SEISCO Engineering and Inspection Services
Professional Member
International Conference of Building Officials

1187 Ocean Avenue
Emeryville, California 94608
(510) 547-8540
FAX (510) 527-7785

F A C S I M I L E C O V E R S H E E T

DATE: 9-17-99

TO: ENVIRONMENTAL HEALTH SERVICES SECTION

FIRM: ACHCSA - ATT: DON HWANG

PHONE NO: 510 567-6700

FAX NO: 337-9335

FROM: DB HELFANT / E COX

RE: 6335 SAN PABLO AVE, OAKLAND

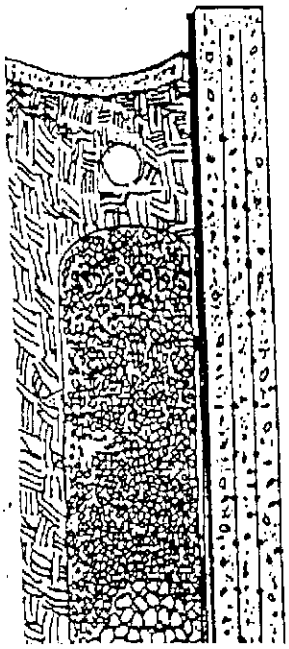
NUMBER OF SHEETS: 26
(INCLUDING COVER SHEET)

ADDITIONAL INFORMATION:

PLEASE CONTACT US IF PAGE(S) DO NOT TRANSMIT CLEARLY.

THANK YOU

BY



SEISCO Engineering and Inspection Services
Professional Member
International Conference of Building Officials
1187 Ocean Avenue
Emeryville, California 94608
(510) 547-8540 FAX (510) 527-7785
Industrial, Civil, Structural and Architectural Engineering.Construction Management.Hazardous Material Removal & Remediation

David Benaroya Helfant, Ph.D., M.ASCE, ICBO
Environmental, Seismic and Drainage Design
Structural and Engineering Inspections
Eric M. Cox, SE
Structural Engineering, Construction Management
Paul A. Charles, MSCE, P.E.
Civil and Structural Engineering
Michael S. Noell, M.Arch., A.I.A.
Architecture and Planning

September 9, 1999

Soil Sampling Plan, Results, and Analysis
Bolin's Service Garage, 6335 San Pablo Avenue, Oakland, CA -Stid 1685

RE: Ten year Follow-Up to the Approved Closure Which Took Place 4/11/88 & 5/23/88

SEISCO Engineering and Inspection Services
Professional Member
International Conference of Building Officials
1187 Ocean Avenue
Emeryville, California 94608
(510) 547-8540 FAX (510) 527-7785
Industrial, Civil, Structural and Architectural Engineering.Construction Management.Hazardous Material Removal & Remediation

David Benaroya Helfant, Ph.D., M.ASCE, ICBO
Environmental, Seismic and Drainage Design
Structural and Engineering Inspections
Eric M. Cox, PE
Structural Engineering, Construction Management
Paul A. Charles, MSCE, P.E.
Civil and Structural Engineering
Michael S. Noell, M.Arch., A.I.A.
Architecture and Planning

September 9, 1999

Mr. Mel Bolin
Virgil V. Bolin, Tr. Etal
5509 Arizona Drive
Concord, CA 94521

Dear Mr. Bolin;

Attached is the soil sampling plan, the results of the analysis of the samples and our recommendations. We recommend the contaminated soil be removed in the area where dispenser #1 and its product line was located [the only soil that showed contamination] until the soil contamination plume in this area has been removed. At that time the soil can be retested and an additional groundwater sample from the groundwater monitoring well can be analyzed.

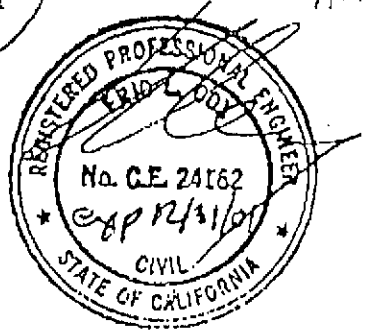
Upon removal of the soils known to be contaminated, the groundwater should turn to nondetect or below an acceptable level that would no longer warrant abatement or remediation, unless the source is from somewhere else. We know that the general northwest Oakland/Emeryville area is a former heavy/light industrial area and has "brownfields" designation, and, therefore, it is possible that contamination in the groundwater would not be caused by activity on your property.

Sincerely,

#32259 8/2000
ICBO #0266760 9/2000

David Benaroya Helfant, Ph.D., M.ASCE
Principal Investigator

Eric Cox, PE
Senior Engineer



SEISCO Engineering and Inspection Services
Professional Member
International Conference of Building Officials
1187 Ocean Avenue
Emeryville, California 94608
(510) 547-8540 FAX (510) 527-7785
Industrial, Civil, Structural and Architectural Engineering.Construction Management.Hazardous Material Removal & Remediation

David Benaroya Helfant, Ph.D., M.ASCE, ICBO
Environmental, Seismic and Drainage Design
Structural and Engineering Inspections
Eric M. Cox, SE
Structural Engineering, Construction Management
Paul A. Charles, MSCE, P.E.
Civil and Structural Engineering
Michael S. Noell, M.Arch., A.I.A.
Architecture and Planning

September 9, 1999

Environmental Health Services Section
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Ste. 250
Alameda, CA 94502-6577
510-567-6700 F: 510- 337-9335

Soil Sampling Plan, Results, and Analysis
Bolin's Service Garage, 6335 San Pablo Avenue, Oakland, CA -Stid 1685

RE: Ten year Follow-Up to the Approved Closure Which Took Place 4/11/88 & 5/23/88

As per your request and pursuant to Title 23, CCR, Section 2722 (c), the following soil sampling plan was executed, samples taken and laboratory analysis completed satisfying the section's request dated April 2, 1999, for the above referenced closed site:

1. Statement of Scope of Work:

Two previously removed UST's (removed and closure secured in 1988) at 6335 San Pablo Avenue contained gasoline. One a 550 gallon tank, the other a 1000 gallon tank. Each were properly inserted, removed and the metal recycled.

Please see Attachment .3 - A3/1-"Site and Sampling Plan" for a scaled general layout of the existing structure, yard, previous locations of UST, and an enumeration of the samples [samples are identified by numbers 1-10. At each sample location, a number is also indicated listing the general depth the sample was drawn from.

The monitoring well, under County of Alameda-Public Works Agency permit #99WR467, is shown on the "Site and Sampling Plan". The liquid sample drawn from the monitoring well is identified as sample #10, and was immediately placed in a sterilized VOA bottle upon collection, refrigerated and transported to the State of California Certified Laboratory #1419.

The soils originally collected at the former locations, were analyzed for Total Petroleum Hydrocarbons as Gasoline (TPH-G).

Additional analyses of soil samples included laboratory analysis for the presence of benzene, toluene, ethyl benzene, xylene (BTEX), lead, and methyl-tert-butyl ether (MTBE) were performed pursuant to the section's request dated April 2, 1999. On July 19, 1999 and on July 21, 1999 the additional samples were drawn and logged under supervision by the undersigned, with registrations in the following professional organizations: Professional Engineer-Civil, Full Member, American Society of Civil Engineers, Certification-Special Inspector, International Conference of Building Officials, Quality Control Manager Certification, U.S. Army Corps of Engineers, California State License: General Engineering, and California State License Contracting Board: Hazardous Materials Removal and Remedial Action Certificate .

For additional analyses, the soil and liquid samples were analyzed as per the section's request dated April 2, 1999, for benzene, toluene, ethyl benzene, xylene (BTEX), lead, and methyl-tert-butyl ether (MTBE).

Therefore, four soils borings of the native soil were collected, two from each of the former underground storage tank holes, samples under the former locations of the dispensers and along the product pipeline every 20-feet. .[These sampling requirements and analyses are new to the closure process and the owner was not notified of the additional sampling and analysis until receipt of the section's letter dated 4/2/99.]

For clarification purposes, since the length of pipeline from the 1,000-gal.tank to its dispenser is less than 20-feet, one sample was required. In the case of the 500 gal. tank, the length of product pipeline from dispenser to tank is greater than 30-feet by less than 40-feet, and, therefore, two soil samples were taken along the product pipeline.

The sampling locations selected coordinate with where leaks are most likely to have occurred...especially beneath the dispensers.

New, as well, to the closure program now used by the Environmental Health Services Section was the requirement to construct a downgradient groundwater monitoring well to procure a liquid groundwater sample outside of the former location of the removed 1,000 gal. tank. This requirement was due to the greater than 2,400 ppm TPH-G found in the soil sample collected beneath the 1,000 gal. tank [tank "#2"] which was analyzed on April 11, 1988. See Attachment 3: Section A#/1- "Monitoring Well- Typical Section" for a construction section. The well was approved under County of Alameda -Public works Agency Well Permit #99WR467.

Pursuant to Title 23, CCR, Section 2722© the report presented here, incorporating sampling procedures, field methodology and laboratory analysis follows the plan below.

A. Locations of Soil and Liquid Samples:

1. Additional Soil Samples Beneath The Two Former Tank Sites:

At each of the two former tank sites, two soil samples were collected from the locations, beneath where the tanks were originally bedded. This produced 4-soil samples to be analyzed as per the above additional profile.

2. Beneath the Product Piping from The Former Tank Sites to the Former Dispensers:

Beneath every 20-feet of original product piping that extended from the tanks to the dispensers one sample will be collected. Therefore, at site #1, since the original piping was greater than 20-feet but less than 30-feet, two samples will be collected in the soil lens that is found beneath the piping. At site #2, the underground piping run was less than 10-feet, therefore, one soil sample will be collected.

3. Beneath the Two Product Dispensers:

Beneath each of the two product dispensers one soil sample will be collected and analyzed pulled from the soil lens that is found in the subsurface soil layer below the original location of the dispensers.

4. Groundwater Sample Within 10-feet of Site #2:

Due to the >2,400 ppm TPH-G that was found and removed under permit and manifest at site #2, a groundwater sample will be pulled within 10-feet downgradient of this site.

The downgradient location of the monitoring well was determined in the following manner: Base elevations were taken at three locations. The site elevation and the elevation at the largest body of water [San Francisco Bay] within 8-blocks of the location was determined. A review of nearby water channels was made in conjunction with staff, and it was determined that no other bodies of water, ponds, lakes, rivers, or streams are found in the vicinity. Only the Bay within 8-blocks of the site, and at a lower elevation is found. Therefore, downgradient is permissibly defined as 10-feet towards the area's general lowest elevation, which for the purposes here, is San Francisco Bay. We expect, therefore, that groundwater movements could be influenced by tidal activity with ground water marginally moving toward the Bay and in conjunction with changes in water level elevation influenced by tidal movement.

The construction of the groundwater monitoring well 10-feet downgradient from former tank site #2 began after the downgradient direction and location was determined. The hole for the well was drilled using an 8-inch diameter, hollow stem hydraulically driven auger. The augured hole was drilled 16-feet below grade, and extends to 4- to 5-feet below the original base of the former tank, for a total depth of approximately 16-feet. A three inch diameter SAR 35 PVC pipe was placed in the augured hole, a clay plug at its based. The vertical casing is solid for the first 5-feet, and is a fully perforated well screen for the last 11-feet of the 16-foot hole.

The annular space between the excavation and the sidewall of the monitoring well pipe is filled with clean 1/4-inch minus washed aggregate. This acts as a filter, allowing groundwater to enter the well pipe in a clear state.

An 8-inch diameter round concrete box, approximately 12-inches deep, with concrete lid caps the well and provides access for sampling. Upon completion of the investigation, the lid will be replaced with a locking type lid.

After 24-hours a water sample was collected in a sanitized, sterilized VOA glass jar container. The liquid was visually characterized for coloration, sheen, and particulate contents, and immediately refrigerated, placed in a sealed, dark container and transported to the analytical laboratory for analysis within the 24-hour period.

The groundwater sample was analyzed for benzene, toluene, ethyl benzene, xylene, (BTEX), lead, and methyl- tert-butyl ether. EPA analytical laboratory analysis methods to be employed are EPA 8020 [BTEX}, and EPA 7420 [lead].

The downgradient groundwater sampling well, will remain until laboratory tests reveal the characterization of the groundwater. Upon completion of all testing and work at the site, and upon approval from the County, the well site may be permanently capped by filling with clean sand and grouting at the surface, or will be left for future testing by the County.

B. Methods of Sample Collection Described:

The sampling and analysis procedures for soil and groundwater investigations are herein summarized. These procedures ensure that consistent and reproducible sampling methods are used, proper analytical methods applied, analytical results are accurate, precise, and complete, and the overall objectives of the sampling and or monitoring program are achieved.

Prior to drilling the exploratory borings a quality control plan was written [July 11, 1999] and the relevant agencies informed of the start of the sampling process. Underground utilities were located and a field review was completed with the owner, and the engineers and quality control managers of record. Measurements were taken and contemporary and historic monuments and locations were noted on drawings submitted and field notated as well. Clearances were coordinated with the owner, and the tenants of the property.

A portable, hydraulically-driven coring system was used to obtain soil and groundwater samples for lithographic and chemical analysis. A sampling rig was mounted on a 4-wheel-drive vehicle using hollow stem auger drilling equipment. Soil samples were removed from the previously steam-cleaned auger and placed in clean brass tubes whose dimensions are approximately 6-inches long by 2-inches in diameter. The tubes were filled so that no headspace was present in the tube. Immediately after sampling, the brass tubes were sealed on both ends with Teflon tape and plastic caps, labeled, and placed in an ice-chilled cooler for shipment to the State of California Certified Laboratory under strict chain-of-custody protocols.

How was it removed & transported

The liquids in the monitoring well were removed by baling with a sterilized baling hand pump until a sufficient amount was collected for analysis. Glass bottles of at least 40-millimeters volume and fitted with Teflon-lined sepia were used in the sampling. These

bottles were filled completely to prevent air from remaining in the bottle. A positive meniscus formed when the bottles were completely full. A convex Teflon septum was then placed over the meniscus to eliminate air. After capping, the bottles were inverted and tapped to verify that they did not contain air bubbles.

All equipment used during the investigation activities that might have come into contact with potentially chemically-affected materials was throughly cleaned before and after each use, by steam cleaning or- when necessary washing with Alconox [a laboratory-grade detergent] and rinsing with deionized, distilled, or fresh water.

Guidelines for the disposal of wastewater or waste soil , to be determined upon joint review, will follow the regulations of the DTSC and San Francisco Bay Regional Water Quality Control Board (RWQCB). After field sampling was completed, the site was broom cleaned and returned to near-original condition.

After final identification of appropriate disposal methods and possible disposal sites, any wastes that are determined to be hazardous and that must be disposed of off-site will be manifested and transported to an approved disposal site, using a registered hazardous waste hauler.

Each soil and ground-water sample was packaged and transported according to the following procedure:

-collect samples in appropriately sized and prepared containers
-attached completed sample label to each sample
-properly seal and package sample containers
-complete lithologic log (as applicable and chain-of-custody/analysis request forms
-chill cooler to 4-degrees Celsius (regular ice used in the coolers were sealed in A plastic bag other than the one in which it was purchased; or reusable "blue ice" packets were used)
-samples were separated and individually placed into coolers for shipment to the State of California Certified Analytical Laboratory [#1419].

Field documentation consisted of sample labels, lithologic logs, sample collection data forms, and entry into a three hole field activities notebook. The documents were completed using indelible ink. Sample labels were completed and attached to each sample container for every sample collected. Labels were made of waterproof material, backed with a water-resistant adhesive. The labels contained the following information:

sampling date and time, sample number, sampling location on site map coordinated with the sample number for reference, sampler's name, analyses to be conducted.

C. Unified Soil Classification System for Soil Sample Characterization During Sample Logging

Soil samples are characterized from field observations that generally follow characterology found in the Unified Soil Classification System adopted in 1952 by the U.S. Corps of Engineers and the Bureau of Reclamation, and subsequently by many other organizations.

According to this system, all soils are divided into **three major groups: coarse-grained, fine-grained, and highly organic [peaty].** The boundary between coarse-grained and fine-grained soils is taken to be the 200-mesh sieve (0.074 mm). In the field the distinction is based on whether the individuals particles can be seen with the unaided eye. If more than 50% of the soil be weight is judged to consist of grains that can be distinguished separately, the soil is considered to be coarse-grained.

The coarse-grained are divided into gravelly [G] or sandy [S] soils, depending on whether more or less than 50% of the visible grains are larger than the No. 4 sieve [3/16th -inch].

G **W**-well graded
S **P**-poorly graded
C-dirty, plastic/clayey
M-dirty, nonelastic or silty fines

The fine-grained soils are divided into three groups: inorganic silts [M], inorganic clays [C], and organic silts and clays [0]. The **soils are further divided into those having liquid limits lower than 50% [L] , or higher [H].**

The distinction between the inorganic clays C and the inorganic silts M and organic soils O is made on the basis of their location on a chart of modified plasticity.

The United Soil Classification System permits reliable classification and a practical basis for visual or field classification, and can serve as a starting point for the description of engineering properties of soil deposits and masses.

2. Site Location:

The site is the former repair shop formerly known as Bolin's Service Garage. Mr. Bolin was in the business of repairing vehicles, and had a regular clientele. The shop did not repair vehicles off the street, as it were, but only repaired the vehicle of steady clients, also typically small business vehicles. The former shop is located at the corner of San Pablo Avenue and 64th Street in North Oakland, near the Berkeley and Emeryville borders. The former business is accessed through 64th Street.

3. Background and Site History:

The owner operated a repair shop for 30-years, and the property has been in the family for at least this period of time. No other record of business activities is found, and the site is thought to have been largely vacant prior to the establishment of Mr. Bolin's business. The service garage had two UST's for gasoline, one a 550 gallon tank nearest the shop structure, and a second one located adjacent to a driveway. The owner had both tanks removed in 1988, under County of Alameda permit. All documentation appears to be properly in order with manifests and fully executed chain of command. The sale of gasoline was not part of the business services offered at Bolin's garage and the tanks were lightly used.

Upon removal and sampling >2,400 ppm TPH-G was found in soil sample hole #2 below the 1,000 gallon tank adjacent to the driveway. All contaminated soils were then removed under permit, manifest and chain of command and transported to an approved landfill under manifest. Site closure was granted.

4. Site Description:

The immediate site is adjacent to a printing shop and a concrete saw cutting company. The site is bordered by San Pablo Avenue to the East, 64th Street to the North, and to the West, Marshall Street. **[See the attached map.]** The map indicates where the original tanks were found, where the dispensers were located and where the piping to the dispensers was installed. One tank is within the general repair area, the other in a parking area for a neighboring business, a tenant of the owner. As the latter is a full time operation, sampling in the second location will likely be performed on a Saturday to minimize disruption of the tenants business activity. In 1988, all of the County's concerns were addressed, the items to be abated were removed under permit, manifest, and the site received closure status from the County of Alameda Environmental Health Services in 1988.

Noted on the map is a sewer line, that will be avoided during the sampling.

Since one water sample is requested within 10-feet down gradient of the one tank where contaminated soil was found, under permit excavated, and under manifest properly removed in 1988, the location of the monitoring well is noted on the drawing. By review of topographical maps, a review of the area's water bodies, and the location of the site, its elevation and its proximity to San Francisco Bay, and its elevation, the location of the monitoring well was determined to be 10-feet west of the 1,000 gal tank with the well on the downgradient. In this location, groundwater flows westerly toward the Bay.

Other than the existing sewers, no known subsurface conduits or underground utilities are found in the areas where soil sampling will take place. We noted that the site is flat and level, and much of it is paved with asphalt or concrete. Currently, the site is unused, as the owner has retired his business and only occasionally visits the shop. No structures from the original petroleum tanks are found.

5. Purpose of this Sampling:

The primary purpose of the soil sampling is a 10-year follow up with additional testing and analysis now required for benzene, toluene, ethyl benzene, xylene (BTEX), lead, and methyl-tert-butyl ether (MTBE). The original analysis was for Total Petroleum Hydrocarbons as Gasoline (TPH-G). Therefore, additional soil borings of the native soil were collected for analysis for the additional contaminants.

To our knowledge, there is no evidence of any existing subsurface soil contamination at the old buried tanks sites, as the tanks, and the only contaminated soil [at tank #2] was fully removed in 1988, under manifest and permit.

The samples beneath the former tank sites were taken at 8-feet below grade where the 550 gallon gasoline tank near the repair shop was located, 11-ft 8-inches [-+] below grade where the 1,000 gallon gasoline tank in the parking area was located, with 4-foot deep samples for piping and dispensers. The depths of sampling and the identification number of the samples collected are all noted on Attachment 3.

We found that the depth of grade to groundwater is about 10-feet, and we did not encounter groundwater in any sampling holes except in the area where the monitoring well was drilled. This depth was sixteen feet with a clay plug at the bottom one foot. Construction details for the monitoring well in shown on Section A3/2 Attachment 3.

6. Field Sampling Methodology:

The following equipment and quality control plan for field sampling methodology was utilized to generate the samples required by the Environmental Health Services Department.

.A Equipment: A hydraulically driven 8-inch diameter hollow stem full flight auger was mounted to a hydraulic motor powered by a New Holland 51-horsepower Yanmar Diesel Engine. This work was performed by Bay Area Structural, Inc. Of Oakland, California, a licensed General Engineering and Hazardous Materials Removal and Remediation Contractor licensed by the State of California to perform such work.

.B. Quality Control/Site Manager for Sampling: All samples were collected under the supervision of David Benaroya Helfant, Ph.D., M.ASCE, who serves as Project Quality Control Manager for the sampling, and Eric Cox, PE-Civil, Senior Engineer. Dr. Helfant is formerly trained in Quality Control by the Army Corps of Engineers, and the United States Navy. Dr. Helfant has over 17-years of experience working on the hazardous substance removal and Remediation and has served as chief quality control officer and site safety officer on many environmentally sensitive investigations and clean-up projects, most notably the successful clean-up of the Navy's Monterey Presidio Fueling Facility, adjacent to a federally designated superfund site. He provided monitoring and oversight for all activities required by the County of Alameda. Mr. Cox has served as civil, structural design engineer, and principal construction manager for Hazmat and construction for thirty years.

.C Characterization and Logging of Soil Samples: During the process of drilling for soils samples, the Quality Manager visually observed, characterized and logged soil spoils in 3-foot intervals. Visual analysis and sniff tests were performed ongoingly throughout the soil drilling process. Soils were visually characterized upon removal following the Unified Soil Classification System.

At elevations below the former tank sites, product piping, and dispensers the samples were drawn at the depths noted on Attachment 3. The sampling locations are noted on the attached site plan as well. Where scaling the drawing is difficult, the measurements and offsets are noted on the drawing.

In order to diminish the possibility of cross-contamination, all augers were steam cleaned prior to being brought to the site, and cleaned after each sample hole was

completed. The locations of the samples followed the recommendations of the County Health Environmental Services Department, such that two samples were taken beneath each of the two former tank sites, and one sample pulled beneath each 10-foot length of underground piping. One sample was pulled under each former location of two dispensers, and one ground water sampling well was installed within 10-feet down gradient from tank # 2, where some soil contamination was previously found and removed.

The groundwater sampling well was augured with an 8-inch hollow stem auger. A three-inch pipe was installed the full depth of the drilled hole, with a one foot clay plug at the base. The PVC pipe is solid for the first 5-foot of depth and then fully perforated to the base of the well and the clay plug. The well screen allows samples to be collected for laboratory analysis. The annular space between the pipe exterior wall and the soil is filled with 1/4-inch minus clean washed well graded gravels.

Liquid samples were placed in sterilized and refrigerated VOA laboratory jars, and brought in a refrigerated container, along with all soil samples, to the certified analytical lab within 24 hours of the sampling procedure. The water sampling well was capped with a concrete 8-inch diameter Christy box and concrete lid for future sampling, or for backfilling upon completion of lab analysis. No plans for the destruction of the monitoring well should be made at this time, pending further action in the area.

6. Quality Control Organizational Plan

.A Quality Control Organization and Personnel: Chief Quality Control Officer David Benaroya Helfant, Ph.D., M.ASCE, also a Principal of SEISCO Engineering and Inspections, a full member of the American Society of Civil Engineers, and special inspector for the International Conference of Building Officials. Senior supervising Engineer, Eric Cox, PE will provide overall supervision. Helfant is trained in quality control through the Army Corps of Engineers. He has performed numerous responsibilities as chief quality control officer over the last 15 years. Helfant's resume and work experience in quality control and environmental investigations and clean-ups is found attached in this plan.

Assisting Helfant in quality control management was Alternate Assistant Quality Control Manager, Hugo Giron. Mr. Giron served on numerous environmental

hazardous materials removal and remediation projects over the last 10-years, and is fully certified under requirement 29 CFR 1910.120, CCR Title 8, 519 , has additionally received the 40-hour hazardous workers training and First Aid and CPR, as well as the 8-hour follow-ups. [Please see company profile experience for related projects.]

The chain of command, therefore, flowed from the County Health and Environmental Services Agency to Owner to the Quality Control Officer to the crew drilling foreman and to the laborers. However, a key line of importance in the chain of command is the lateral line that links Quality Control Manager which in the communication hierarchy is at the same level as the line of communication between the regulator and the owner. This assists in maintaining scientific neutrality of all parties. Helfant will be on-site during the preparatory, initial and follow-up stages of the work. Development of removal/Remediation activities based on the conclusion and recommendations presented in this document should be jointly decided by the regulator and the project quality control engineers.

.B Drilling was performed by Bay Area Structural, Inc., Oakland, California. Actively working in a broad range of environmental, civil and structural projects, the company is licensed in 4-areas and certified by the State Contractors License Board in General Engineering, Hazardous Materials Removal and Remediation, Demolition and Structure Moving, and General Building. It maintains an active and vigorously enforced quality control, health, environmental and safety program.

. **C Three Phase Structure to Quality Control:** Bay Area Structural employed the three-phase quality control plan as strategy and requirement developed by the Department of the Navy and utilized by all of the military defense departments, as well as the Army Corps of Engineers. The three-phase quality control structure included a

.1 preparatory phase in which the key members of the quality control and sampling plan visited the site, discussed the requirements from the County, and marked the areas wherein sampling was conducted with the owner prior to the initial effort.

This is followed by an

.2 initial stage, the actual stage of sampling, in which the requirements for sampling and sampling methodology were carefully monitored to follow the requirements in the quality control plan.

.3 A **follow-up** stage was also part of the quality control program in force at the site, and incorporated a review of the work at completion and the disposition of the sampling and sampling holes and wells after samples were taken. The site was then

secured and ready for the next stage in the closure process.

The results of the laboratory analysis and our recommendations are found below and are presented to the County Environmental Health Services Department.

7. Certified Analytical Laboratory:

All samples were analyzed by a fully certified analytical lab, under direction by Dr. Arestoo Khodai, Ph.D., laboratory director at the Nachtmann Analytical Laboratory, a Federal and State Certified Analytical laboratory founded in 1979. State Certified Laboratory #1419.

Destruction of the groundwater monitoring well is not scheduled until sampling results have been fully received and reviewed by the County Health Services Department.

8. Results of the Laboratory Analysis:

Based on the laboratory analysis we find that soil contamination is found under the former location of dispenser #1 and the area near it beneath the old product line connected to it.

No other soil contamination of comparable significance was found.

The groundwater sample downgradient of tank #2 shows contamination that mimics that found in the soil samples #1-#3.

9. Recommendations for Additional Action:

Based on the above, it appears that the likely recommended abatement strategy is to remove the contaminated soil in the areas of samples 1-3, off-haul under manifest to the appropriate landfill or treatment facility that can take the soil, and retest the area and the groundwater.

Upon completion of the above, all contaminated soils at the former tank sites will have been removed under both the regulations and requirements in 1988 and 1999. Any remaining groundwater contamination would likely then be attributed not to the owner of the property but to properties associated with the charactertistic industrial nature and use of the properties typical in the northwest Oakland/Emeryville region.

9. Attachments:

.1 Personnel Qualifications: Quality Control Manager
.2 Contractor Experience Profile
.3 Site Map and Sampling Locations. Monitoring Well Section
.3.1 Alameda County Public Works Agency- Well Permit #99WR467
.4 Typical Chain of Custody Report Form Sample
.5 Sampling Log
.6 Laboratory Analysis Results

ATTACHMENT 1.

Solicitation Number: N62474-96-R-6085
Taxpayer Identification Number: 94-2821166

PERSONNEL EXPERIENCE FORM : QC. MANAGER : SAMPLING

Name: David Benaroya Helfant Job Title: Construction Manager

Proposed Project Title: Quality Control Manager/Project Safety Manager

Years Experience with Proposing Firm: 15
Years Experience with Other Firms: 10

Education (Degrees, year, specialization)
Post Doctorate., 1983, Architect/Engineering, U.C. Berkeley.
Ph.D., 1977, Field & Quantitative Methodology, Community Development.
M.A., Philosophy and the Social Sciences, 1972
B.S., Industrial and Labor Relations, 1969

Active Registration
(year first registered & discipline)
1995, American Society of Civil Engineers-Full member
1987, Profession member, International Conference of Building Officials
California State Licenses: A-General Engineering, 1986; B-General Building, 1983; Hazardous Substance Removal and Remedial Action License, 1987; C-21, License Demolition Contractor

Health & Safety Training
40-Hour OSHA Hazardous Waste Operations Training (29 CFR 1910.120)
Annual 8-hour refresher, Hazardous Waste Operations
8-hour Hazardous Waste Operations Supervisor Training
CPR and Standard First Aid, current
CAL-OSHA Competent Person Designation, 1993

Experience and Qualifications:
Fifteen years as projects quality control manager for general engineering, building and environmental remediation projects. Certified as Construction Quality Control Manager through Army Corps of Engineers. Since 1992, worked as Quality Control Manager on several remediation projects for the Navy . With approval from ROICC also served as Health and Safety Manager. Chief program quality control and safety officer for all projects at Bay Area Structural, Inc. Previously, researcher at the Center for Environmental Design research, U. C. Berkeley. Personal holder of all state contracting licenses to engage in hazardous substance removal and remedial actions, general engineering and general building. Holds California State contractors license for demolition. Seventeen years direct experience in the civil engineering field as construction and quality control manager, project engineer, construction engineer, and structural designer.

ATTACHMENT 2

"1. Factor 2(c) Please clarify the depth of experience in environmental construction an construction management for the following key personnel:"

Quality Control Manager: David Benaroya Helfant, ASCE

David Benaroya Helfant, during his nearly 20-years of experience as construction and quality control manager in the general engineering and environmental fields, has been personally responsible for:

1. Underground fuel storage tank removals, soil remediation and site closures.
2. Pipeline cleaning, removals, and replacements (fuel, water, sewer, gas)
3. Waste oil tank removals, soil remediation and storage system replacements.
4. Liquid natural gas tank decommissioning, pipeline removal and replacements.
5. Military facility demolition, lead contamination containment and removal.
6. Asbestos removal.
7. Mercury and PCB clean-up and removal.
8. Bacterial and infectious waste containment and removal.
9. Arsenic laden soil removal strategy.
10. Quality control: 7-mile settling basin-erosion and flood control

These environmental remediation projects have incorporated a host of technologies including:

1. Encapsulation
2. Contamination location and mapping.
3. Vacuuming, flushing, rinsing.
4. Excavation, blending, aeration, desorption, compaction.
5. Groundwater monitoring, sampling, dewatering.
6. Cofferdam design and construction.
7. Sludge profiling, waste concentration reduction.
8. Overexcavation, curtain wall enclosure, bentonite slurry walls, leak detection

The chemicals included in the above referenced projects included:

1. Total petroleum hydrocarbons (TPH)
2. Asbestos
3. Bacteria and medical waste
4. Benzene, toluene, total xylenes.
5. Lead
6. Mercury
7. Ethylbenzene
8. Nickel and chromium

U.S. ARMY CORPS OF ENGINEERS

TRAINING CENTER FOR PROFESSIONAL DEVELOPMENT
HUNTSVILLE, ALABAMA

CERTIFICATE

this is to certify that

David Benaroya Helfant

has completed the Corps of Engineers Training Course

CONSTRUCTION QUALITY MANAGEMENT FOR CONTRACTORS

Given at Sacramento, CA November 19-20, 1996

LOCATION DATE

Expires November 20, 2001
Verification (916) 557-7773

Director of CE Training Management

D. A. DENNIS
Chief, C-O Division, Sacramento District

CEHND FORM 586 (REVISED)
1 JULY 93

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
PHONE (510) 670-5575 ANDREAS GODFREY FAX (510) 670-5262
(510) 670-5248 ALVIN KAN

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 6335 SAN PABLO AVE OAKLAND, CA. 94608

California Coordinates Source ____ / ____ ft. Accuracy ± ____ ft.
CCN ____ / ____ / ____ ft. CCE ____ ft.
APN ____ / ____ / ____ / ____

CLIENT
Name MEL BOLIN
Address 5507 ARIZONA Phone
City CONCORD Zip 94521

APPLICANT D. HELFANT
Name SEISCO ENGINEERING & INSPECTIONS Fax 510-527-7785/5478570
Address 1107 OCEAN AVE Phone 510 547 8540
City EMERYVILLE Zip 94608

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	X	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other JUST SAMPLING (2- 1602. BOTTLES)	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	X
Cable	☐	Other	☐		

DRILLER'S LICENSE NO. 422931 A, B, C61, HAZ

WELL PROJECTS
Drill Hole Diameter 8" in. Maximum Depth 16 ft.
Casing Diameter ____ in. Number 0
Surface Seal Depth ____ ft.

GEOTECHNICAL PROJECTS
Number of Borings 3 Maximum Depth 16" ft.
Hole Diameter 8 in.

ESTIMATED STARTING DATE 7/27 (END of day)
ESTIMATED COMPLETION DATE END of day

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] DATE 7/30/99

FOR OFFICE USE

PERMIT NUMBER 99WR467
WELL NUMBER ____
APN ____

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A) GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

(C) GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

E. CATHODIC
Fill hole above anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
See attached.

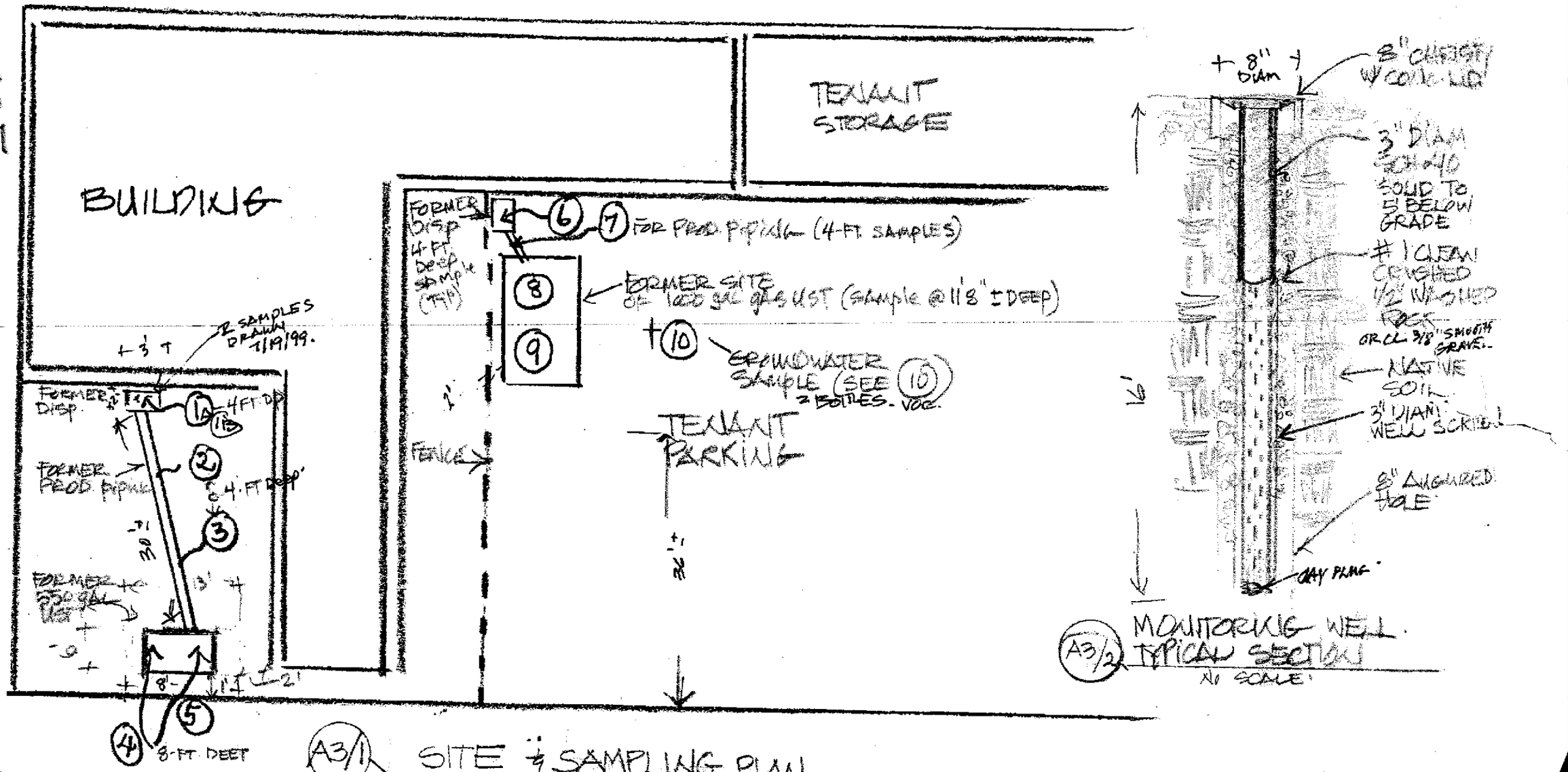
G. SPECIAL CONDITIONS

APPROVED [signature] DATE 7-30-99

** TOTAL PAGE.02 **

ATTACHMENT 3.1

NK SITE & SAMPLING PLAN: 6335 SAN PABLO AVENUE, OAKLAND.



ATTACHMENT 3

ATTACHMENT 4

CHAIN OF CUSTODY RECORD

CLIENT

NAME:

ADDRESS:

PHONE:

PROJECT:

SAMPLER (signature):

ACBL SAMPLE NO.	COLLECTED Date/Time	SAMPLE IDENTIFICATION	NO. of Containers	ANALYSIS	REMARKS/ SAMPLE CONDITION ON RECEIPT

Relinquished by (signature):	Date/Time	Received by (signature):	Relinquished by (signature):	Date/Time	Received by (signature):
Relinquished by (signature):	Date/Time	Received by (signature):	Received in Laboratory by (signature):		Date/Time

REMARKS

FROM : SEISCO

PHONE NO. : 510 527 7785 SEP.17.1999 8:31PM P23

CLIENT

NAME: MR. MEL BOLIN

ADDRESS: 5509 ARIZONA DR.

CONCORD, CA. 94521

PHONE: 925-672-4905

PROJECT: POST-CLOSURE SOIL SAMPLES + WATER SAMPLES 6335 SAN PABLO AVE, OAKLAND

SAMPLER (signature): [signature] D.N.D. M'ASCE

AEBL SAMPLE NO.	COLLECTED Date/Time	SAMPLE IDENTIFICATION	NO. of Containers	ANALYSIS: BTEX / LEAD / MTBE	APPL SOIL CLASS NOTE	UNIFIED CLASS TYP	REMARKS/ SAMPLE CONDITION ON RECEIPT
1A 1B	7/19 9:10 9:30	BROWNISH/GREY. DAMP TO MOIST #1A, #1B BRASS TUBE	(2) 1A/1B			FG CL	BOTH SAMPLES ODOROUS. SOIL DAMP TO MOIST FG C PLASTIC
2	7/19 10AM	#2 BRASS TUBE	(1)			FG CL	BROWNISH GRAY SILTY NO ODOR FG O
3	7/19 10:30	#3 BRASS TUBE	1			FG O	" " " " FG O
4	7/21 9:30	#4 " "	1			FG CL	GREY MUD W/ BROWN/YELLOW NO CLAYEY/SANDY SOIL WET ODOR
5	7/21 9:50	#5 " "	1			FG CL	" " " " NO ODOR
6	7/19 11:15	#6 " "	1		PC	FG CS	DAMP BROWN MOTTLED W/ FRAGMTS OF BRICK NO ODOR
7	7/19 11:45	#7 " "	1		PC	FG CS	DARKER BR W/GRAVELS. DAMP NO ODOR
8	7/19 12:30	#8 " "	1			FG MC	DAMP TO MOIST. DARK GREY-WET CLAYEY BAY MUD NO ODOR
9	7/19 1PM	#9 " "	1			FG MC	MOIST, BROWN & DARK GREY NO ODOR
10	7/21 2PM	2 BOTTLES - LAB VOC JARS	2				2-GROUNDWATER SAMPLES. SILTY/CLOUDY. NO SHEEN. NO ODOR.

Relinquished by (signature):	Date/Time	Received by (signature):
[signature]	7/21 3:30 PM	
Relinquished by (signature):	Date/Time	Received by (signature):

Relinquished by (signature):	Date/Time	Received by (signature):
Received in Laboratory by (signature):		Date/Time

REMARKS

Attachment 5.

Nachtmann Analytical Laboratory, Inc.

720 Olive Drive • Davis, CA 95616 • (530) 758-5850
Mailing Address: P.O. Box 1025 • Davis, CA 95617

Analytical Laboratory Report

Client: Sciesco Engineering Co.
1187 Ocean Ave.
Emet7yville,CA. 94608
Attn : Davis Helefont
7/28/99

Sample ID # :1A,1B to #10
Sample Location :64th St& San pablo Ave.
Sample Matrix :All soil, ~~#10 water~~
Sampling Date :7/19 to 7/21/99
Sampled By :Client
Sample received :7/22/99

Sample ID#/ Conc.(ug/l) in Extract

	Analytes	MDL(ug/l)	1A	1B	#2	#3	#4	#5	#6
TPH-	Benzene	0.5	3.22	301.	27.19	17.23	< 0.5	< 0.5	< 0.5
TPH-	Toluene	0.5	1.94	2,680.	3.66	3.00	3.84	< 0.5	< 0.5
TPH-	Ethyl benzene	0.5	1.54	1,954.	19.54	2.06	< 0.5	< 0.5	< 0.5
TPH-	Xylenes(total)	0.5	5.51	14,221.	45.41	11.80	25.92	< 0.5	< 0.5
Methyl - t - butyl ether		5.0	< 5.0	446.35	3.13	< 5.0	1.55	< 5.0	< 5.0

	Analytes	#7	#8	#9	10
TPH-	[redacted]	< 0.5	< 0.5	< 0.5	284.37
TPH-	Toluene	< 0.5	< 0.5	< 0.5	9.43
TPH-	Ethyl benzene	< 0.5	< 0.5	< 0.5	< 0.5
TPH-	Xylenes(total)	< 0.5	< 0.5	< 0.5	508.8
Methyl- t - butyl ether		< 5.0	< 5.0	< 5.0	50.37

Sample ID#/ Conc. (mg/kg)

Analytes		MDL(mg/l)	1A	1B	#2	#3	#4	#5	#6
Lead (total)	Pb	0.02	< 1.0	1.8	< 1.0	< 1.0	1.8	2.3	3.64

#7	#8	#9	#10
11.45	4.55	6.4	5.5

Nachtmann Analytical Laboratory, Inc.

Report continued

Client: Siesco Engineering Co.
1187 Ocean Ave.
Emeryville, CA. 95608

QC

Surrogate (BTEX)	% Recovery
a,a,a-Trifluorotoluene	101.8

Matrix Spikes		% Recovery		RPD
		MS # 1	MS # 2	
Benzene		92.35	108.	16.
Toluene		99.1	103.3	4.11
Ethyl-benzene		99.1	103.4	4.2
Xylene (total)		101.3	105.8	4.3
Total Lead	(Pb)	117	132	12.04

Sample Preparations :

For BTEX & MTBE : Equal amounts of soil samples extracted for analysis of BTEX & MTBE.

For total Lead : Portion of soil samples dried at 107 C , sieved through 500 um sieve opening . 1.00 gram of this sieved digested in aqua regia to 50 ml of final volume for analysis .

This laboratory services performed per State of California's laboratory certification # 1419

Chemist in charge ; Ahmed Modabber