ST d. Address: 1000 W. 10TH ST

STANFORD, CA 94307 STANFORD, CA 94307

Phone No.: 415-771-1971 f. Phone No.: 415-771-1971

If owner of the generating facility differs from the generator, provide:

g. Owner's Name: WASTE MANAGEMENT h. Owner's Phone No.: 415-771-1971

i. BFI WASTE CODE

CA	905	090595	97609X
----	-----	--------	--------

 Containers

Description of Waste: NON HAZARDOUS k. Quantity

00018	Units	No.	TYPE
	✓	01	T

- TYPE**
- DM - METAL DRUM
 - DP - PLASTIC DRUM
 - B - BAG
 - BA - 6 MIL. PLASTIC BAG or WRAP
 - T - TRUCK
 - O - OTHER

- UNITS**
- P - POUNDS
 - Y - YARDS
 - M³ - CUBIC METERS
 - Y³ - CUBIC YARDS
 - O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name: [Signature] Signature: [Signature] Shipment Date:

09	19	07
----	----	----

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I

a. Name: WASTE MANAGEMENT

Address: 1000 W. 10TH ST

Driver Name/Title: Glenn Colby PRINT/TITLE

d. Phone No.: 415-771-1971 e. Truck No.: 109

Vehicle License No./State: 9M4130G

Acknowledgement of Receipt of Materials.

Driver Signature: [Signature] Shipment Date:

09	19	07
----	----	----

TRANSPORTER II

h. Name: _____

i. Address: _____

j. Driver Name/Title: _____ PRINT/TITLE

k. Phone No.: _____ l. Truck No.: _____

m. Vehicle License No./State: _____

Acknowledgement of Receipt of Materials.

n. Driver Signature: _____ Shipment Date:

--	--	--	--	--

Section III. DESTINATION (Generator completes a-d, destination site completes e-f)

a. Site Name: WASTE MANAGEMENT c. Phone No.: 415-771-1971

b. Physical Address: 1000 N. 10TH ST d. Mailing Address: _____

LIVERMORE CA

e. Discrepancy Indication Space: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent: _____ Signature: _____ Receipt Date:

--	--	--	--	--

Section IV. ASBESTOS (Generator complete a-d, f, g; Operator* completes e.)

a. Operator's* Name: _____ b. Operator's* Phone No.: _____

c. Operator's* Address: _____

d. Special Handling Instructions and additional information: _____

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's* Name & Title: _____ Print/Type Operator's* Signature: _____ Date:

--	--	--	--	--



NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III and IV.
If waste is NOT asbestos waste, complete only Sections I, II and III.

No. 785414

Section I. GENERATOR (Generator completes all of Section I)

Generator Name: WASTE MANAGEMENT b. Generating Location: WASTE MANAGEMENT
 Address: 1375 WOODLAND BOULEVARD d. Address: 1375 WOODLAND BOULEVARD
WILSONVILLE, OR 97150 OREGON 97150
 Phone No.: 503-261-9071 f. Phone No.: 503-261-9071

If owner of the generating facility differs from the generator, provide:

Owner's Name: WASTE MANAGEMENT h. Owner's Phone No.: 503-261-9071

i. BFI WASTE CODE:

CA	405	090595	17609X
----	-----	--------	--------

 Containers: 17609X
 Description of Waste: NON HAZARDOUS WASTE k. Quantity:

00018	Y	01	T
-------	---	----	---

 Units: Y No.: 01 TYPE: T

- TYPE**
 DM - METAL DRUM
 DP - PLASTIC DRUM
 B - BAG
 BA - 6 MIL. PLASTIC BAG or WRAP
 T - TRUCK
 O - OTHER
- UNITS**
 P - POUNDS
 Y - YARDS
 M³ - CUBIC METERS
 Y³ - CUBIC YARDS
 O - OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name: [Signature] Signature: [Signature] Shipment Date: 091195

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I
 Name: WASTE MANAGEMENT
 Address: 1375 WOODLAND BOULEVARD
 Driver Name/Title: Peter Minetti PRINT/TITLE
 d. Phone No.: 503-261-9071 e. Truck No.: A-10
 Vehicle License No./State: SP 36110
 Acknowledgement of Receipt of Materials:
[Signature] Shipment Date: 091195

TRANSPORTER II
 h. Name: _____
 i. Address: _____
 j. Driver Name/Title: _____ PRINT/TITLE
 k. Phone No.: _____ l. Truck No.: _____
 m. Vehicle License No./State: _____
 Acknowledgement of Receipt of Materials:
 n. _____ Shipment Date: _____

Section III. DESTINATION (Generator completes a-d, destination site completes e-f)

a. Site Name: _____ c. Phone No.: _____
 b. Physical Address: _____ d. Mailing Address: _____
 e. Discrepancy Indication Space: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent: _____ Signature: _____ Receipt Date: _____

Section IV. ASBESTOS (Generator completes a-d, f, g, Operator* completes e.)

a. Operator's* Name: _____ b. Operator's* Phone No.: _____
 c. Operator's* Address: _____
 d. Special Handling Instructions and additional information: _____

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's* Name & Title: _____ Operator's* Signature: _____ Date: _____



NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III and IV.
If waste is NOT asbestos waste, complete only Sections I, II and III.

No. 785415

Section I. GENERATOR (Generator completes all of Section I)

a. Generator Name: WASTE MANAGEMENT b. Generating Location: 1775
 Address: 3000 FLORIDA ST. BUREAU d. Address: 1775
FLORIDA CA 94801 UNION
 Phone No.: 415-281-9000 f. Phone No.: 415-281-9000

If owner of the generating facility differs from the generator, provide:
 g. Owner's Name: WASTE MANAGEMENT h. Owner's Phone No.: 415-281-9000

i. BFI WASTE CODE:

CA	405	090595
----	-----	--------

 Containers:

97609X

 Description of Waste: NON-HAZARDOUS WASTE k. Quantity:

00018

 Units:

✓

 No.:

01

 TYPE:

7

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
B	- BAG
BA	- 8 MIL. PLASTIC BAG or WRAP
T	- TRUCK
O	- OTHER

UNITS	
P	- POUNDS
Y	- YARDS
M ³	- CUBIC METERS
Y ³	- CUBIC YARDS
O	- OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name: [Signature] Signature: [Signature] Shipment Date:

09	11	95
----	----	----

Section II. TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I
 a. Name: _____
 b. Address: _____
 c. Driver Name/Title: Glen Colby
 d. Phone No.: _____ e. Truck No.: 1051
 Vehicle License No./State: 9A41306
 Acknowledgement of Receipt of Materials:
 Driver Signature: [Signature] Shipment Date:

09	11	95
----	----	----

TRANSPORTER II
 h. Name: _____
 i. Address: _____
 j. Driver Name/Title: _____
 k. Phone No.: _____ l. Truck No.: _____
 m. Vehicle License No./State: _____
 Acknowledgement of Receipt of Materials:
 Driver Signature: _____ Shipment Date:

--	--	--	--

Section III. DESTINATION (Generator completes a-d, destination site completes e-f)

a. Site Name: _____ c. Phone No.: _____
 b. Physical Address: _____ d. Mailing Address: _____
 e. Discrepancy Indication Space: _____

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

f. Name of Authorized Agent: _____ Signature: _____ Receipt Date:

--	--	--	--

Section IV. ASBESTOS (Generator complete a-d, f, g, Operator* completes e.)

a. Operator's* Name: _____ b. Operator's* Phone No.: _____
 c. Operator's* Address: _____
 d. Special Handling Instructions and additional information: _____

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's* Name & Title: _____ Operator's* Signature: _____ Date:

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NON-HAZARDOUS SPECIAL WASTE & ASBESTOS MANIFEST

If waste is asbestos waste, complete Sections I, II, III and IV.
If waste is NOT asbestos waste, complete only Sections I, II and III.

No. 785416

Section I GENERATOR (Generator completes all of Section I)

a. Generator Name: WASTE MANAGEMENT b. Generating Location: 1170 W. 11th St
 Address: 1170 W. 11th St, Suite 400 d. Address: 1170 W. 11th St, Suite 400
Stockton, CA 95210 e. Phone No.: 209-544-8374 f. Phone No.: 209-544-8374

If owner of the generating facility differs from the generator, provide:
 Owner's Name: WASTE MANAGEMENT h. Owner's Phone No.: 209-544-8374

i. BFI WASTE CODE CA 405 090595 Containers 17609A
 Description of Waste: NON HAZARDOUS SOLID k. Quantity 00018 Units 301 No. 1 TYPE 7

TYPE	
DM	- METAL DRUM
DP	- PLASTIC DRUM
B	- BAG
BA	- 6 MIL. PLASTIC BAG or WRAP
T	- TRUCK
O	- OTHER
UNITS	
P	- POUNDS
Y	- YARDS
M ³	- CUBIC METERS
Y ³	- CUBIC YARDS
O	- OTHER

GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if the waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 268 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Generator Authorized Agent Name: David M. Gray Signature: [Signature] Shipment Date: 09/1/95

Section II TRANSPORTER (Generator complete a-d; Transporter I complete e-g; Transporter II complete h-n)

TRANSPORTER I		TRANSPORTER II	
Name: <u>WASTE MANAGEMENT</u>	h. Name: _____	i. Address: _____	j. Driver Name/Title: _____
Address: _____	i. Address: _____	k. Phone No.: _____	l. Truck No.: _____
Driver Name/Title: <u>Mike Imhof</u>	m. Vehicle License No./State: _____	n. _____	
d. Phone No.: _____	ACKNOWLEDGEMENT OF RECEIPT OF MATERIALS		
e. Truck No.: <u>286</u>	Signature: <u>[Signature]</u> Shipment Date: <u>09/1/95</u>		
Vehicle License No./State: <u>SP00310</u>	Signature: _____ Shipment Date: _____		

Section III DESTINATION (Generator completes a-d, destination site completes e-f.)

a. Site Name: _____ c. Phone No.: _____
 b. Physical Address: _____ d. Mailing Address: _____

Discrepancy Indication Space: _____
 I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

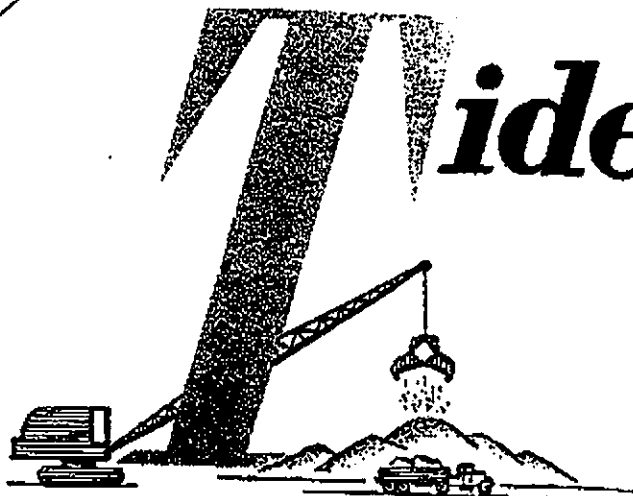
Name of Authorized Agent: _____ Signature: _____ Receipt Date: _____

Section IV ASBESTOS (Generator complete a-d; f, g, Operator* completes e.)

a. Operator's* Name: _____ b. Operator's* Phone No.: _____
 c. Operator's* Address: _____
 d. Special Handling Instructions and additional information: _____

OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

e. Operator's* Name & Title: _____ Operator's* Signature: _____ Date: _____



Tidewater

Sand & Gravel, Inc.

4501 TIDEWATER AVENUE, OAKLAND, CA 94601

TELEPHONE: 510 261-8532 FAX: 510 534-7418

FAX NO. 510-534-7418

DATE: 7/10/96

FAX NO. 415-431-0334

TO: Pacific Rim Environmental Services

ATTENTION: Mark

REFERENCE: Sloue Analysis of Pea Gravel

NUMBER OF PAGES, INCLUDING COVER SHEET: _____

COMMENTS: The 1/2 x 3/4 is the Per Ge

pea gravel we
carry.

Cum % Passing U. S. Sieve	1-1/2" x 3/4" GRAVEL	1" x #4 GRAVEL	1/2" x 1/4" GRAVEL
2-1/2"			
2"	100		
1-1/2"	95 +/- 3	100	
1"	44 +/- 15	99 +/- 1	
3/4"	11 +/- 6	85 +/- 9	100
1/2"		45 +/- 14	99
3/8"	2 +/- 1	21 +/- 9	82
#4		3 +/- 2	6
#8			1
#16			
#30			
#50			
#100			
#200			
Cr Part. Count	93%		
Sp. G	2.68	2.68	2.68
Absorption	1.0%	1.0%	1.0%
CV/SE	76 +/- 11	82 +/- 4	84
LAF/DI	LAR = 27	LAR = 27	
Dry Loose/Rodded		95/103	98/103

SENT BY: Ellen

APPENDIX C

FIELD PROCEDURES FOR SOIL SAMPLING

FIELD PROCEDURES FOR SOIL SAMPLING

Soil samples were collected from the excavations in a backhoe bucket. The samples were collected in brass tubes, and both ends were immediately covered with aluminum sheeting, polyurethane caps, and adhesive tape to inhibit volatilization of petroleum hydrocarbon constituents. The samples were labeled with the following information: Alisto's project number, sample number, depth, sampler's initials, and date of collection. The samples were immediately placed in plastic bags and stored in a cooler containing blue ice.

APPENDIX D

**FIELD PROCEDURES FOR CHAIN OF CUSTODY DOCUMENTATION,
LABORATORY REPORTS, AND CHAIN OF CUSTODY RECORDS**

**FIELD PROCEDURES
FOR
CHAIN OF CUSTODY DOCUMENTATION**

The samples were handled in accordance with the California Department of Health Services guidelines. Each sample was labeled in the field and immediately stored in a cooler containing blue ice for transport to a state-certified laboratory for analysis.

The chain of custody record accompanied the samples, and included the site and sample identification, date and time of sample collection, analysis requested, and the name and signature of the sampling technician. When transferring possession of the samples, the transferee signed and dated the chain of custody record.

July 28, 1995

Mr. Dale Swain
Alisto Engineering
1575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

RE: PACE Project Number: 702395
Client Project ID: PORT OF OAKLAND

Dear Mr. Swain:

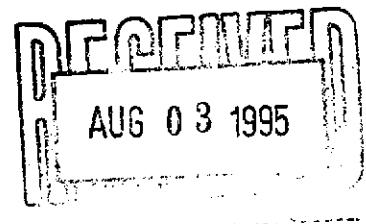
Enclosed are the results of analyses for samples received on July 25, 1995. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Stella V. Hanis
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

DATE: 07/28/95
PAGE: 1

Alisto Engineering
1575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702395
Client Project ID: PORT OF OAKLAND

Attn: Mr. Dale Swain
Phone: (510)295-1650

PACE Sample No: 70196092 Date Collected: 07/24/95
Client Sample ID: S-1 Date Received: 07/25/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
GC -- Volatiles								
GAS/BTEX by CA LUFT, Soil								
Benzene	ND	ug/kg	500	07/26/95	CA LUFT	ADS	71-43-2	
Toluene	ND	ug/kg	500	07/26/95	CA LUFT	ADS	108-88-3	
Ethyl Benzene	ND	ug/kg	500	07/26/95	CA LUFT	ADS	100-41-4	
Xylene (Total)	ND	ug/kg	1000	07/26/95	CA LUFT	ADS	1330-20-7	1
a,a,a-Trifluorotoluene (S)	102	%		07/26/95	CA LUFT	ADS	2164-17-2	
4-Bromofluorobenzene (S)	108	%		07/26/95	CA LUFT	ADS	460-00-4	
GC								
TPH in Soil by 8015 Modified								
Diesel Fuel	2600	mg/kg	100	07/28/95	TPH by EPA 8015M	DLA		
n-Pentacosane (S)	0	%		07/28/95	TPH by EPA 8015M	DLA	629-99-2	2
Date Extracted				07/26/95				

REPORT OF LABORATORY ANALYSIS

DATE: 07/28/95
PAGE: 2

PACE Project Number: 702395
Client Project ID: PORT OF OAKLAND

PACE Sample No: 70196100 Date Collected: 07/24/95
Client Sample ID: S-2 Date Received: 07/25/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
GC -- Volatiles								
GAS/BTEX by CA LUFT, Soil								
Benzene	ND	ug/kg	1	07/27/95	CA LUFT	ADS	71-43-2	
Toluene	ND	ug/kg	1	07/27/95	CA LUFT	ADS	108-88-3	
Ethyl Benzene	ND	ug/kg	1	07/27/95	CA LUFT	ADS	100-41-4	
Xylene (Total)	ND	ug/kg	2	07/27/95	CA LUFT	ADS	1330-20-7	
a,a,a-Trifluorotoluene (S)	107	%		07/27/95	CA LUFT	ADS	2164-17-2	
4-Bromofluorobenzene (S)	99	%		07/27/95	CA LUFT	ADS	460-00-4	
GC								
TPH in Soil by 8015 Modified								
Diesel Fuel	12	mg/kg	5	07/27/95	TPH by EPA 8015M	DLA		3
n-Pentacosane (S)	76	%		07/27/95	TPH by EPA 8015M	DLA	629-99-2	
Date Extracted				07/26/95				

REPORT OF LABORATORY ANALYSIS

DATE: 07/28/95
PAGE: 3

PACE Project Number: 702395
Client Project ID: PORT OF OAKLAND

PACE Sample No: 70196118 Date Collected: 07/24/95
Client Sample ID: S-3 Date Received: 07/25/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
GC -- Volatiles								
GAS/BTEX by CA LUFT, Soil								
Benzene	11	ug/kg	1	07/27/95	CA LUFT	ADS	71-43-2	
Toluene	8.1	ug/kg	1	07/27/95	CA LUFT	ADS	108-88-3	
Ethyl Benzene	ND	ug/kg	1	07/27/95	CA LUFT	ADS	100-41-4	
Xylene (Total)	64	ug/kg	2	07/27/95	CA LUFT	ADS	1330-20-7	
a,a,a-Trifluorotoluene (S)	98	%		07/27/95	CA LUFT	ADS	2164-17-2	
4-Bromofluorobenzene (S)	117	%		07/27/95	CA LUFT	ADS	460-00-4	
TPH in Soil by 8015 Modified								
Diesel Fuel	4600	mg/kg	500	07/27/95	TPH by EPA 8015M	DLA		
n-Pentacosane (S)	0	%	-	07/27/95	TPH by EPA 8015M	DLA	629-99-2	4
Date Extracted				07/27/95				

REPORT OF LABORATORY ANALYSIS

DATE: 07/28/95
PAGE: 4

PACE Project Number: 702395
Client Project ID: PORT OF OAKLAND

PACE Sample No: 70196126 Date Collected: 07/24/95
Client Sample ID: S-4 Date Received: 07/25/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
GC -- Volatiles								
GAS/BTEX by CA LUFT, Soil								
Benzene	ND	ug/kg	1	07/27/95	CA LUFT	ADS	71-43-2	
Toluene	1	ug/kg	1	07/27/95	CA LUFT	ADS	108-88-3	
Ethyl Benzene	ND	ug/kg	1	07/27/95	CA LUFT	ADS	100-41-4	
Xylene (Total)	ND	ug/kg	2	07/27/95	CA LUFT	ADS	1330-20-7	
a,a,a-Trifluorotoluene (S)	108	%		07/27/95	CA LUFT	ADS	2164-17-2	
4-Bromofluorobenzene (S)	96	%		07/27/95	CA LUFT	ADS	460-00-4	
TPH in Soil by 8015 Modified								
Diesel Fuel	17	mg/kg	5	07/27/95	TPH by EPA 8015M	DLA		5
n-Pentacosane (S)	0	%		07/27/95	TPH by EPA 8015M	DLA	629-99-2	6
Date Extracted				07/27/95				

DATE: 07/28/95
PAGE: 5

PACE Project Number: 702395
Client Project ID: PORT OF OAKLAND

PARAMETER FOOTNOTES

- D Not Detected
- C Not Calculable
- RL PACE Reporting Limit
- (S) Surrogate
- [1] Sample diluted due to high levels of hydrocarbons
- [2] The surrogate could not be quantitated due to sample dilution.
- [3] Diesel is present along with late hydrocarbons greater than C25.
- [4] The surrogate could not be quantitated due to sample dilution.
- [5] Late hydrocarbons greater than C25 are present. No diesel pattern is seen.
- [6] The surrogate could not be quantitated due to matrix interference.

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 07/28/95
PAGE: 6

Alisto Engineering
1575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702395
Client Project ID: PORT OF OAKLAND

Attn: Mr. Dale Swain
Phone: (510)295-1650

QC Batch ID: 5370 QC Batch Method: CA LUFT Date of Batch: 07/26/95
Associated PACE Samples: 70196092 70196100 70196118 70196126

METHOD BLANK: 70199294
Associated PACE Samples:

Parameter	Units	70196118		70196126		Footnotes
		Method Blank Result	PRL	Method Blank Result	PRL	
Diesel Fuel	mg/kg	ND	5			
n-Pentacosane (S)	%	99				

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70198510 70198528

Parameter	Units	70198510		70198528		Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
		Spike Conc.	Conc.	Spike Result	% Rec				
Diesel Fuel	mg/kg	ND	33	5.2	14	13	39	94	1
n-Pentacosane (S)					46		112		

LABORATORY CONTROL SAMPLE & LCS: 70197074 70197082

Parameter	Units	70197074		70197082		Spike Dup % Rec	RPD	Footnotes
		Spike Conc.	LCS Result	Spike % Rec	LCS Result			
Diesel Fuel	mg/kg	33	15	44	19	56	24	
n-Pentacosane (S)				110		123		

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 07/28/95
PAGE: 7

Listo Engineering
1575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702395
Client Project ID: PORT OF OAKLAND

Attn: Mr. Dale Swain
Phone: (510)295-1650

QC Batch ID: 5378 QC Batch Method: CA LUFT Date of Batch: 07/26/95
Associated PACE Samples: 70196092 70196100 70196118 70196126

METHOD BLANK: 70197371
Associated PACE Samples: 70196092 70196100 70196118 70196126

Parameter	Units	Method Blank Result	PRL	Footnotes
Gasoline	ug/kg	ND	200	
Benzene	ug/kg	ND	1	
Toluene	ug/kg	ND	1	
Ethyl Benzene	ug/kg	ND	1	
Xylene (Total)	ug/kg	ND	2	
1,2,4-Trifluorotoluene (S)	%	102		
1-Bromofluorobenzene (S)	%	99		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70198643 70198650

Parameter	Units	70195383	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Gasoline	ug/kg	ND	1000	950	95	890	89	7	

LABORATORY CONTROL SAMPLE & LCSD: 70197389 70197397

Parameter	Units	Spike Conc.	LCSD Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Gasoline	ug/kg	1000	1000	102	1000	101	1	

REPORT OF LABORATORY ANALYSIS

DATE: 07/28/95
PAGE: 8

PACE Project Number: 702395
Client Project ID: PORT OF OAKLAND

QUALITY CONTROL DATA PARAMETER FOOTNOTES

The Quality Control Sample Final Results listed above have been rounded to reflect an appropriate number of significant figures. Consistent with EPA guidelines unrounded concentrations have been used to calculate % Rec and RPD values.

D Not Detected
NC Not Calculable
PRL PACE Reporting Limit
RPD Relative Percent Difference
(S) Surrogate

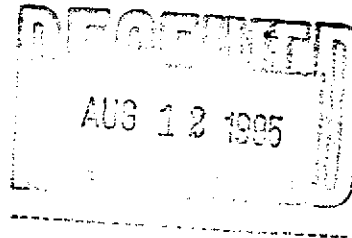
[1] An accident occurred during the extraction process and some of the final extract was lost. This resulted in low recoveries for the matrix spike and also a high RPD.

ALISTO ENGINEERING GROUP

CHAIN OF CUSTODY

2395

Consultant's Name: <u>Alisto Engineering</u>										Page <u>1</u> of <u>1</u>					
Address: <u>1575 Treat Boulevard #201, Walnut Creek CA 94598</u>															
Project Contact: <u>Brady Nagler</u>				Consultant Project #: <u>10-256-02</u>				Phone #: <u>295-165</u> Fax #: <u>295-1823</u>							
Sampled by (print): <u>Dale Swain</u>				Sampler's Signature: <u>Dale Swain</u>											
Shipment Method: <u>Courier</u>				Site Location #:				Site Location: <u>Port of Oakland</u>							
TAT: <input type="checkbox"/> 24 hr <input checked="" type="checkbox"/> 48 hr <input type="checkbox"/> 72 hr <input type="checkbox"/> Standard (10 day)				ANALYSIS REQUIRED								Sample Condition as Received Temperature ° C: _____ Cooler #: _____ Inbound Seal Yes No Outbound Seal Yes No			
Sample Description	Collection Date/Time	Matrix Soil/Water	Prsv	# of Cont	Sample #	TPH/GAS/BTEX EPA 8015/8030	TPH/Diesel EPA 8015	Oil & Grease SM 5520	HVOC 8010	Total Lead	RCI	BTEX	Hold	COMMENTS	
S-1	7/24/95	Soil		1	196092		X					X			
S-2	↓	↓		1	196100		X					X			
S-3	↓	↓		1	196118		X					X			
S-4	↓	↓		1	196126		X					X			
SP-1	↓	↓		1	196134								X		
S-1A	↓	↓		1	196142								X		
Relinquished by/Affiliation			Date	Time	Accepted by/Affiliation			Date	Time	Additional Comments:					
<u>Dale Swain</u>			<u>7/24/95</u>		<u>JOSE/355 PHILLIPS</u>			<u>7/24/95</u>	<u>1230</u>	<u>SP-1 is a composite of 4 samples collected in the field.</u>					
<u>JOSE/355</u>			<u>7/29/95</u>	<u>1300</u>	<u>D.S. PHILLIPS</u>			<u>7/29/95</u>	<u>1300</u>						
<u>D.S.</u>			<u>7/29/95</u>	<u>1430</u>	<u>Walter Peters</u>			<u>7/29/95</u>	<u>1430</u>						



August 09, 1995

Mr. Dale Swain
Alisto Engineering
1575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

RE: PACE Project Number: 702624
Client Project ID: 10-256-02

Dear Mr. Swain:

Enclosed are the results of analyses for samples received on August 8, 1995. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script, reading "Stella V. Hanis". The signature is written in black ink and is positioned above the typed name.

Stella V. Hanis
Project Manager

Enclosures



ENVIRONMENTAL LABORATORIES

REPORT OF LABORATORY ANALYSIS

DATE: 08/09/95
PAGE: 1

Alisto Engineering
1575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702624
Client Project ID: 10-256-02

Attn: Mr. Dale Swain
Phone: (510)295-1650

PACE Sample No: 70221221 Date Collected: 08/07/95
Client Sample ID: S-5 Date Received: 08/08/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
GC -- Volatiles								
GAS/BTEX by CA LUFT, Soil								
Benzene	ND	ug/kg	1	08/08/95	CA LUFT	ADS	71-43-2	
Toluene	1.9	ug/kg	1	08/08/95	CA LUFT	ADS	108-88-3	
Ethyl Benzene	13	ug/kg	1	08/08/95	CA LUFT	ADS	100-41-4	
Xylene (Total)	11	ug/kg	2	08/08/95	CA LUFT	ADS	1330-20-7	
a,a,a-Trifluorotoluene (S)	102	%		08/08/95	CA LUFT	ADS	2164-17-2	
4-Bromofluorobenzene (S)	110	%		08/08/95	CA LUFT	ADS	460-00-4	
GC								
TPH in Soil by 8015 Modified								
Diesel Fuel	580	mg/kg	250	08/09/95	TPH by EPA 8015M	HJS		
n-Pentacosane (S)	0	%		08/09/95	TPH by EPA 8015M	HJS	629-99-2	1
Date Extracted				08/08/95				

REPORT OF LABORATORY ANALYSIS

DATE: 08/09/95
PAGE: 2

PACE Project Number: 702624
Client Project ID: 10-256-02

PACE Sample No: 70221247
Client Sample ID: S-6
Date Collected: 08/07/95
Date Received: 08/08/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
GC -- Volatiles								
GAS/BTEX by CA LUFT, Soil								
Benzene	ND	ug/kg	1	08/08/95	CA LUFT	ADS	71-43-2	
Toluene	1.8	ug/kg	1	08/08/95	CA LUFT	ADS	108-88-3	
Ethyl Benzene	30	ug/kg	1	08/08/95	CA LUFT	ADS	100-41-4	
Xylene (Total)	20	ug/kg	2	08/08/95	CA LUFT	ADS	1330-20-7	
a,a,a-Trifluorotoluene (S)	94	%		08/08/95	CA LUFT	ADS	2164-17-2	
4-Bromofluorobenzene (S)	123	%		08/08/95	CA LUFT	ADS	460-00-4	
GC								
TPH in Soil by 8015 Modified								
Diesel Fuel	5800	mg/kg	250	08/09/95	TPH by EPA 8015M	HJS		
n-Pentacosane (S)	0	%		08/09/95	TPH by EPA 8015M	HJS	629-99-2	2
Date Extracted				08/08/95				



REPORT OF LABORATORY ANALYSIS

DATE: 08/09/95
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PACE Project Number: 702624
Client Project ID: 10-256-02

PACE Sample No: 70221254
Client Sample ID: S-7

Date Collected: 08/07/95
Date Received: 08/08/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
GC -- Volatiles								
GAS/BTEX by CA LUFT, Soil								
Benzene	ND	ug/kg	1	08/08/95	CA LUFT	ADS	71-43-2	
Toluene	ND	ug/kg	1	08/08/95	CA LUFT	ADS	108-88-3	
Ethyl Benzene	ND	ug/kg	1	08/08/95	CA LUFT	ADS	100-41-4	
Xylene (Total)	ND	ug/kg	2	08/08/95	CA LUFT	ADS	1330-20-7	
a,a,a-Trifluorotoluene (S)	110	%		08/08/95	CA LUFT	ADS	2164-17-2	
4-Bromofluorobenzene (S)	88	%		08/08/95	CA LUFT	ADS	460-00-4	
GC								
TPH in Soil by 8015 Modified								
Diesel Fuel	ND	mg/kg	10	08/09/95	TPH by EPA 8015M	HJS		
n-Pentacosane (S)	91	%		08/09/95	TPH by EPA 8015M	HJS	629-99-2	
Date Extracted				08/08/95				



ENVIRONMENTAL LABORATORIES

REPORT OF LABORATORY ANALYSIS

DATE: 08/09/95
PAGE: 4

PACE Project Number: 702624
Client Project ID: 10-256-02

PACE Sample No: 70221262 Date Collected: 08/07/95
Client Sample ID: S-8 Date Received: 08/08/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
GC -- Volatiles								
GAS/BTEX by CA LUFT, Soil								
Benzene	3.8	ug/kg	1	08/08/95	CA LUFT	ADS	71-43-2	
Toluene	13	ug/kg	1	08/08/95	CA LUFT	ADS	108-88-3	
Ethyl Benzene	ND	ug/kg	1	08/08/95	CA LUFT	ADS	100-41-4	
Xylene (Total)	16	ug/kg	2	08/08/95	CA LUFT	ADS	1330-20-7	
a,a,a-Trifluorotoluene (S)	110	%		08/08/95	CA LUFT	ADS	2164-17-2	
4-Bromofluorobenzene (S)	99	%		08/08/95	CA LUFT	ADS	460-00-4	
TPH in Soil by 8015 Modified								
Diesel Fuel	1300	mg/kg	250	08/09/95	TPH by EPA 8015M	HJS		
n-Pentacosane (S)	0	%		08/09/95	TPH by EPA 8015M	HJS	629-99-2	3
Date Extracted				08/08/95				



ENVIRONMENTAL LABORATORIES

REPORT OF LABORATORY ANALYSIS

DATE: 08/09/95
PAGE: 5

PACE Project Number: 702624
Client Project ID: 10-256-02

PARAMETER FOOTNOTES

- ND Not Detected
- NC Not Calculable
- RL PACE Reporting Limit
- (S) Surrogate
- [1] Surrogate could not be quantitated due to sample dilution.
- [2] Surrogate could not be quantitated due to sample dilution.
- [3] Surrogate could not be quantitated due to sample dilution.



REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 08/09/95
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isto Engineering
1775 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702624
Client Project ID: 10-256-02

Attn: Mr. Dale Swain
Phone: (510)295-1650

Batch ID: 5788
Associated PACE Samples: 70221221 70221247 70221254 70221262

Date of Batch: 08/07/95

THOD BLANK: 70220702
Associated PACE Samples:

Parameter	Units	70221221	70221247 Method Blank Result	70221254 PRL	70221262 Footnotes
Benzene	ug/kg		ND	1	
Toluene	ug/kg		ND	1	
Ethyl Benzene	ug/kg		ND	1	
Xylene (Total)	ug/kg		ND	2	
m,p,o-Trifluorotoluene (S)	%		101		
4-Bromofluorobenzene (S)	%		101		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70220686 70220694

Parameter	Units	70210042	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Benzene	ug/kg	ND	100	110	107	110	106	1	
Toluene	ug/kg	ND	100	100	103	100	103	0	
Ethyl Benzene	ug/kg	ND	100	100	102	100	102	0	
Xylene (Total)	ug/kg	ND	300	310	102	310	102	0	
m,p,o-Trifluorotoluene (S)					105		101		
4-Bromofluorobenzene (S)					31		101		

LABORATORY CONTROL SAMPLE & LCSD: 70217575 70217583

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Benzene	ug/kg	100	110	114	120	117	3	



ENVIRONMENTAL LABORATORIES

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 08/09/95
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PACE Project Number: 702624
Client Project ID: 10-256-02

Parameter	Units	LABORATORY CONTROL SAMPLE & LCSD: 70217575 70217583		Spike % Rec	LCSD Result	Spike Dup		Footnotes
		Spike Conc.	LCS Result			% Rec	RPD	
Toluene	ug/kg	100	110	109	110	112	3	
Ethyl Benzene	ug/kg	100	110	108	110	110	2	
Xylene (Total)	ug/kg	300	330	109	330	111	2	
a,a,a-Trifluorotoluene (S)				100		100		
4-Bromofluorobenzene (S)				101		101		



REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 08/09/95
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Alisto Engineering
1575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702624
Client Project ID: 10-256-02

Attn: Mr. Dale Swain
Phone: (510)295-1650

QC Batch ID: 5876 QC Batch Method: CA LUFT Date of Batch: 08/08/95
Associated PACE Samples: 70221221 70221247 70221254 70221262

METHOD BLANK: 70222088
Associated PACE Samples:

Parameter	Units	70221221	70221247 Method Blank Result	70221254 PRL	70221262 Footnotes
Diesel Fuel	mg/kg		ND	5	
n-Pentacosane (S)	%		77		

LABORATORY CONTROL SAMPLE & LCSD: 70222096		70222104				Spike		Footnotes
Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	% Rec	RPD	
Diesel Fuel	mg/kg	33	23	70	23	69	1	
n-Pentacosane (S)				114		114		



REPORT OF LABORATORY ANALYSIS

DATE: 08/09/95
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PACE Project Number: 702624
Client Project ID: 10-256-02

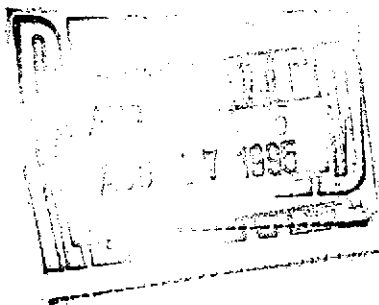
QUALITY CONTROL DATA PARAMETER FOOTNOTES

The Quality Control Sample Final Results listed above have been rounded to reflect an appropriate number of significant figures. Consistent with EPA guidelines unrounded concentrations have been used to calculate % Rec and RPD values.

- D Not Detected
- NC Not Calculable
- PRL PACE Reporting Limit
- PD Relative Percent Difference
- S) Surrogate

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS



August 15, 1995

Mr. Brady Nagle
ALISTO ENGINEERING GROUP
1575 Treat Blvd., Suite 201
Walnut Creek, CA 94598

Client Ref.: 10-256-02
Clayton Project No.: 95081.55

Dear Mr. Nagle:

Attached is our analytical laboratory report for the samples received on August 14, 1995. Matrix spikes for EPA Method 8015/8020 showed high recovery for several compounds. The Laboratory Control Sample for this method showed results within quality control limits. Also enclosed is a copy of the Chain-of-Custody record acknowledging receipt of these samples.

Please note that any unused portion of the samples will be discarded after September 14, 1995, unless you have requested otherwise.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact Suzanne Haus, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Michael Lynch For

Harriotte A. Hurley, CIH
Director, Laboratory Services
San Francisco Regional Office

HAH/caa

Attachments

Analytical Results
for
Alisto Engineering Group ✓
Client Reference: 10-256-02
Clayton Project No. 95081.55

Sample Identification: S-9 ✓	Date Sampled: 08/14/95 ✓
Lab Number: 9508155-01A	Date Received: 08/14/95
Sample Matrix/Media: SOIL	Date Prepared: 08/14/95
Preparation Method: EPA 5030	Date Analyzed: 08/15/95
Method Reference: EPA 8020	Analyst: WAS

Analyte	CAS #	Concentration (mg/kg)	Method Detection Limit (mg/kg)
<u>BTEX</u>			
Benzene	71-43-2	ND	0.005
Ethylbenzene	100-41-4	ND	0.005
Toluene	108-88-3	ND	0.005
o-Xylene	95-47-6	ND	0.005
p,m-Xylenes	--	ND	0.005
<u>Surrogates</u>		<u>Recovery (%)</u>	<u>OC Limits (%)</u>
a,a,a-Trifluorotoluene	98-08-8	72	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Results are reported on a wet-weight basis, as received.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-256-02
Clayton Project No. 95081.55

Sample Identification: S-10	Date Sampled: 08/14/95
Lab Number: 9508155-02A	Date Received: 08/14/95
Sample Matrix/Media: SOIL	Date Prepared: 08/14/95
Preparation Method: EPA 5030	Date Analyzed: 08/15/95
Method Reference: EPA 8020	Analyst: WAS

Analyte	CAS #	Concentration (mg/kg)	Method Detection Limit (mg/kg)
---------	-------	--------------------------	---

BTEX

Benzene	71-43-2	ND	0.005
Ethylbenzene	100-41-4	ND	0.005
Toluene	108-88-3	ND	0.005
o-Xylene	95-47-6	ND	0.005
p,m-Xylenes	--	ND	0.005

Surrogates

		<u>Recovery (%)</u>	<u>QC Limits (%)</u>
a,a,a-Trifluorotoluene	98-08-8	64	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Results are reported on a wet-weight basis, as received.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-256-02
Clayton Project No. 95081.55

Sample Identification: S-11	Date Sampled: 08/14/95
Lab Number: 9508155-03A	Date Received: 08/14/95
Sample Matrix/Media: SOIL	Date Prepared: 08/14/95
Preparation Method: EPA 5030	Date Analyzed: 08/15/95
Method Reference: EPA 8020	Analyst: WAS

Analyte	CAS #	Concentration (mg/kg)	Method Detection Limit (mg/kg)
<u>BTEX</u>			
Benzene	71-43-2	ND	0.005
Ethylbenzene	100-41-4	ND	0.005
Toluene	108-88-3	ND	0.005
o-Xylene	95-47-6	ND	0.005
p,m-Xylenes	--	ND	0.005
<u>Surrogates</u>		<u>Recovery (%)</u>	<u>QC Limits (%)</u>
a,a,a-Trifluorotoluene	98-08-8	70	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Results are reported on a wet-weight basis, as received.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-256-02
Clayton Project No. 95081.55

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9508155-04A	Date Received:	--
Sample Matrix/Media:	SOIL	Date Prepared:	08/14/95
Preparation Method:	EPA 5030	Date Analyzed:	08/15/95
Method Reference:	EPA 8020	Analyst:	WAS

Analyte	CAS #	Concentration (mg/kg)	Method Detection Limit (mg/kg)
<u>BTEX</u>			
Benzene	71-43-2	ND	0.005
Ethylbenzene	100-41-4	ND	0.005
Toluene	108-88-3	ND	0.005
o-Xylene	95-47-6	ND	0.005
p,m-Xylenes	--	ND	0.005
<u>Surrogates</u>		<u>Recovery (%)</u>	<u>QC Limits (%)</u>
a,a,a-Trifluorotoluene	98-08-8	91	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-256-02
Clayton Project No. 95081.55

Sample Identification: See Below
 Lab Number: 9508155
 Sample Matrix/Media: SOIL
 Extraction Method: EPA 3550
 Method Reference: EPA 8015 (Modified)

Date Received: 08/14/95
 Date Extracted: 08/14/95
 Date Analyzed: 08/15/95

Lab Number	Sample Identification	Date Sampled	TPH-D (mg/kg)	Method Detection Limit (mg/kg)
-01	S-9	08/14/95	25 ✓	1
-02	S-10	08/14/95	50 ✓	1
-03	S-11	08/14/95	ND ✓	1
-04	METHOD BLANK	--	ND	1

ND: Not detected at or above limit of detection
 --: Information not available or not applicable

Results are reported on a wet-weight basis, as received.

TPH-D = Extractable petroleum hydrocarbons from C10 to C20 quantitated as diesel.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-256-02
Clayton Project No. 95081.55

Sample Identification: See Below
 Lab Number: 9508155
 Sample Matrix/Media: SOIL
 Extraction Method: EPA 3550
 Method Reference: EPA 8015 (Modified)

Date Received: 08/14/95
 Date Extracted: 08/14/95
 Date Analyzed: 08/15/95

Lab Number	Sample Identification	Date Sampled	TPH-O (mg/kg)	Method Detection Limit (mg/kg)
-01	S-9	08/14/95	61	4
-02	S-10	08/14/95	50	4
-03	S-11	08/14/95	58	4
-04	METHOD BLANK	--	ND	4

ND: Not detected at or above limit of detection
 ---: Information not available or not applicable

Results are reported on a wet-weight basis, as received.

TPH-O = Extractable petroleum hydrocarbons from C20 to C42 quantitated as motor oil.

Quality Assurance Results Summary
Matrix Spike/Matrix Spike Duplicate Results
for
Clayton Project No. 95081.55

Quality Assurance Results Summary - Matrix Spike/Matrix Spike Duplicate
 for
 Clayton Project No. 95081.55

Clayton Lab Number: 9508155-03A
 Ext./Prep. Method: EPA 3550
 Date: 08/14/95
 Analyst: MBN
 Std. Source: E950706-01W
 Sample Matrix/Media: SOIL

Analytical Method: EPA 8015
 Instrument ID: 02893
 Date: 08/15/95
 Time: 06:51
 Analyst: GUD
 Units: MG/KG

Analyte	Sample Result	Spike Level	Matrix Spike Result	MS Recovery (%)	Matrix Spike Duplicate Result	MSD Recovery (%)	Average Recovery (% R)	LCL (% R)	UCL (% R)	RPD (%)	UCL (%RPD)
DIESEL	ND	20.0	22.0	110	21.2	106	108	51	147	3.8	30

ND = Not detected at or above limit of detection
 SOR = Spike out of range due to high sample concentration.

LCL = Lower Control Limit

UCL = Upper Control Limit

Quality Assurance Results Summary - Matrix Spike/Matrix Spike Duplicate
for
Clayton Project No. 95081.55

Clayton Lab Number: 9508124-08A
Ext./Prep. Method: EPA 5030
Date: 08/14/95
Analyst: WAS
Std. Source: V950805-01W
Sample Matrix/Media: SOIL

Analytical Method: EPA8015_8020
Instrument ID: 05587
Date: 08/14/95
Time: 19:42
Analyst: WAS
Units: MG/KG

Analyte	Sample Result	Spike Level	Matrix Spike Result	MS Recovery (%)	Matrix Spike Duplicate Result	MSD Recovery (%)	Average Recovery (% R)	LCL (% R)	UCL (% R)	RPD (%)	UCL (%RPD)
BENZENE	(PID) ND	0.0300	0.0451	150*	0.0432	144*	147*	53	140	4.3	28
ETHYLBENZENE	(PID) ND	0.0368	0.0500	136*	0.0536	146*	141*	56	134	6.9	25
GASOLINE	(FID) ND	2.50	3.15	126	3.11	124	125	41	164	1.3	37
TOLUENE	(PID) ND	0.230	0.271	118	0.274	119	118	60	139	1.1	22
TOTAL XYLENE	(PID) ND	0.209	0.278	133*	0.270	129	131*	61	129	2.6	26

* Result is outside of control limits.

ND = Not detected at or above limit of detection
SOR = Spike out of range due to high sample concentration.

LCL = Lower Control Limit

UCL = Upper Control Limit

Quality Assurance Results Summary - Matrix Spike/Matrix Spike Duplicate
for
Clayton Project No. 95081.55

Clayton Lab Number: 9508124-08A
Ext./Prep. Method: EPA 5030
Date: 08/14/95
Analyst: WAS
Std. Source: V950805-01W
Sample Matrix/Media: SOIL

Analytical Method: EPA8015_8020
Instrument ID: 05587
Date: 08/15/95
Time: 10:40
Analyst: WAS
Units: MG/KG

Analyte		Sample Result	Spike Level	Matrix Spike Result	MS Recovery (%)	Matrix Spike Duplicate Result	MSD Recovery (%)	Average Recovery (% R)	LCL (% R)	UCL (% R)	RPD (%)	UCL (%RPD)
BENZENE	(PID)	ND	0.0370	0.0343	93	0.0373	101	97	53	140	8.4	28
ETHYLBENZENE	(PID)	ND	0.0368	0.0396	108	0.0420	114	111	56	134	5.9	25
GASOLINE	(FID)	ND	2.50	2.71	108	2.85	114	111	41	164	5.0	37
TOLUENE	(PID)	ND	0.230	0.219	95	0.230	100	98	60	139	4.9	22
TOTAL XYLENE	(PID)	ND	0.209	0.228	109	0.241	115	112	61	129	5.5	26

ND = Not detected at or above limit of detection
SOR = Spike out of range due to high sample concentration.

LCL = Lower Control Limit

UCL = Upper Control Limit

ALISTO ENGINEERING GROUP

CHAIN OF CUSTODY

9508155

~~9508155~~

Consultant's Name: Alisto Engineering
 Address: 1575 Treat Boulevard #201 Walnut Creek, CA 94578
 Project Contact: Brendy Naylor Consultant Project #: 10-256-02 Phone #: 295-1650 Fax #: 295-1822
 Sampled by (print): Dale Swartz Sampler's Signature: [Signature]
 Shipment Method: Courier Site Location #: _____ Site Location: Port of Oakland, AKL

AT: 24 hr 48 hr 72 hr Standard (10 day)

ANALYSIS REQUIRED

Sample Description	Collection Date/Time	Matrix Soil/Water	Presv	# of Cont	Sample #	TPH/GAS/BTEX EPA 8015/8020	TPH/Diesel EPA 8015	Oil & Grease SM 5520	HVOC 8010	BTEX	Sample Condition as Received	
											Temperature ° C: _____	Cooler #: _____
											Inbound Seal Yes No Outbound Seal Yes No	
S-9	8-14-95	Soil		1		X				X	01A	
S-10	↓	↓		1		X				X	02 ↓	
S-11	↓	↓		1		X				X	03 ↓	

COMMENTS

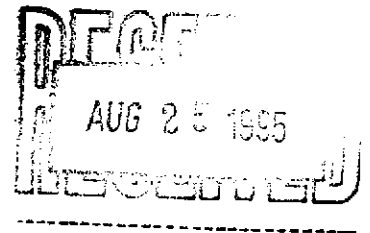
01A 2x6 ^{15°C}
 02 ↓ ↓
 03 ↓ ↓

Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time	Additional Comments:
<u>[Signature]</u> / Alisto	8/14/95	11:00	<u>Joy Silvia #674</u>	8/14/95	1535	Shipped via AECO Delivery / Rec'd in good condition. chr Preservative = 4°C.
<u>Joy Silvia #694</u>	8/14/95	4:40 PM	<u>[Signature]</u>	8/14/95	4:40 PM	

GRAB GROUNDWATER SAMPLE



REPORT OF LABORATORY ANALYSIS



August 21, 1995

Mr. Dale Swain
Alisto Engineering
1575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

RE: PACE Project Number: 702783
Client Project ID: PORT OF OAKLAND

Dear Mr. Swain:

Enclosed are the results of analyses for samples received on August 16, 1995. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Stella V. Hanis
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

DATE: 08/21/95
PAGE: 1

Alisto Engineering
1575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702783
Client Project ID: PORT OF OAKLAND

Attn: Mr. Dale Swain
Phone: (510)295-1650

PACE Sample No: 70238795
Client Sample ID: TP-1 ✓
Date Collected: 08/16/95 ✓
Date Received: 08/16/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
GC -- Volatiles								
GAS/BTEX by CA LUFT, Water								
Benzene	ND	ug/L	0.5	08/17/95	CA LUFT	ADS	71-43-2	
Toluene	ND	ug/L	0.5	08/17/95	CA LUFT	ADS	108-88-3	
Ethyl Benzene	ND	ug/L	0.5	08/17/95	CA LUFT	ADS	100-41-4	
Xylene (Total)	ND	ug/L	1	08/17/95	CA LUFT	ADS	1330-20-7	
a,a,a-Trifluorotoluene (S)	89	%		08/17/95	CA LUFT	ADS	2164-17-2	
4-Bromofluorobenzene (S)	89	%		08/17/95	CA LUFT	ADS	460-00-4	
GC								
8015 Fuel Fingerprint in Water								
Diesel Fuel	5.8	mg/L	0.049	08/17/95	TPH by EPA 8015M	DLA		1
n-Pentacosane (S)	121	%		08/17/95	TPH by EPA 8015M	DLA	629-99-2	
Date Extracted				08/16/95				



REPORT OF LABORATORY ANALYSIS

DATE: 08/21/95
PAGE: 2

PACE Project Number: 702783
Client Project ID: PORT OF OAKLAND

PACE Sample No: 70238803 Date Collected: 08/16/95
Client Sample ID: TB-1 Date Received: 08/16/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
GC -- Volatiles								
GAS/BTEX by CA LUFT, Water								
Benzene	ND	ug/L	0.5	08/17/95	CA LUFT	ADS	71-43-2	
Toluene	ND	ug/L	0.5	08/17/95	CA LUFT	ADS	108-88-3	
Ethyl Benzene	ND	ug/L	0.5	08/17/95	CA LUFT	ADS	100-41-4	
Xylene (Total)	ND	ug/L	1	08/17/95	CA LUFT	ADS	1330-20-7	
a,a,a-Trifluorotoluene (S)	91	%		08/17/95	CA LUFT	ADS	2164-17-2	
4-Bromofluorobenzene (S)	88	%		08/17/95	CA LUFT	ADS	460-00-4	



REPORT OF LABORATORY ANALYSIS

DATE: 08/21/95
PAGE: 3

PACE Project Number: 702783
Client Project ID: PORT OF OAKLAND

PARAMETER FOOTNOTES

ND Not Detected
NC Not Calculable
PRL PACE Reporting Limit
(S) Surrogate
[1] Late hydrocarbons greater than C25 are present as well as diesel.



REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 08/21/95
PAGE: 4

Clisto Engineering
1575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702783
Client Project ID: PORT OF OAKLAND

Attn: Mr. Dale Swain
Phone: (510)295-1650

QC Batch ID: 6242 QC Batch Method: CA LUFT
Associated PACE Samples: 70238795 70238803

Date of Batch: 08/17/95

METHOD BLANK: 70238837
Associated PACE Samples:

70238795 70238803

Parameter	Units	Method Blank Result	PRL	Footnotes
Benzene	ug/L	ND	0.5	
Toluene	ug/L	ND	0.5	
Ethyl Benzene	ug/L	ND	0.5	
Xylene (Total)	ug/L	ND	1	
1,2,4-Trifluorobenzene (S)	%	90		
1,3-Dibromofluorobenzene (S)	%	85		



REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 08/21/95
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Alisto Engineering
1575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702783
Client Project ID: PORT OF OAKLAND

Attn: Mr. Dale Swain
Phone: (510)295-1650

QC Batch ID: 6274
Associated PACE Samples: 70238795

QC Batch Method: EPA 3510

Date of Batch: 08/17/95

METHOD BLANK: 70239421
Associated PACE Samples:

70238795

Parameter	Units	Method Blank Result	PRL	Footnotes
Diesel Fuel	mg/L	ND	0.05	1
n-Pentacosane (S)	%	92		

LABORATORY CONTROL SAMPLE & LCSD: 70239439

70239447

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Diesel Fuel	mg/L	1	0.87	87	0.83	83	5	
n-Pentacosane (S)				98		96		



REPORT OF LABORATORY ANALYSIS

DATE: 08/21/95
PAGE: 6

PACE Project Number: 702783
Client Project ID: PORT OF OAKLAND

QUALITY CONTROL DATA PARAMETER FOOTNOTES

The Quality Control Sample Final Results listed above have been rounded to reflect an appropriate number of significant figures. Consistent with EPA guidelines unrounded concentrations have been used to calculate % Rec and RPD values.

ND Not Detected
NC Not Calculable
PRL PACE Reporting Limit
RPD Relative Percent Difference
(S) Surrogate
[1] Below PRL.

ALISTO ENGINEERING GROUP

CHAIN OF CUSTODY

702783

Page 1 of 1

Consultant's Name: <u>Alisto Engineering</u>		Address: <u>1575 Trent Boulevard #201, Walnut Creek, CA 94598</u>	
Project Contact: <u>Brady Nagle</u>	Consultant Project #: <u>10-256-02</u>	Phone #: <u>795-1650</u>	Fax #: <u>295-1823</u>
Sampled by (print): <u>Dave Swank</u>	Sampler's Signature: <u>Dave Swank</u>		Site Location:
Shipment Method: <u>Cover</u>	Site Location #:		Site Location:

TAT: 24 hr 48 hr 72 hr Standard (10 day)

ANALYSIS REQUIRED

Sample Description	Collection Date/Time	Matrix Soil/Water	Pres	# of Cont	Sample #	TPH/GAS/BTEX EPA 8015/8020	TPH/Diesel EPA 8015	Oil & Grease SM 5520	HVOC 8010	BTEX	Hold							
TP-1	8/16/75	H ₂ O	HCL	2L	23877K		X											
TP-1	↓	↓	HNO ₃	1	↓								X					
TP-1	↓	↓	HCl	3Vols	↓					X			X					
TP-1	↓	↓		1L	↓													
TB-1	↓	↓	HCL	2 Vols	23880J					X								

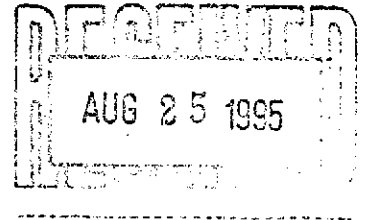
Sample Condition as Received
 Temperature °C: _____
 Cooler #: _____
 Inbound Seal Yes No
 Outbound Seal Yes No

COMMENTS

Relinquished by/Affiliation	Date	Time	Accepted by/Affiliation	Date	Time	Additional Comments:	
<u>Dave Swank</u>	8/16/75		<u>Richard Kott</u>	8-16	3:25		
<u>Richard Kott</u>	8-16	16:20	<u>James W. ...</u>	8/16/75	18:00		



REPORT OF LABORATORY ANALYSIS



August 23, 1995

Mr. Dale Swain
Alisto Engineering
1575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

RE: PACE Project Number: 702653
Client Project ID: Port of Oakland

Dear Mr. Swain:

Enclosed are the results of analyses for samples received on August 8, 1995. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Stella V. Hanis".

Stella V. Hanis
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

DATE: 08/23/95
PAGE: 1

Alisto Engineering
1575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702653
Client Project ID: Port of Oakland

Attn: Mr. Dale Swain
Phone: (510)295-1650

PACE Sample No: 70224175
Client Sample ID: COMP SAMPLES SP-2,3,4,5
Date Collected: 08/07/95
Date Received: 08/08/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	28.5	mg/kg	3.85	08/11/95	EPA 6010	BRW	7439-92-1	
Date Digested				08/11/95				
Wet Chemistry								
pH, Soil								
pH	8.13			08/10/95	EPA 9045	LDA		
Flash Point, Closed Cup								
Flash Point	ND	deg C	23	08/11/95	EPA 1010	LDA		1
Cyanide, Reactive, Soil								
Cyanide, Reactive	ND	mg/kg	0.495	08/15/95	SW846 7.3.3.2	ALK		
Sulfide, Reactive, Soil								
Sulfide, Reactive	19.9	mg/kg	9.91	08/14/95	SW846 7.3.4.2	ALK		
GC -- Volatiles								
GAS/BTEX by CA LUFT, Soil								
Benzene	ND	ug/kg	1	08/16/95	CA LUFT	ADS	71-43-2	
Toluene	1.6	ug/kg	1	08/16/95	CA LUFT	ADS	108-88-3	
Ethyl Benzene	1.5	ug/kg	1	08/16/95	CA LUFT	ADS	100-41-4	
Xylene (Total)	7.1	ug/kg	2	08/16/95	CA LUFT	ADS	1330-20-7	
a,a,a-Trifluorotoluene (S)	93	%		08/16/95	CA LUFT	ADS	2164-17-2	
4-Bromofluorobenzene (S)	136	%		08/16/95	CA LUFT	ADS	460-00-4	
GC								
TPH in Soil by 8015 Modified								
Diesel Fuel	430	mg/kg	25	08/20/95	TPH by EPA 8015M	DLA		2
n-Pentacosane (S)	0	%		08/20/95	TPH by EPA 8015M	DLA	629-99-2	3
Date Extracted				08/18/95				

REPORT OF LABORATORY ANALYSIS

DATE: 08/23/95
PAGE: 2

PACE Project Number: 702653
Client Project ID: Port of Oakland

PACE Sample No: 70224191 Date Collected: 08/07/95
Client Sample ID: COMP SAMPLES SP-6,7,8,9 Date Received: 08/08/95

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Metals								
Metals, ICP								
Lead	41.2	mg/kg	3.85	08/11/95	EPA 6010	BRW	7439-92-1	
Date Digested				08/11/95				
Wet Chemistry								
pH, Soil								
pH	7.83			08/10/95	EPA 9045	LDA		
Flash Point, Closed Cup								
Flash Point	ND	deg C	23	08/11/95	EPA 1010	LDA		4
Cyanide, Reactive, Soil								
Cyanide, Reactive	ND	mg/kg	0.5	08/15/95	SW846 7.3.3.2	ALK		
Sulfide, Reactive, Soil								
Sulfide, Reactive	31.9	mg/kg	10	08/14/95	SW846 7.3.4.2	ALK		
GC -- Volatiles								
GAS/BTEX by CA LUFT, Soil								
Benzene	ND	ug/kg	1	08/16/95	CA LUFT	ADS	71-43-2	
Toluene	1.4	ug/kg	1	08/16/95	CA LUFT	ADS	108-88-3	
Ethyl Benzene	ND	ug/kg	1	08/16/95	CA LUFT	ADS	100-41-4	
Xylene (Total)	17	ug/kg	2	08/16/95	CA LUFT	ADS	1330-20-7	
a,a,a-Trifluorotoluene (S)	125	%		08/16/95	CA LUFT	ADS	2164-17-2	
4-Bromofluorobenzene (S)	52	%		08/16/95	CA LUFT	ADS	460-00-4	
GC								
TPH in Soil by 8015 Modified								
Diesel Fuel	4600	mg/kg	500	08/21/95	TPH by EPA 8015M	DLA		
n-Pentacosane (S)	0	%		08/21/95	TPH by EPA 8015M	DLA	629-99-2	5
Date Extracted				08/18/95				

Comments : COMP SAMPLES 224092,224118,224126,224134



REPORT OF LABORATORY ANALYSIS

DATE: 08/23/95
PAGE: 3

PACE Project Number: 702653
Client Project ID: Port of Oakland

PARAMETER FOOTNOTES

- ND Not Detected
- NC Not Calculable
- PRL PACE Reporting Limit
- (S) Surrogate
- [1] No flashpoint observed up to 60 deg C
- [2] Late hydrocarbons are present as well as diesel.
- [3] The surrogate could not be quantitated due to sample dilution.
- [4] No flashpoint observed up to 60 deg C
- [5] The surrogate could not be quantitated due to sample dilution.



REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 08/23/95
PAGE: 4

Listo Engineering
7575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702653
Client Project ID: Port of Oakland

Attn: Mr. Dale Swain
Phone: (510)295-1650

QC Batch ID: 5972 QC Batch Method: EPA 3050
Associated PACE Samples: 70224175 70224191

Date of Batch: 08/10/95

METHOD BLANK: 70226261
Associated PACE Samples:

Parameter	Units	70224175	70224191	Footnotes
			Method Blank Result	
Lead	mg/kg	ND	PRL 5	

MATRIX SPIKE: 70226279

Parameter	Units	70222427	Spike Conc.	Matrix Spike Result	Spike % Rec	Footnotes
Lead	mg/kg	5.86	97.1	100	97	

LABORATORY CONTROL SAMPLE & LCSD: 70226295

Parameter	Units	70226303	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Lead	mg/kg	100	97.6	98	94.1	94	4		

SAMPLE DUPLICATE: 70226287

Parameter	Units	70222427	Dup. Result	RPD	Footnotes
Lead	mg/kg	5.86	6.69	13	



REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 08/23/95
PAGE: 5

Alisto Engineering
575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702653
Client Project ID: Port of Oakland

Attn: Mr. Dale Swain
Phone: (510)295-1650

QC Batch ID: 5977
Associated PACE Samples:

70224175

QC Batch Method: EPA 9045
70224191

Date of Batch: 08/10/95



REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 08/23/95
PAGE: 6

Sliso Engineering
575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702653
Client Project ID: Port of Oakland

Attn: Mr. Dale Swain
Phone: (510)295-1650

QC Batch ID: 6036
Associated PACE Samples: 70224175

QC Batch Method: EPA 1010
70224191

Date of Batch: 08/11/95

LABORATORY CONTROL SAMPLE & LCSD: 70229414		70229422				Spike		
Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Dup % Rec	RPD	Footnotes
Flash Point	deg C	25	25.5	102	24.5	98	4	

SAMPLE DUPLICATE: 70229430

Parameter	Units	70224191	Dup. Result	RPD	Footnotes
Flash Point	deg C	ND	ND	NC	1



REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

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Alisto Engineering
1575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702653
Client Project ID: Port of Oakland

Attn: Mr. Dale Swain
Phone: (510)295-1650

QC Batch ID: 6126 QC Batch Method: SW846 7.3.4.2
Associated PACE Samples: 70224175 70224191

Date of Batch: 08/15/95

METHOD BLANK: 70232996

Associated PACE Samples:

Parameter	Units	70224175	70224191	PRL	Footnotes
			Method Blank Result		
Sulfide, Reactive	mg/kg		ND	10	

MATRIX SPIKE: 70233002

Parameter	Units	70224175	Matrix Spike			Footnotes
			Spike Conc.	Spike Result	Spike % Rec	
Sulfide, Reactive	mg/kg	19.9	94.5	66.1	49	

LABORATORY CONTROL SAMPLE & LCSD: 70233028

Parameter	Units	70233036		Spike % Rec	LCSD Result	Spike Dup		Footnotes
		Spike Conc.	LCS Result			% Rec	RPD	
Sulfide, Reactive	mg/kg	95.4	57.1	60	60.6	63	5	

SAMPLE DUPLICATE: 70233010

Parameter	Units	70224175	Dup.		Footnotes
			Result	RPD	
Sulfide, Reactive	mg/kg	19.9	19.6	1	



REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 08/23/95
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Listo Engineering
1575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702653
Client Project ID: Port of Oakland

Attn: Mr. Dale Swain
Phone: (510)295-1650

QC Batch ID: 6189
Associated PACE Samples: 70224175 70224191

Date of Batch: 08/16/95

METHOD BLANK: 70236054
Associated PACE Samples:

Parameter	Units	70224175	70224191	PRL	Footnotes
			Method Blank Result		
Benzene	ug/kg		ND	1	
Toluene	ug/kg		ND	1	
Ethyl Benzene	ug/kg		ND	1	
Xylene (Total)	ug/kg		ND	2	
1,2,4-Trifluorotoluene (S)	%		102		
4-Bromofluorobenzene (S)	%		100		

REPORT OF LABORATORY ANALYSIS

QUALITY CONTROL DATA

DATE: 08/23/95
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Listo Engineering
575 Treat Blvd.
Suite 201
Walnut Creek, CA 94598

PACE Project Number: 702653
Client Project ID: Port of Oakland

Attn: Mr. Dale Swain
Phone: (510)295-1650

QC Batch ID: 6307 QC Batch Method: CA LUFT
Associated PACE Samples: 70224175 70224191

Date of Batch: 08/18/95

METHOD BLANK: 70241336
Associated PACE Samples:

Parameter	Units	70224175 Method Blank Result	70224191 PRL	Footnotes
Diesel Fuel	mg/kg	ND	5	
n-Pentacosane (S)	%	83		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70241344 70241351

Parameter	Units	70216189 Spike Conc.	Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Diesel Fuel	mg/kg	2500	33	21	-7332	21	-7329	0
n-Pentacosane (S)					66	63		

LABORATORY CONTROL SAMPLE & LCSD: 70241369 70241377

Parameter	Units	70241369 Spike Conc.	LCSD Result	70241377 Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Diesel Fuel	mg/kg	33	29	86	30	90	5	
n-Pentacosane (S)				84		89		



REPORT OF LABORATORY ANALYSIS

DATE: 08/23/95
PAGE: 11

PACE Project Number: 702653
Client Project ID: Port of Oakland

QUALITY CONTROL DATA PARAMETER FOOTNOTES

The Quality Control Sample Final Results listed above have been rounded to reflect an appropriate number of significant figures. Consistent with EPA guidelines unrounded concentrations have been used to calculate % Rec and RPD values.

- ND Not Detected
- NC Not Calculable
- PRL PACE Reporting Limit
- RPD Relative Percent Difference
- (S) Surrogate
- [1] No flashpoint observed up to 60 deg C

ALISTO ENGINEERING GROUP

CHAIN OF CUSTODY

702653

Consultant's Name: <u>Alisto Engineering</u>										Page <u> </u> of <u> </u>				
Address: <u>1575 Treat Boulevard #201, Walnut Creek CA 94522</u>														
Project Contact: <u>Brady Nage</u>					Consultant Project #: <u>10-256-02</u>			Phone #: <u>295-1650</u> Fax #: <u>295-1823</u>						
Sampled by (print): <u>Dale Swain</u>					Sampler's Signature: <u>Dale Swain</u>									
Shipment Method: <u>Carrier</u>					Site Location #:			Site Location: <u>Port of Oakland</u>						
TAT: <input type="checkbox"/> 24 hr <input type="checkbox"/> 48 hr <input type="checkbox"/> 72 hr <input type="checkbox"/> Standard (10 day)					ANALYSIS REQUIRED							Sample Condition as Received Temperature °C: <u> </u> Cooler #: <u> </u> Inbound Seal Yes No Outbound Seal Yes No		
Sample Description	Collection Date/Time	Matrix Soil/Water	Prsv	# of Cont	Sample #	TPH/GAS/BTEX EPA 8015/8020	TPH/Diesel EPA 8015	Oil & Grease SM 5520	HVOC 8010	Total Lead	BTEX	RCI	COMMENTS	
SP-2	8/1/95	soil	-	1	224050	224175	X			X	X	X	} Composite SP-2 thru SP-5 with one for analysis	
SP-3				1	224068		X			X	X	X		
SP-4				1	224076		X			X	X	X		
SP-5				1	224084	✓	X			X	X	X		
SP-6				1	224092	224111	✓			X	X	X		} Composite SP-6 thru SP-9 with one for analysis
SP-7				1	224118		X			X	X	X		
SP-8				1	224126		X			X	X	X		
SP-9				1	224134	✓	X			X	X	X		
Relinquished by/Affiliation			Date	Time	Accepted by/Affiliation			Date	Time	Additional Comments:				
<u>Dale Swain</u>			8/1/95	16:42	<u>Roy Powell/Prime</u>			8/8/95	8:26	KID.				
<u>Roy Powell/Prime</u>			8/8/95	10:45	<u>Acme Niebner</u>			8/8/95	10:45					