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Consulting Engineering Geologists

TRANSMITTAL FORM

TO: Ms. Juliet Shin
Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, California 94621

DATE: June 9, 1993
PROJECT NUMBER: CHO002-B
SUBJECT: Report

FROM: Rodger Witham
TITLE: Principal

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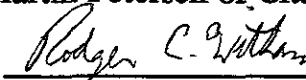
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REMARKS: Submitted at the request of Mr. Martin Petersen of Citation Homes.

Copies: 1 to CWI project file no.: CHO002-B


Rodger C. Witham, Project Manager

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REQUEST FOR CASE CLOSURE

Former Okada Property
16109 Ashland Avenue
San Lorenzo, California

Job No. CHO002-B

Report Prepared for

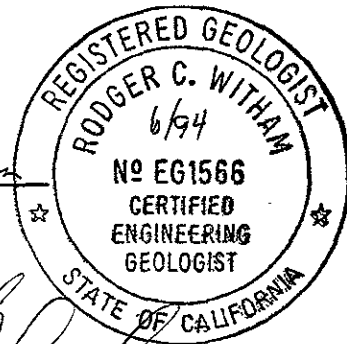
Citation Homes Central
404 Saratoga Avenue, Suite 100
Santa Clara, California

by

Clark & Witham, Inc.

Handwritten signature of Rodger C. Witham in black ink, written over a horizontal line.

Rodger C. Witham
Project Manager



Handwritten signature of Michael N. Clark in black ink, written over a horizontal line.

Michael N. Clark
Principal

June 9, 1993



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Consulting Engineering Geologists

June 9, 1993
CHO002-B

Mr. Martin Petersen
Citation Homes Central
404 Saratoga Avenue, Suite 100
Santa Clara, California 95050

Subject: Executive Summary of Request for Case Closure, Former Okada Property,
16109 Ashland Avenue, San Lorenzo, California.

Mr. Petersen:

Clark & Witham, Inc. has prepared a report that includes a summary and analysis of environmental work performed at the former Okada property in San Lorenzo, California to support a request for case closure. The site formerly was used for agriculture and as a nursery, and contained two underground storage tanks (USTs) that stored gasoline and fuel-oil.

Environmental investigations were performed between 1989 and 1992. Work included sampling shallow soil for arsenic, total lead, herbicides, and pesticides; removing the gasoline and fuel-oil USTs, drilling borings, and installing three ground-water monitoring wells to evaluate the extent of petroleum hydrocarbons in soil and ground water; excavating additional soil excavation at the fuel-oil UST pit and pumping water from the gasoline-UST pit to actively remediate petroleum hydrocarbons; and periodically monitoring wells to track potential petroleum-hydrocarbon impact to the ground water. Additional work for this report included gathering and assessing information on the regional hydrogeology and on wells in the vicinity of the site, evaluating fate and transport mechanisms, evaluating beneficial uses of the ground water, and evaluating the potential for impact of chemical compounds on these beneficial uses.

The results of information gathered during this and previous investigations are summarized as follows.

- Concentrations of arsenic and lead were relatively low (well below respective Total Threshold Limit Concentrations [TILCs]) in shallow soil at eight sample locations across the site. No herbicide compounds were detected in the shallow soil samples. The pesticides dieldrin, dichlorodiphenyldichloroethylene (DDE), and dichlorodiphenyltrichloroethane (DDT) were detected in some samples, but at concentrations well below respective TILCs.

- Analytical results of soil collected after removal of the gasoline UST showed no detectable total petroleum hydrocarbons as gasoline (TPHg) or benzene, toluene, ethylbenzene, and total xylenes (BTEX); a grab water sample from the pit contained 740 ppb TPHg, no detectable benzene and toluene, and 2 and 3 ppb ethylbenzene and total xylenes, respectively. Analysis of water collected after pumping the pit showed no detectable TPHg or BTEX.
- Analytical results of soil collected after removal of the fuel-oil UST showed a maximum 28 ppm TPHg, no detectable BTEX, from 10 to 4,100 ppm diesel-range hydrocarbons, and from 60 to 2,000 ppm oil and grease. Sampling and analysis of six sidewall soil samples after further excavation of this pit to ground water and toward the east showed no detectable BTEX, TPHd, or oil and grease.
- Analysis of soil samples from borings EB-1 through EB-3 and the boring for MW-1, drilled adjacent to and north and west of the fuel-oil tank excavation, showed no detectable TPHg (soil from MW-1 only) and either no detectable (detection limit 10 ppm) or low levels (2.4 to 4.8 ppm with a detection limit of 1.0 ppm) of total petroleum hydrocarbons as diesel (TPHd).
- Analysis of soil samples from the boring for MW-2 showed no detectable TPHg, benzene, total xylenes, or TPHd, and trace toluene (0.0032 ppm) and ethylbenzene (0.004 ppm); and from the boring for MW-3 (installed adjacent to and downgradient of the gasoline UST pit) no detectable TPHg or BTEX and 30 ppm TPHd.
- Analyses of water samples from wells MW-1 through MW-3 at the time of installation and during three or four subsequent monitoring events between 1989 and 1992 have shown only occasional low levels of TPHg (280 ppb) and TPHd (97 and 1,100 ppb); and occasional trace levels of benzene (0.4 ppb), toluene (1.8 and 16 ppb), ethylbenzene (0.4 ppb), and total xylenes (1.8 ppb). The TPHd and toluene in MW-2 in September 1992 were detected after the damaged wellhead was repaired. Concentrations of BTEX, when detected, have been below respective maximum contaminant levels (MCLs).
- The sediments encountered below the shallow ground-water surface to a depth of 25½ feet are predominantly low permeability silty clay that contains a 2-foot thick silty sand interbed. Ground water was found from 5½ to 8½ feet below the ground surface during installation of wells MW-1 through MW-3. The calculated gradient varied from 0.0018 to 0.0025 and the direction of ground-water flow is generally to the west. Using literature values for hydraulic conductivity and porosity of the sediments and the maximum calculated gradient, the rate of ground-water flow is calculated to be from 0.000004 foot per day in the silty clay to 0.048 foot per day in the silty sand.

- Most wells within ½ mile of the site are in upgradient or crossgradient directions. Two wells, which records show were installed for irrigation, are from 1,000 to 1,500 feet downgradient of the former UST locations.
- The California Regional Water Quality Control Board (RWQCB) has designated water in the East Bay Plain Ground-Water Basin as having beneficial use for domestic, municipal, industrial, and agricultural purposes. Criteria for chemical concentrations in ground water include no adverse effects to the designated beneficial uses and concentrations below applicable MCLs.

Based on the data evaluated during this and previous investigations, Clark & Witham, Inc. draws the following conclusions.

- The laboratory data for arsenic, lead, herbicides, and pesticides suggest detected concentrations of the above compounds appear unlikely to pose an adverse impact to ground water.
- Laboratory data also suggest that hydrocarbon-impacted soil (*i.e.*, source material) in the vicinity of the former gasoline and fuel-oil USTs has been largely removed and that potential remaining concentrations are likely to be residual.
- The estimated low rate of ground-water flow, the factors affecting migration of the petroleum hydrocarbons in the ground water (solubility, adsorption, dispersion, diffusion, and biodegradation), and laboratory data from ground-water monitoring events support the conclusions that source material has been largely removed, any petroleum hydrocarbons left in the soil and ground water are at residual levels and in localized areas, and that potential impact to the beneficial uses of the shallow and deeper ground-water zones appears to be negligible.
- The levels of petroleum hydrocarbons, in particular BTEX at concentrations less than MCLs, also indicate that water quality objectives of the RWQCB appear to be met.

Clark & Witham, Inc. therefore concludes that further action at the former Okada property with respect to ground-water quality appears unnecessary. We recommend to the Alameda County Health Care Services Agency and the RWQCB that the case be closed.

We also recommend that copies of this report be forwarded to:

- Ms. Juliet Shin, Alameda County Health Care Services Agency, Hazardous Materials Program, 80 Swan Way, Room 200, Oakland, California 94621; and
- Mr. Lester Feldman, California Regional Water Quality Control Board, 2101 Webster Street, Suite 500, Oakland, California 94612.

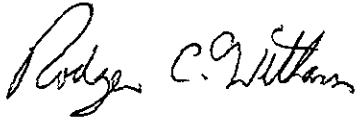
Request for Case Closure

June 9, 1993

Former Okada Property, 16109 Ashland Avenue, San Lorenzo, California CHO002-B

Please call if you have any questions.

Sincerely,
Clark & Witham, Inc.

A handwritten signature in cursive script that reads "Rodger C. Witham".

Rodger C. Witham
Project Manager

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Request for Case Closure
Former Okada Property
16109 Ashland Avenue
San Lorenzo, California

1.0 INTRODUCTION

Citation Homes Central (Citation) has requested that Clark & Witham, Inc. prepare a request for case closure for the former Okada property. The property was previously a nursery that contained greenhouses, a chemical storage shed, and underground storage tanks (USTs) for gasoline and fuel oil. The purpose of this report is to present the results of environmental work at the site to support the request for case closure. The following sections describe the site; discuss previous work and investigative methods; address the extent of chemical compounds in soil and ground water; describe the regional and local geology and ground water, beneficial uses of the ground water, and remediation activities; and presents conclusions regarding the impact of the chemical compounds and a recommendation on case closure.

1.1 Site Location, Description, and Background

The former Okada property is at 16109 Ashland Avenue in San Lorenzo, California, and is located on the west side of Ashland Avenue just south of its intersection with East 14th Street as shown on Plate 1. The property consists of approximately 16 acres (TERRASEARCH, INC., February 10, 1989) oriented in a north-south direction. An apartment complex bounds the site on the north; Ashland Avenue, private residences, and an apartment complex bound the site on the east; private residences and Bertero Avenue bound the site on the south; and private residences and Videll Street bound the site on the west.

The site is presently vacant and has been graded by Citation for construction of residential housing. The site formerly was used for agriculture until 1950 and was a nursery between 1950 and 1988. The nursery contained various aboveground structures including greenhouses, boiler, chemical storage shed, and private residences; and open fields. Two USTs were also present in the northern and northeastern portions of the site. One 250-gallon UST that stored gasoline was installed in 1938. A second 3,000-gallon UST that stored fuel oil was installed in 1963. (See TERRASEARCH, INC., February 10, 1989). Plate 2 shows the configuration of the site and the approximate locations of the former aboveground facilities and USTs.

1.2 Previous Work

Records provided by Citation show several environmental investigations have been performed at the site since 1989. Work included UST excavation and soil sampling, drilling borings and installing wells, additional excavation of a UST pit, and ground-water monitoring. Summaries of the results of the various investigations are presented in the following sections.

1.2.1 Shallow Soil Sampling and Removal of Underground Storage Tanks

TERRASEARCH, INC. (February 10, 1989), of San Jose, California sampled shallow soil, and observed removal of the two USTs and sampled soil and ground water beneath the USTs. The shallow soil investigation included collecting samples at depths of 6 inches and 2½ feet at eight locations (total of 16 samples) in areas near greenhouses and the chemical storage and mixing shed, and in the cultivated field. Ten samples were analyzed in a laboratory for arsenic, lead, chlorinated herbicides, and organochlorine pesticides and polychlorinated biphenyls (PCBs). Arsenic was found at concentrations of 2.8 to 5.9 parts per million (ppm) and lead was found at levels of 5.0 to 59 ppm. No chlorinated herbicides were detected in the samples and no organochlorine pesticides and PCBs were detected except trace concentrations of 4,4'-

dichlorodiphenyldichloroethylene (DDE) and 4,4-dichlorodiphenyltrichloroethane (DDT) in four samples and dieldrin in two samples. The combined concentrations of DDE/DDT ranged from 0.0038 to 0.043 ppm in individual samples and was 0.048 ppm in a composite of two samples (a presumed maximum of 0.096 ppm in one of the two samples comprising the composite). The detected levels of dieldrin were 0.005 and 0.010 ppm. Table 1 shows the results of laboratory analyses and Plate 2 shows the locations from which shallow soil samples were collected.

TERRARESEARCH, INC. observed removal of the two USTs on January 26, 1989, collected two soil samples beneath the 250-gallon gasoline tank, which were composited into one sample, and collected three soil samples beneath the 3,000-gallon fuel-oil tank. Ground water was encountered at approximate depths of 6½ and 7½ feet in the gasoline- and fuel-oil-UST excavations, respectively, and a water sample was also collected from each excavation. Soil and water samples from the gasoline-UST excavation were analyzed for total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and total lead. Soil samples from the fuel-oil-UST excavation were analyzed for TPHg, BTEX, total petroleum hydrocarbons as diesel (TPHd), oil and grease and total lead; the water sample from that excavation was analyzed for TPHd, oil and grease, and total lead.

No TPHg or BTEX were detected and 20 ppm total lead was found in the composite soil sample from the gasoline UST excavation. The water sample from the gasoline-UST excavation showed 740 parts per billion (ppb) TPHg, no detectable benzene or toluene, 2 ppb ethylbenzene, 3 ppb total xylenes, and no detectable lead. Two of the three soil samples from the fuel-oil UST excavation showed no detectable TPHg or BTEX; one sample contained 28 ppm TPHg, 0.1 ppm ethylbenzene, and 0.4 ppm total xylenes. The three samples from this excavation also contained 10 to 4,100 ppm TPHd, 60 to 2,000 ppm oil and grease, and 13 to 22 ppm total lead. The laboratory report indicated the chromatographic pattern for the TPHd analyses was similar to but did not match the diesel standard used for calibration. Water from the fuel-oil-UST excavation showed no

detectable lead, 60,000 ppb TPHd (similar, but not matching the diesel standard used for calibration), and 44,000 ppb oil and grease. (See TERRASEARCH, INC., February 10, 1989). Table 1 presents the laboratory analytical results from the UST-pit sampling and Plate 3 shows the sampling locations.

On March 24, 1989, TERRASEARCH, INC. (April 25, 1989) pumped water from the gasoline-tank excavation into a 55-gallon drum, and sampled the recharged pit on March 27, 1989. The water sample was analyzed for TPHg and BTEX and none was detected. Table 1 presents the analytical results for the grab water sample.

1.2.2 Additional Excavation in Area of Former Fuel-Oil Tank

Environmental Experts, Inc. of San Jose, California observed additional excavation of hydrocarbon-impacted soil in the fuel-oil tank excavation on August 29, 1990, and sampled soil for laboratory analysis. Approximately 40 cubic yards of soil were excavated from the bottom and eastern wall of the initial excavation. Excavation extended in these areas from the ground surface to the depth of ground water. Six soil samples (S-1 through S-6) were collected from the four walls of the excavation and submitted for laboratory analysis for TPHd, BTEX, and oil and grease. Analytical results, presented in Table 1, showed no detectable levels of these compounds (see Environmental Experts, Inc., September 1990). The additional excavation and soil sample locations are presented on Plate 4.

1.2.3 Borings and Wells

TERRATECH, INC., of San Jose, California installed two ground-water monitoring wells at the site on March 28, 1989. Well MW-1 was installed within 10 feet and west of the former fuel-oil tank excavation to evaluate the impact of fuel hydrocarbons on the ground water. According to TERRATECH, INC., MW-2 was installed approximately 100 feet southwest of the fuel-oil-tank excavation to evaluate widespread impact of fuel

hydrocarbons to the ground water. The borings for MW-1 and MW-2 were drilled to 25½ and 15½ feet below the ground surface, respectively, and both wells were installed to a depth of 13 feet. Ground water was encountered at approximately 7 feet in depth during drilling; static water level after well installation was 5.5 feet below the ground surface. TERRATECH, INC. submitted soil samples from depths of 5½, 15½, 20½, and 25½ feet in MW-1 and depths of 5½ and 15½ feet in MW-2 for laboratory analysis for TPHg, BTEX, and TPHd. No TPHg or TPHd were detected and no detectable to trace (less than 0.3 ppm) levels of BTEX were found in the samples. Water samples collected from the two wells also showed no detectable TPHg or TPHd, and either no detectable or trace (less than 2 ppb) BTEX. (See TERRATECH, INC., April 7, 1989). Plate 3 shows the locations of MW-1 and MW-2, Table 2 presents the laboratory analytical results for soil samples, and Table 3 presents the laboratory results for water samples.

TERRASEARCH, INC. drilled three borings north and west of the fuel-oil-tank excavation on March 30, 1989, and sampled soil for laboratory analysis to evaluate the lateral extent of petroleum hydrocarbons. Existing structures precluded investigation to the south and east. Borings EB-1 through EB-3 were drilled within 10 feet of the excavation to evaluate the lateral extent of fuel hydrocarbons. Boring depth ranged from 15½ to 20½ feet below the ground surface; ground water was encountered at approximately 7 feet below grade. Soil samples collected from depths of 3 to 15 feet were analyzed in the laboratory for TPHd. Low (2.4 to 4.8 ppm) concentrations were found in each sample except one in which no TPHd was detected. (See TERRASEARCH, INC., April 25, 1989). Plate 3 shows the locations of EB-1 through EB-3 and Table 2 presents the laboratory analytical results for the soil samples.

On August 17, 1989, TERRATECH, INC. installed ground-water monitoring well MW-3 near to and west of the former location of the gasoline UST. The boring for the well was drilled to a depth of 16½ feet below the ground surface, and the well was installed to a depth of 16 feet. Ground water was encountered at approximately 8½ feet below grade. Static water-level measurements in wells MW-1 through MW-3 on August 21, 1989 showed the shallow ground-water surface sloped generally toward the west at a

gradient of 0.0025 (0.25 foot vertical distance per 100 feet horizontal distance). Soil samples collected from depths of 5½, 10½, and 15½ feet and a ground-water sample were analyzed for TPHg, BTEX, and TPHd. None of these compounds were detected, except 30 ppm TPHd in the 5½-foot-depth soil sample. (See TERRATECH, INC., August 31, 1989). Plate 2 shows the location of MW-3, Table 2 presents the laboratory analytical results for soil, and Table 3 presents the laboratory analytical results for water.

1.2.4 Ground-Water Monitoring

Quarterly monitoring and sampling of ground water in MW-1 through MW-3 was performed by TERRATECH, INC. on November 20, 1989 and February 22, 1990; by NSI Technology Services Corporation (NSI) of Sunnyvale, California on July 9, 1990; and by Clark & Witham, Inc. on September 2, 1992. The direction of ground-water flow on November 20, 1989 and February 22, 1990 was generally to the west at gradients of 0.0025 and 0.0018 (0.25 and 0.18 foot vertical distance per 100 feet horizontal distance), respectively. Ground-water gradient and direction of flow were not calculated during the July 9, 1990 and September 2, 1992 sampling episodes because of damage to MW-2 during construction in 1990 and removal of MW-1 during excavation and placement of underground utilities before September 1992.

Water samples were analyzed for TPHg, BTEX, and TPHd. Laboratory analytical results indicated no detectable concentrations of the above compounds in MW-1 after initially detecting trace levels of benzene and toluene in March 1989. After initial sampling of MW-2, no TPHg or benzene and occasional trace levels of TPHd, toluene, ethylbenzene, and total xylenes were detected in water samples. The TPHd and toluene in MW-2 in September 1992 were detected after the damaged wellhead was repaired. In MW-3, TPHg and TPHd were detected once in February 1990; no BTEX was detected during sampling of this well between August 1989 and September 1992. Cumulative results of analyses of ground-water for petroleum hydrocarbons are presented in Table 3. Results of the monitoring work are presented in reports by

TERRATECH, INC. (December 12, 1989; March 16, 1990), NSI (July 24, 1990), and Clark & Witham, Inc. (October 15, 1992).

2.0 INVESTIGATIVE METHODS

Field work included drilling shallow auger holes and borings, and excavating pits; constructing ground-water monitoring wells; and sampling soil and ground water for laboratory analysis. The following sections describe in more detail the field and laboratory methods used in work performed at the former Okada property.

2.1 Field Investigative Methods

2.1.1 Shallow Soil Sampling

TERRASEARCH, INC. (February 10, 1989) sampled shallow soil at locations 1 through 8 described previously and shown on Plate 2. Samples were collected at depths of 6 inches and 2½ feet below the ground surface by driving into the ground a steel hand sampler that contained a 4-inch-long by 2-inch-diameter brass liner. The open ends of the retrieved liners were covered with aluminum foil and plastic end caps. Electrician's tape was placed around the circumference of the end cap/liner interface to provide a seal and the samples were placed in a cooled container for transport to the laboratory. Composite samples were split on site and excess material was retained pending laboratory test results.

2.1.2 Sampling from Underground Storage Tank Excavations

Soil samples were taken from a backhoe bucket which collected soil during excavation of the former USTs (TERRASEARCH, INC., February 10, 1989) and additional excavation of the fuel-oil-tank excavation (Environmental Experts, Inc., September 1990). During initial excavation, two soil samples were collected from a depth of approximately

1½ feet below the gasoline tank in the eastern portion of that excavation and three soil samples were collected from a depth of approximately 1½ feet below the fuel-oil tank in the northern portion of that excavation (Plate 3). A hand sampler containing a brass liner was used to take the samples from the backhoe bucket in the manner previously described. The samples were also capped, sealed, and placed in a cooled container as described previously (TERRASEARCH, INC., February 10, 1989). During subsequent excavation, a photoionization detector was used in the field to direct the extent of excavation. Soil samples were collected by the backhoe bucket from the walls of the excavation at points just above the ground-water surface. Samples were retrieved by pushing a clean brass sleeve into the soil in the bucket; then capping, taping, labelling, and placing the samples in a cooler with ice (Environmental Experts, Inc., September 1990).

TERRASEARCH, INC. (February 10, 1989; April 25, 1989) collected ground-water samples when the USTs were excavated in January 1989, and after pumping water from the gasoline tank excavation in March 1989. Grab water samples were retrieved using a bailer, which was cleaned with trisodium phosphate before each use. Water was collected from the gasoline-tank excavation at an approximate depth of 6½ feet below the ground surface and placed in two 40-milliliter (ml) bottles, and was collected from the fuel-oil-tank excavation at an approximate depth of 7½ feet below the ground surface and placed in two 100-ml bottles. The sample containers were sealed with electrician's tape and placed in a cold container for transport to the laboratory.

2.1.3 Drilling Borings, Sampling Soil, and Installing Ground-Water Monitoring Wells

Borings EB-1, EB-2, and EB-3 were drilled to depths of 20½, 20, and 15½ feet, respectively north and west of the fuel-oil-tank excavation. According to TERRASEARCH, INC., the 7-inch-diameter borings were drilled with a hollow-stem auger and soil samples were collected at 5-foot intervals. Samples were described according to the Unified Soil Classification System. One additional soil sample was collected at a depth of 3 feet in boring EB-3. Samples were collected in 4-inch-long by

2-inch-diameter clean brass liners. The logs of the three borings show that the sampler was advanced a distance of approximately 18 inches at each sample interval. The liners were capped with aluminum and plastic caps, sealed with electrician's tape, and placed in a cooled container for transport to a laboratory. After drilling, the borings were tremmie-backfilled with a cement slurry containing 5 percent bentonite powder. (See TERRARESEARCH, INC., April 25, 1989).

The borings for wells MW-1, MW-2, and MW-3 were drilled to depths of 25½, 15½, and 16½ feet below the ground surface, respectively. The borings were drilled with truck-mounted drilling rigs equipped with 8-inch-diameter, hollow-stem augers. Bay Land Drilling, of Foster City, California was used to drill and install MW-1 and MW-2; HEW Drilling of Palo Alto, California was used to drill and install MW-3. Soil samples were collected at 5-foot intervals from the 5-foot depth to the total depths of the borings using a California Modified split-spoon sampler containing clean brass liners. Samples were described using the Unified Soil Classification System. Augers were steam cleaned before use in each borehole and drill cuttings were placed in drums pending laboratory analytical results.

Two-inch-diameter, Schedule 40, polyvinyl chloride casing was placed in the borings for MW-1 and MW-2 to a depth of 13 feet and in the boring for MW-3 to a depth of 16 feet. Borings for MW-1 and MW-2 were backfilled with cement to the 13-foot depth before installing casing. The bottom portions of the casings contain 0.020-inch-wide slots; the top of which was set at 6 feet below grade. Unslotted casing was set from the 6-foot depth to the ground surface. Casing joints are threaded, and the wells were installed with bottom plugs and top caps. Sorted sand was placed in the annular space between the wells and the boreholes from total depth to 1 foot above the slotted casing. One foot of bentonite pellets was placed above the sand and 4 feet of concrete annular seal was placed above the bentonite pellets to provide a 5-foot surface seal around each well. Wells MW-1 and MW-2 were finished with a locking vault around the well casing and a utility box with a metal lid around the locking vault, both secured in the concrete.

The utility boxes were placed slightly above surface grade. Well MW-3 was secured with a locking vault set approximately 2 feet above the ground surface. (See TERRATECH, INC., April 7, 1989; August 31, 1989).

2.1.4 Developing, Monitoring, and Sampling Wells

Approximately 18 casing volumes of water were removed from MW-1 and MW-2 and 10 casing volumes were removed from MW-3 during development. Wells MW-1 and MW-2 were developed with a hand pump and MW-3 was developed by bailing with a clean Teflon bailer.

During initial and subsequent monitoring episodes, water level was measured from the tops of the well casings to the nearest 0.01 foot. Wells were purged by removing from 4 to 7 casing volumes of water either by clean bailer or by bladder pump. Temperature, pH, and conductivity were monitored during purging. Ground-water samples were collected with clean bailers and placed in 40-ml glass vials for TPHg and BTEX analysis and 1-liter brown glass bottles for TPHd analyses. Samples were placed in iced coolers for transport to the laboratory. (See TERRATECH, INC., December 12, 1989; March 16, 1990; NSI, July 24, 1990; and Clark & Witham, Inc., October 15, 1992).

2.2 Laboratory Analytical Methods

Soil and ground-water samples were submitted under Chain of Custody to state-certified analytical laboratories. The laboratories performing the analyses and the analytical methods used are presented in the following discussion. Chain-of-Custody forms and laboratory reports for soil analyses are included in Appendix A and for water analyses are included in Appendix B.

Shallow soil samples collected by TERRARESEARCH, INC. (February 10, 1989) were analyzed for the metals arsenic and total lead, chlorinated herbicides, and

organochlorine pesticides and PCBs. Arsenic and lead were analyzed by atomic absorption using Environmental Protection Agency Methods 7060 and 7420, respectively. Herbicides were analyzed by EPA Method 8150 and pesticides and PCBs were analyzed by EPA Method 8080. Analyses were performed by Sequoia Analytical Laboratory of Redwood City, California (Hazardous Waste Testing Laboratory Certificate No. 1210).

Soil and water samples collected during initial tank excavation were analyzed for total lead using EPA Method 7420; TPHg and BTEX using EPA Methods 8015 and 8020, with EPA Method 5030 for extraction; TPHd using EPA Method 8015, with EPA Method 3510 for extraction; and oil and grease using Standard Method 503E. Analyses were performed by the former laboratory of International Technology Corporation in San Jose, California (Hazardous Waste Testing Laboratory Certificate No. 137). Soil samples collected after further excavation of the fuel-oil-tank excavation were analyzed for TPHd, BTEX, and oil and grease using the above-described methods at Chromalab, Inc. of San Ramon, California (Hazardous Waste Testing Laboratory Certificate No. 1094).

Soil and ground-water samples collected during installation of MW-1 and MW-2 were analyzed for TPHg (EPA Method 8015), BTEX (EPA Method 5030 for extraction and 8020 for analysis), and TPHd (EPA Method 8015). Analyses were performed by Superior Analytical Laboratory, Inc., of San Francisco, California (Hazardous Waste Testing Laboratory Certificate No. 1332). Soil and water samples collected during installation of MW-3 were also analyzed for the above-mentioned analytes by Anametrix, Inc. of San Jose, California (Hazardous Waste Testing Laboratory Certificate No. 1234) using the same EPA test methods.

Ground-water samples collected during subsequent monitoring episodes were analyzed for TPHg, BTEX, and TPHd using the above-described methods. Analyses were performed by Anametrix, Inc., Chromalab, Inc, and Trace Analysis Laboratory, Inc. of Hayward, California (Hazardous Waste Testing Laboratory Certification No. 1199).

3.0 EXTENT OF CHEMICAL COMPOUNDS IN SOIL AND GROUND WATER

The following sections summarize the laboratory data gathered during various investigations at the site. These data are presented in discussions on the extent of metals, herbicides, pesticides and PCBs, and petroleum hydrocarbons in soil, and petroleum hydrocarbons in ground water.

3.1 Soil

The metals arsenic and lead were detected in soil samples collected during the shallow soil sampling performed by TERRASEARCH, INC. (February 10, 1989). Concentrations of arsenic were relatively uniform, ranging from 2.8 to 5.9 ppm (Table 1). These levels are well below the total threshold limit concentration (TTLC) of 500 ppm, which is a standard for designating a material as hazardous. Total lead concentrations varied from 5.0 to 24 ppm in nine samples, and was 59 ppm in sample 1A (location No. 1), which was collected at the ½-foot depth near the chemical shed. The lead concentration at the 2½-foot depth at the same location was 19 ppm (see Table 1). Lead detected in the soil samples is also well below the TTLC of 1,000 ppm. The relatively low and uniform concentrations of arsenic and lead among the scattered sample locations appear unlikely to pose a threat to ground water.

No herbicides were detected, and of the pesticide compounds for which analyses were performed, only dieldrin, DDE, and DDT were found in some of the shallow soil samples (Table 1). Concentrations of the detected compounds are well below respective TTLCs of 8.0 ppm for dieldrin and 1.0 ppm for the combined concentrations of DDE and DDT, and should pose no threat to ground water.

Analysis of soil from beneath the gasoline UST (7½ to 8 feet in depth) showed no detectable TPHg or BTEX (Table 1) and suggests hydrocarbon-impacted soil was removed from beneath the tank during excavation of the tank. A soil sample from the

5½-foot depth in MW-3, located next to the former gasoline UST excavation, contained 30 ppm TPHd (Table 2).

Analysis of the three soil samples collected beneath the fuel-oil UST (5½ to 6 feet in depth) during initial excavation showed no detectable or low levels of TPHg and BTEX, from 10 to 4,100 ppm of TPHd-range hydrocarbons, and from 60 to 2,000 ppm of oil and grease. Analysis of six soil samples collected after additional excavation of this UST pit to ground water and toward the east indicated no detectable TPHd, BTEX, and oil and grease (detection limits of 5, 0.005, and 50 ppm, respectively; see Table 1). Soil samples from borings EB-1 through EB-3, drilled within 10 feet of and north and west of the fuel-oil UST excavation showed low levels of TPHd (2.4 to 4.8 ppm). Soil samples from well MW-1, located adjacent to and west of the fuel-oil UST pit contained no detectable TPHg or TPHd (detection limit of 10 ppm) and no detectable or trace concentrations of BTEX (see Table 2). The laboratory analytical data suggest only residual levels of the heavier petroleum hydrocarbons (less than 5 ppm) and of BTEX (maximum 0.28 ppm toluene) remain to the west of the former fuel-oil UST excavation.

3.2 Ground Water

Ground-water samples were collected from both UST excavations and from the ground-water monitoring wells. An initial water sample from the gasoline UST excavation contained 740 ppb TPHg, no benzene or toluene, and 2 ppb ethylbenzene, and 3 ppb total xylenes. The subsequent water sample collected after dewatering the UST pit contained no detectable TPHg or BTEX (see Table 1). Occasional low levels of TPHg (280 ppb) and TPHd (80 and 1,100 ppb) but no detectable BTEX were found during five episodes of sampling and analysis of water from MW-3, installed adjacent to the gasoline UST pit (Table 3). The data suggest minor and sporadic impact to the ground water local to the area of the former UST.

A grab water sample from the fuel-oil UST excavation during initial excavation contained 60,000 ppb TPHd-range hydrocarbons and 44,000 ppb oil and grease (Table 1). As described previously, additional soil excavation of the UST pit took place to remove source material and confirmation soil samples showed no TPHd, BTEX, or oil and grease. During four sampling episodes between March 1989 and July 1990, laboratory analytical results of water samples from MW-1 (installed adjacent to and downgradient of the former fuel-oil UST pit) indicated no detectable TPHg, TPHd, or BTEX, except trace benzene (0.4 ppb) and toluene (1.8 ppb) during the first sampling event. In well MW-2, no TPHg or TPHd and trace BTEX was found after well installation, and 97 ppb TPHd and 16 ppb toluene were detected during the September 1992 sampling episode (Table 3). During most sampling episodes in this well, no TPHg, TPHd, or BTEX were detected. These data also suggest minor and sporadic impact to the ground water local to the areas of these two wells.

4.0 HYDROGEOLOGY

Following are discussions on the hydrogeology of the area of the former Okada property. Sections address the regional and local topography, geology, and ground water.

4.1 Topography and Geology

The former Okada property is located in an area referred to as the Bay Plain, a topographic feature that slopes gently westward from the uplands of the Diablo Range toward San Francisco Bay. The Bay Plain forms the eastern side of the San Francisco Bay depression, and consists of an alluvial area adjacent to the uplands and a marshland area, which borders San Francisco Bay (California Department of Water Resources [CDWR], 1963). The former Okada property is located within the alluvial area, approximately 3/4 mile west of the Diablo Range uplands. Surface elevation at the site is approximately 30 feet above mean sea level. The alluvial area is underlain by large coalescing cones, or alluvial fans, formed by debris (alluvium) transported by streams

and creeks that drained from the uplands. The San Lorenzo Cone underlies the site and vicinity and was formed by alluvium deposited by San Lorenzo Creek, which flows westward approximately ½ mile south of the site. The San Lorenzo Cone consists of an irregular distribution of units of gravel, sand, silt, and clay, and mixtures of these sediment types. The marshland area, approximately 2 miles west of the site, consists of silt and clay sediments with accompanying irregular and usually small lenses of sand and gravel. The marshland deposits were laid down by meandering streams in estuaries or by wave action and tidal currents in the bay (CDWR, 1963; Helley and others, 1979). Helley and others (1979) describe the sediments exposed at the ground surface in the area of the site as coarse-grained alluvium, which consists of unconsolidated units of sand and silt that range in thickness from 10 to 50 feet. These sediments may be equivalent to the alluvial deposits of the CDWR (1963).

Unconsolidated sediments encountered during drilling and installation of wells MW-1 through MW-3 included primarily units of silty and sandy clay interbedded with a silty sand unit (TERRATECH, INC., April 7, 1989; August 31, 1989). The general downward sequence of sediments in the three wells is silty or sandy clay from the ground surface to a depth of 7 feet, silty sand from 7 to 9 feet below the ground surface, and clay or silty clay from 9 to 25½ feet below the ground surface. The near-surface geologic profile include primarily fine-grained, low permeability sediments.

4.2 Ground Water

When sediments were deposited on the Bay Plain, the contact between the alluvial and marshland deposits migrated to the east or west of the present contact as a result of fluctuations in the level of San Francisco Bay. During periods of higher water level, Bay mud was deposited closer to the highlands and during periods of lower water level, the alluvial deposits were carried further from the highlands. This depositional pattern resulted in a vertical and lateral interlayering of the marshland silt and clay units with the alluvial sand and gravel units. In the area of the site, clay and silt units, which are

relatively impermeable to ground-water flow (aquitards), occur from near the ground surface to approximately 20 to 30 feet in depth. Beneath these sediments are the permeable sand and gravel units of the shallowest water-bearing zones, which are interbedded with the relatively impermeable units to approximately 80 feet below the ground surface (CDWR, 1963).

TERRATECH, INC. (April 7, 1989; August 31, 1989) encountered ground water at approximately 5½ feet below the ground surface when drilling the borings for wells MW-1 and MW-2 in March 1989 and at approximately 8½ feet in depth when installing MW-3 in August 1989. The shallow ground water is found in the near-surface, low permeability sediments. Depth to static water in the wells during monitoring episodes in August and November 1989 and February 1990 showed an average seasonal fluctuation of 1.11 feet (Table 4).

TERRATECH, INC. (August 31, 1989) surveyed wellhead elevations to the nearest 0.01 foot relative to a selected datum of 100.00 feet. Depth to ground water and wellhead elevations were used to calculate ground-water elevations on August 21 and November 20, 1989, and February 22, 1990, and these data were used to construct ground-water surface maps. Maps constructed by TERRATECH, INC. show the ground-water surface sloping generally toward the west at shallow gradients varying from 0.0018 to 0.0025 (0.18 to 0.25 vertical distance per 100 feet horizontal distance).

The average velocity of ground-water flow may be calculated from the equation

$$v = Ki/\theta,$$

where:

v = velocity (feet per day [ft/day]);

K = hydraulic conductivity of sediment (feet per day)

i = gradient (unitless);

θ = porosity of sediment (percent).

Representative values of hydraulic conductivity and porosity (Todd, 1980) for a fine sand (8.2 ft/day and 43 percent) and for clay (0.0007 ft/day and 42 percent) and the maximum calculated gradient of 0.0025 (TERRATECH, INC., December 12, 1989) may be used to calculate average flow through the shallow sediments found beneath the site. Average flow rates of 0.048 ft/day for fine sand and 0.000004 ft/day for clay may be considered upper and lower bounds of the actual flow rate of shallow ground water beneath the site.

5.0 BENEFICIAL USES OF GROUND WATER

The following sections present discussions on wells in the vicinity of the former Okada property, fate and transport of the petroleum hydrocarbons, and potential beneficial uses of the ground water as identified in the California Regional Water Quality Control Board Water Quality Control Plan (December 1986) and Amendments to the 1986 Water Quality Control Plan (September 9, 1992; October 21, 1992).

5.1 Well Inventory

Maps and well-inventory data sheets of the Alameda County Public Works Agency indicate a total of 57 wells were installed on or within ½ mile of the property. Ten of these wells have been either abandoned or destroyed. Most of the remaining wells (32) were installed for purposes of irrigation or domestic use, and present information suggests these wells are active. Three sites, including the former Okada property, contain a total of 14 wells installed for purposes of ground-water monitoring and one well was installed for cathodic protection. Table 5 presents data on the wells and Plate 5 shows the locations of the presently active wells relative to the former Okada property.

Most of the domestic and irrigation wells were installed to depths of 25 to 125 feet and may have drawn from the relatively impermeable and permeable zones within this interval. Most wells also are upgradient or cross gradient from the site and would not

appear to be affected by migration of petroleum hydrocarbons from the areas of the former USTs. Two wells (6-K2 and 6-Q2) are approximately 1,000 to 1,500 feet downgradient from the former UST areas. These wells were installed in the 1950s to depths of 15 to 30 feet for irrigation.

5.2 Chemical Fate and Transport

Chemical fate and transport includes migration of the chemical compounds and factors that affect the concentrations of the compounds during migration. Table 1 shows that either nondetectable or relatively low levels of TPHg and BTEX and relatively high levels of TPHd and oil and grease were found in soil and grab water samples from the initial UST excavations. The table also shows additional sampling and analysis of water after dewatering the gasoline UST pit showed no detectable TPHg or BTEX, and additional sampling and analysis of soil after further excavation in the fuel-oil UST pit showed no detectable TPHd, BTEX, or oil and grease. Subsequent sampling and analysis of ground water indicated minor and sporadic occurrences of detectable TPHg, TPHd, and toluene in MW-2 and MW-3, and no detectable petroleum hydrocarbons in MW-1 near the former fuel-oil UST.

Migration of any remaining petroleum hydrocarbons from the unsaturated zone to the ground water would occur through leaching by downward percolating rain water. Migration of the hydrocarbons in the ground water would be primarily in lateral directions with the velocity of the ground water (advection). Some component of vertical movement with the ground water may also be present, but is expected to be less than the rate of horizontal movement. In addition, the processes of hydrodynamic dispersion and chemical diffusion may contribute to both horizontal and vertical migration, but on a much smaller scale than through advection. Migration pathways in unsaturated and saturated media would be in void spaces around soil particles or through small openings in the soil such as cracks or rootholes.

As described previously, the near surface sediments in the vicinity of the site are silty or sandy clay with a 2-foot-thick silty sand interbed. The expected rate of ground-water flow, calculated previously, may vary from 0.000004 ft/day in the clay to 0.048 ft/day in the silty sand. Shallow ground water was encountered at 5½ to 8½ feet below the ground surface when the wells were installed and is predominantly in silty clay. Actual rate of ground-water flow, and consequently rate of hydrocarbon migration, may be closer to 0.000004 ft/day than 0.048 ft/day.

Factors that affect the migration and concentrations of the petroleum hydrocarbons in the ground water include solubility, adsorption, dispersion, diffusion, and biodegradation. These factors are interrelated and would act to lower hydrocarbon concentrations. The solubility of a chemical compound in water is a major factor in migration. The solubility of pure benzene is relatively high (1,740 to 1,860 ppm) and, therefore, has the highest mobility of the petroleum compounds. For toluene, ethylbenzene, and total xylenes solubilities are lower (500 to 627 ppm, 131 to 208, and 134 to 213 ppm). Solubilities of these individual compounds leached from a gasoline generally are lower than solubilities of the pure compounds. (See American Petroleum Institute, 1989). The compounds comprising TPHg, TPHd, and oil and grease include larger molecules that are much less soluble in ground water. During migration, the hydrocarbons may adsorb to soil particles. The degree of adsorption depends on the organic carbon content of the soil. Generally, finer-grained silt and clay sediments have greater organic carbon contents than coarser-grained sand and gravel sediments. The relatively insoluble nature of most of the hydrocarbon compounds and higher adsorption capability of the clay tend to retard the migration rates of hydrocarbons to velocities lower than that of ground water.

The processes of hydrodynamic dispersion and chemical diffusion act to dilute the hydrocarbon concentrations, and move the compounds in directions other than the direction of ground-water movement. Hydrodynamic dispersion is primarily mechanical mixing caused by the motion of the ground water. Chemical diffusion results from molecular forces bringing chemical concentrations into equilibrium as dissolved

compounds move from areas of higher concentrations to areas of lower concentrations. In addition, microorganisms in the subsurface environment naturally degrade the petroleum hydrocarbons, which also serves to reduce concentrations. Biodegradation in the saturated zone is generally slower than in the unsaturated zone as a result of the reduced oxygen content.

The expected very low rate of ground-water movement combined with the factors that retard migration and reduce concentrations of the petroleum hydrocarbons would tend to favor minimal migration of hydrocarbons in the ground water. If residual petroleum hydrocarbons may be present in the unsaturated and saturated zones, the concentrations are expected to be low and the extent of impact to be local.

5.3 Sources of Drinking Water Policy Determination

The California Regional Water Quality Control Board (RWQCB), San Francisco Bay Region has published a Water Quality Control Plan (1986) and Amendments (October 1992) that define ground water of beneficial use and water quality goals. The RWQCB defines ground water as all subsurface waters and has designated the ground water suitable or potentially suitable for municipal or domestic, industrial process, industrial service, and agricultural uses. The former Okada property is located in the East Bay Plain Ground-Water Basin with depth to ground-water zones in the basin ranging from 25 to 596 feet below the ground surface.

The RWQCB has both narrative and numerical objectives for ground water that are based on the intended beneficial use. Because Citation intends to build residential housing on the site, objectives are for municipal or domestic use. According to the Water Quality Control Plan Amendments (October 1992), ground water shall be maintained free of organic chemical constituents in concentrations that adversely affect beneficial uses. At a minimum, ground water with beneficial uses of municipal and

domestic supply shall not contain concentrations of chemical constituents in concentrations greater than the maximum contaminant levels (MCLs).

6.0 REMEDIATION ACTIVITIES AND EFFECTIVENESS

6.1 Active and Passive Remediation Activities

Active soil and ground-water remediation took place at the former Okada property. Environmental Experts, Inc. (September 1990) further excavated soil from the bottom and east wall of the fuel-oil tank pit on August 29, 1990 (see Plate 4). The bottom of the pit was excavated to ground water and the pit was extended eastward approximately 8 feet to remove potential source material. The six soil samples collected from the four sidewalls of the pit just above the ground-water surface contained no detectable BTEX, TPHd, or oil and grease (Table 1). TERRASEARCH, INC. (April 25, 1989) pumped ground water from the former gasoline UST pit on March 27, 1989 and subsequently sampled water from the recharged pit. Laboratory analytical results showed no detectable TPHg or BTEX in the water sample (Table 1).

Passive remediation of possible residual concentrations of petroleum hydrocarbons were tracked through ground-water monitoring. Only trace benzene and toluene were detected in MW-1 after this well was installed adjacent to the fuel-oil tank excavation. No detectable TPHg, TPHd, or BTEX were found during the three subsequent monitoring episodes of this well in November 1989, and February and July 1990. Trace levels of benzene, toluene, and ethylbenzene were found when MW-2 was installed in March 1989. No detectable TPHg, TPHd, or BTEX were detected during the three subsequent monitoring episodes indicated above and only trace TPHd and toluene were detected during the September 1992 monitoring episode. No TPHg or TPHd were found in MW-3, installed adjacent to the gasoline UST pit in August 1989 during the above mention sampling events except relatively low levels found in February 1990. No BTEX has been found in MW-3 during five monitoring episodes (see Table 3).

6.2 Impact of Residual Hydrocarbons on Beneficial Uses

The results of soil- and water-sample analyses after the active remediation work and during ground-water monitoring suggest source material has largely been removed. Residual hydrocarbon levels, however, may remain. Hydrocarbon levels in former well MW-1 and in well MW-3, installed adjacent to and downgradient of the two former UST pits and MW-2, installed between the two former UST pits, indicate minor impact to beneficial uses of the ground water. In no case has BTEX been detected at levels greater than MCLs. In view of the laboratory analytical data and fate and transport information described previously, the potential impact of residual levels of petroleum hydrocarbons on beneficial uses of the shallow ground water is considered localized and negligible.

7.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

A summary of the information presented in this report follows.

- Environmental investigations performed between 1989 and 1992 included sampling shallow soil for arsenic, total lead, herbicides, and pesticides; removing gasoline and fuel-oil USTs, drilling borings, and installing three ground-water monitoring wells to evaluate the extent of petroleum hydrocarbons in soil and ground water; excavating additional soil at the fuel-oil UST pit and pumping water from the gasoline UST pit to actively remediate petroleum hydrocarbons; and periodically monitoring to track potential petroleum-hydrocarbon impact to the ground water.
- Concentrations of arsenic and lead were relatively low (well below respective Total Threshold Limit Concentrations [TTLCs]) in shallow soil at eight sample locations across the site. No herbicide compounds were detected in the shallow soil samples. The pesticides dieldrin, DDE, and DDT were detected in some samples, but at concentrations well below respective TTLCs.
- Analytical results of soil collected after removal of the gasoline UST showed no detectable TPHg or BTEX; a grab water sample from the pit contained 740 ppb TPHg, no detectable benzene and toluene, and 2 and 3 ppb ethylbenzene and total xylenes, respectively. Analysis of water collected after pumping the pit showed no detectable TPHg or BTEX.

- Analytical results of soil collected after removal of the fuel-oil UST showed a maximum 28 ppm TPHg, no detectable BTEX, from 10 to 4,100 ppm diesel-range hydrocarbons, and from 60 to 2,000 ppm oil and grease. Sampling and analysis of six sidewall soil samples after further excavation of this pit to ground water and toward the east showed no detectable BTEX, TPHd, or oil and grease.
- Analysis of soil samples from borings EB-1 through EB-3 and the boring for MW-1, drilled adjacent to and north and west of the fuel-oil tank excavation, showed no detectable TPHg (soil from MW-1 only) and either no detectable (detection limit 10 ppm) or low levels (2.4 to 4.8 ppm with a detection limit of 1.0 ppm) of TPHd.
- Analysis of soil samples from the boring for MW-2 showed no detectable TPHg, benzene, total xylenes, or TPHd, and trace toluene (0.0032 ppm) and ethylbenzene (0.004 ppm); and from the boring for MW-3 (installed adjacent to and downgradient of the gasoline UST pit) no detectable TPHg or BTEX and 30 ppm TPHd.
- Analyses of water samples from wells MW-1 through MW-3 at the time of installation and during three or four subsequent monitoring events between 1989 and 1992 have shown only occasional and low levels of TPHg (280 ppb) and TPHd (97 and 1,100 ppb); and occasional trace levels of benzene (0.4 ppb), toluene (1.8 and 16 ppb), ethylbenzene (0.4 ppb), and total xylenes (1.8 ppb). The TPHd and toluene in MW-2 in September 1992 were detected after the damaged wellhead was repaired. Concentrations of BTEX, when detected, have been below respective MCLs.
- The sediments encountered below the shallow ground-water surface are predominantly low permeability silty clay. The rate of ground-water flow is calculated to be extremely low on the basis of the ground-water gradient at the site and the presumed hydraulic conductivity and porosity of the saturated clay.

Clark & Witham, Inc. draws the following conclusions based on the information presented in this report.

- The laboratory data for arsenic, lead, herbicides, and pesticides suggest detected concentrations of the above compounds appear unlikely to pose an adverse impact to ground water.
- Laboratory data also suggest that hydrocarbon-impacted soil (*i.e.*, source material) in the vicinity of the former gasoline and fuel-oil USTs has been largely removed and that potential remaining concentrations are likely to be residual.

- The estimated low rate of ground-water flow, the stated factors affecting migration of the petroleum hydrocarbons in the ground water, and laboratory data from ground-water monitoring events support the conclusions that source material has been removed, that any petroleum hydrocarbons left in the soil and ground water are at residual levels and in localized areas, and that potential impact to the beneficial uses of the shallow and deeper ground-water zones appears to be negligible.
- The levels of petroleum hydrocarbons, in particular BTEX at concentrations less than MCLs, also indicate that water quality objectives of the RWQCB appear to be met.

Clark & Witham, Inc. therefore concludes that further action at the former Okada property with respect to ground-water quality appears unnecessary. We recommend to the Alameda County Health Care Services Agency and the RWQCB that the case be closed.

8.0 LIMITATIONS

This report was prepared from information generated primarily by others and provided to Clark & Witham, Inc. by Citation. Evaluation of the geological and chemical conditions at the site for the purpose of this report is made from several observation points, and subsurface conditions may vary away from the observations points. Additional work such as further subsurface investigation can reduce the inherent uncertainties associated with these types of investigations.

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TABLE 1
RESULTS OF LABORATORY ANALYSES OF SOIL AND WATER SAMPLES
(Shallow Soil Sampling and Underground Storage Tank Excavations at Former Okada Property)

Sample Loc./No.	Depth	Arsenic	Total Lead	Herbicides	Pesticides and PCBs			TPHg	B	T	E	X	TPHd	Oil & Grease
					Dieldrin	DDE/DDT	PCBs							
Shallow Soil Sampling (TERRASEARCH, INC., February 10, 1989)														
1/1A	0.5	4.0	59	ND	0.010	0.039	ND	--	--	--	--	--	--	--
1/1B	2.5	3.1	19	ND	<0.005	0.043	ND	--	--	--	--	--	--	--
2/2A	0.5	2.8	11	ND	<0.005	ND	ND	--	--	--	--	--	--	--
2/2B	2.5	4.6	24	ND	<0.005	ND	ND	--	--	--	--	--	--	--
3,4,6/C-1A*	0.5	3.4	9.9	ND	0.0055	ND	ND	--	--	--	--	--	--	--
3,4,6/C-1B*	2.5	3.1	6.7	ND	<0.005	ND	ND	--	--	--	--	--	--	--
7,8/C-2A*	0.5	4.3	24	ND	<0.005	0.048	ND	--	--	--	--	--	--	--
7,8/C-2B*	2.5	5.9	10	ND	<0.005	ND	ND	--	--	--	--	--	--	--
5/5A	0.5	3.4	11	ND	<0.005	ND	ND	--	--	--	--	--	--	--
5/5B	2.5	3.1	5.0	ND	<0.005	0.0038	ND	--	--	--	--	--	--	--
Underground Storage Tank Excavations Soil (TERRASEARCH, INC., February 10, 1989)														
Gas Tank 7.5-8**	7.5-8	--	20	--	--	--	--	<5	<0.05	<0.1	<0.1	<0.3	--	--
Oil Tank 5.5-6'A	5.5-6	--	22	--	--	--	--	28	<0.05	<0.1	0.1	0.4	4,100**	2,000
Oil Tank 5.5-6'B	5.5-6	--	22	--	--	--	--	<5	<0.05	<0.1	<0.1	<0.3	220**	1,100
Oil Tank 5.5-6'C	5.5-6	--	13	--	--	--	--	<5	<0.05	<0.1	<0.1	<0.3	10**	60
Water (TERRASEARCH, INC., February 10, 1989)														
Gas Tank 6.5-7'	6.5-7	--	<0.05	--	--	--	--	740	<2	<1	2	3	--	--
Oil Tank 7.5'	7.5	--	<0.05	--	--	--	--	--	--	--	--	--	60,000**	44,000
Water (TERRASEARCH, INC., April 25, 1989)														
Gas Tank Excavation (EGW3)	6.5	--	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--
Additional Excavation of Fuel-Oil Tank Pit (Environmental Experts, Inc., September 1990)														
S-1	6-6.5	--	--	--	--	--	--	--	<0.005	<0.005	<0.005	<0.005	<5	<50
S-2	6-6.5	--	--	--	--	--	--	--	<0.005	<0.005	<0.005	<0.005	<5	<50
S-3	6-6.5	--	--	--	--	--	--	--	<0.005	<0.005	<0.005	<0.005	<5	<50
S-4	6-6.5	--	--	--	--	--	--	--	<0.005	<0.005	<0.005	<0.005	<5	<50
S-5	6-6.5	--	--	--	--	--	--	--	<0.005	<0.005	<0.005	<0.005	<5	<50
S-6	6-6.5	--	--	--	--	--	--	--	<0.005	<0.005	<0.005	<0.005	<5	<50

Results for soil in milligrams per kilogram = parts per million
 Results for water in micrograms per liter = parts per billion
 Shallow soil sample locations are 1 through 8 as identified by TERRASEARCH, INC.
 Depth in feet below the ground surface (approximate)
 PCBs = polychlorinated biphenyls
 TPHg = total petroleum hydrocarbons as gasoline
 BTEX = benzene, toluene, ethylbenzene, total xylenes
 TPHd = total petroleum hydrocarbons as diesel

< = less than the detection limit of the laboratory analytical method
 -- = not analyzed
 * = composite sample
 ** = laboratory report indicates chromatographic pattern of compounds detected and calculated as diesel is similar to but does not match that of the diesel standard used for calibration

TABLE 2
RESULTS OF LABORATORY ANALYSES OF SOIL SAMPLES
(Borings and Ground-Water Monitoring Wells at Former Okada Property)

Sample Location (Sample No.)	Depth	TPHg	TPHd	Benzene	Toluene	Ethylbenzene	Total Xylenes
Soil (TERRATECH, INC., April 7, 1989; August 31, 1989)							
MW-1	5.5	<10	<10	0.0036	0.0055	0.0047	<0.003
	15.5	<10	<10	<0.003	0.280	0.024	0.210
	20.5	<10	<10	<0.003	<0.003	<0.003	<0.003
	25.5	<10	<10	<0.003	<0.003	<0.003	<0.003
MW-2	5.5	<10	<10	<0.003	0.0032	0.004	<0.003
	15.5	<10	<10	<0.003	0.0031	<0.003	<0.003
MW-3	5.5	<1	30	<0.005	<0.005	<0.005	<0.005
	10.5	<1	<10	<0.005	<0.005	<0.005	<0.005
	15.5	<1	<10	<0.005	<0.005	<0.005	<0.005
Soil (TERRASEARCH, INC., April 25, 1989)							
EB-1 (EB1.1)	5	--	2.5	--	--	--	--
	(EB1.2)	10	--	2.4	--	--	--
	(EB1.3)	15	--	3.9	--	--	--
EB-2 (EB2.1)	5	--	2.6	--	--	--	--
	(EB2.2)	10	--	3.0	--	--	--
	(EB2.3)	15	--	4.8	--	--	--
EB-3 (EB3.1)	5	--	<1.0	--	--	--	--
	(EB3.2)	10	--	3.2	--	--	--
	(EB3.3)	15	--	3.0	--	--	--
	(EB3.4)	3	--	3.1	--	--	--

Results for soil in milligrams per kilogram = parts per million
 Results for water in micrograms per liter = parts per billion
 Depth in feet below the ground surface (approximate)
 TPHg = total petroleum hydrocarbons as gasoline
 TPHd = total petroleum hydrocarbons as diesel
 < = less than the detection limit of the laboratory analytical method
 -- = not analyzed

TABLE 3
RESULTS OF LABORATORY ANALYSES OF WATER SAMPLES
(Ground-Water Monitoring Wells at Former Okada Property)

Date	TPHg	TPHd	Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-1						
3/89	<1,000	<1,000	0.4	1.8	<0.3	<0.3
11/89	<50	<50	<0.5	<0.5	<0.5	<1.0
2/90	<50	<50	<0.5	<0.5	<0.5	<1.0
7/90	<500	<500	<0.5	<0.5	<0.5	<0.5
9/92	Well previously excavated, no sample collected					
MW-2						
3/89	<1,000	<1,000	0.4	1.8	0.4	1.8
11/89	<50	<50	<0.5	<0.5	<0.5	<1.0
2/90	<50	<50	<0.5	<0.5	<0.5	<1.0
7/90	<500	<500	<0.5	<0.5	<0.5	<0.5
9/92	<50	97*	<0.5	16*	<0.68	<1.8
MW-3						
8/89	<50	<50	<0.5	<0.5	<0.5	<1.0
11/89	<50	80	<0.5	<0.5	<0.5	<1.0
2/90	280	1,100	<0.5	<0.5	<0.5	<1.0
7/90	<500	<500	<0.5	<0.5	<0.5	<0.5
9/92	<50	<50	<0.5	<0.5	<0.5	<1.5

Results in micrograms per liter or parts per billion

TPHg = total petroleum hydrocarbons as gasoline

TPHd = total petroleum hydrocarbons as diesel

< = less than the detection limit of the laboratory analytical method

* = analytical result after wellhead repair and well cleanup

Sources: TERRATECH, INC. (April 7, 1989; August 31, 1989; December 12, 1989; March 16, 1990), NSI Technology Services Corporation (July 24, 1990); Clark & Witham, Inc. (October 15, 1992)

**TABLE 4
CUMULATIVE RESULTS OF WELL MONITORING DATA
FORMER OKADA PROPERTY**

Date	Floating Product	Sheen	Wellhead Elevation*	Depth to Water	Ground-Water Elevation*
MW-1					
8/21/89	--	--	100.03	8.00	92.03
11/20/89	--	--		7.80	92.23
2/22/90	--	--		6.81	93.22
7/6/90	None	None		7.81	92.22
9/2/90			Well previously excavated, no measurement made		
MW-2					
8/21/89	--	--	100.00	7.65	92.35
11/20/89	--	--		7.43	92.57
2/22/90	--	--		6.56	93.44
7/6/90	None	None		6.05	93.95
9/2/92	None	None	...*	9.23	...**
MW-3					
8/21/89	--	--	101.38	8.63	92.75
11/20/89	--	--		8.39	92.99
2/22/90	--	--	<i>YES - see MAR '90 report</i>	7.58	93.80
7/6/90	None	None		8.56	92.82
9/2/92	None	None		9.01	92.37

* Wellhead and ground-water elevations relative to an arbitrary datum of 100.00

Depth to water measured in feet below the top of the well casing

-- = not measured or not reported

** = no ground-water elevation calculated because well casing not resurveyed after repair

Sources: TERRATECH, INC. (August 31, 1989; December 12, 1989; March 16, 1990), NSI Technology Services Corporation (July 24, 1990), Clark & Witham, Inc. (October 15, 1992)

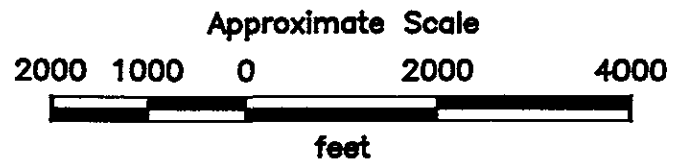
**TABLE 5
WELLS WITHIN 1/2 MILE OF FORMER OKADA PROPERTY**

Well Number	Owner	Date Drilled	Total Depth	Use
5-E1	Umeki Nursery	1937	75	Irrigation
5-E2	U. S. Nursery	Unknown	50	Abandoned
5-L1	Unknown	Unknown	Unknown	Abandoned
5-L2	F. Martinez	Unknown	100	Abandoned
5-L4	Woodward	1915	40	Irrigation
5-L5	A. Quilici	1934	71	Irrigation
5-M2	Protez	1940	95	Abandoned
5-M3,4	Kaufman & Broad	12/1989	33/19	Monitoring
5-N2	Selin	1914	48	Irrigation
5-N3	Namura Nursery	1939	50	Irrigation
5-P1	S. Nieda	1928	80	Irrigation
5-P2	Nelson Nursery	1915	42	Abandoned
5-P3	Alameda County	Unknown	61	Destroyed
5-P4	Alameda County	Unknown	25	Destroyed
6-B5	Pacific Gas & Electric	6/1973	120	Cathodic
6-G2	Harwood	Unknown	Unknown	Irrigation
6-H1	M. Welsh	1924	32	Irrigation
6-H2	Magnaini	1927	40	Abandoned
6-H3-10, 14	Unocal Corporation	5/1989; 3/1991	24-25	Monitoring
6-J1	M. Rose	1910	52	Irrigation
6-J2	J. Tonini	1923	60	Abandoned
6-J4-6	Citation Builders	3/1989; 8/1989	13, 16	Monitoring
6-K1	L. Dugan	8/1949	148	Irrigation
6-K2	Walsh	1957	30	Irrigation
6-Q1	E. Carbal	1956	13	Irrigation
6-Q2	T. Sexton	1952	15	Irrigation
6-R1	J. Fidelgo	1940	70	Irrigation
6-R2	Okada Brother, Inc.	10/1947	440	Irrigation
6-R4	Okada Brothers Nursery	10/1990	304	Irrigation
7-A2	Wolf	1938	40	Irrigation
7-A3	M. Cabral	Unknown	42	Irrigation
7-A4	McClelland	Unknown	125	Irrigation
7-A5	Repose	1909	50	Domestic
7-A6	Salvadore	9/1949	49	Irrigation
7-A7	Mello	Unknown	60	Domestic
7-A8	Smith	1918	68	Domestic
7-A9	Lorenzo Masonic Bldg. Assoc.	2/1988	Unknown	Destroyed
7-G1	F. Goyette Machine Work	7/1937	75	Domestic
7-G3	Hayward Union H. S. District	9/1951	616	Irrigation
7-H1	Kawahara Nursery	1949	72	Irrigation
7-H2	Junction Nursery	1929	75	Irrigation
7-H3	Kawahara Nursery	6/1988	65	Irrigation
8-C2	Medina	9/1949	51	Irrigation
8-C3	R. Watson	9/1977	37	Irrigation
8-D1	Forth	1923	70	Irrigation
8-D2	Kuramoto Nursery	1952	100	Irrigation

Well number designation: 8-D2 = Section 8 - 40-acre subdivision and the serial number of the well within that 40-acre subdivision.
Wells listed are within Township 3 South, Range 2 West, Mount Diablo Base & Meridian.
See Plate 5 for locations of wells.



Source: U.S. Geological Survey
 7.5-Minute Quadrangle
 Hayward/San Leandro, California
 Photorevised 1980

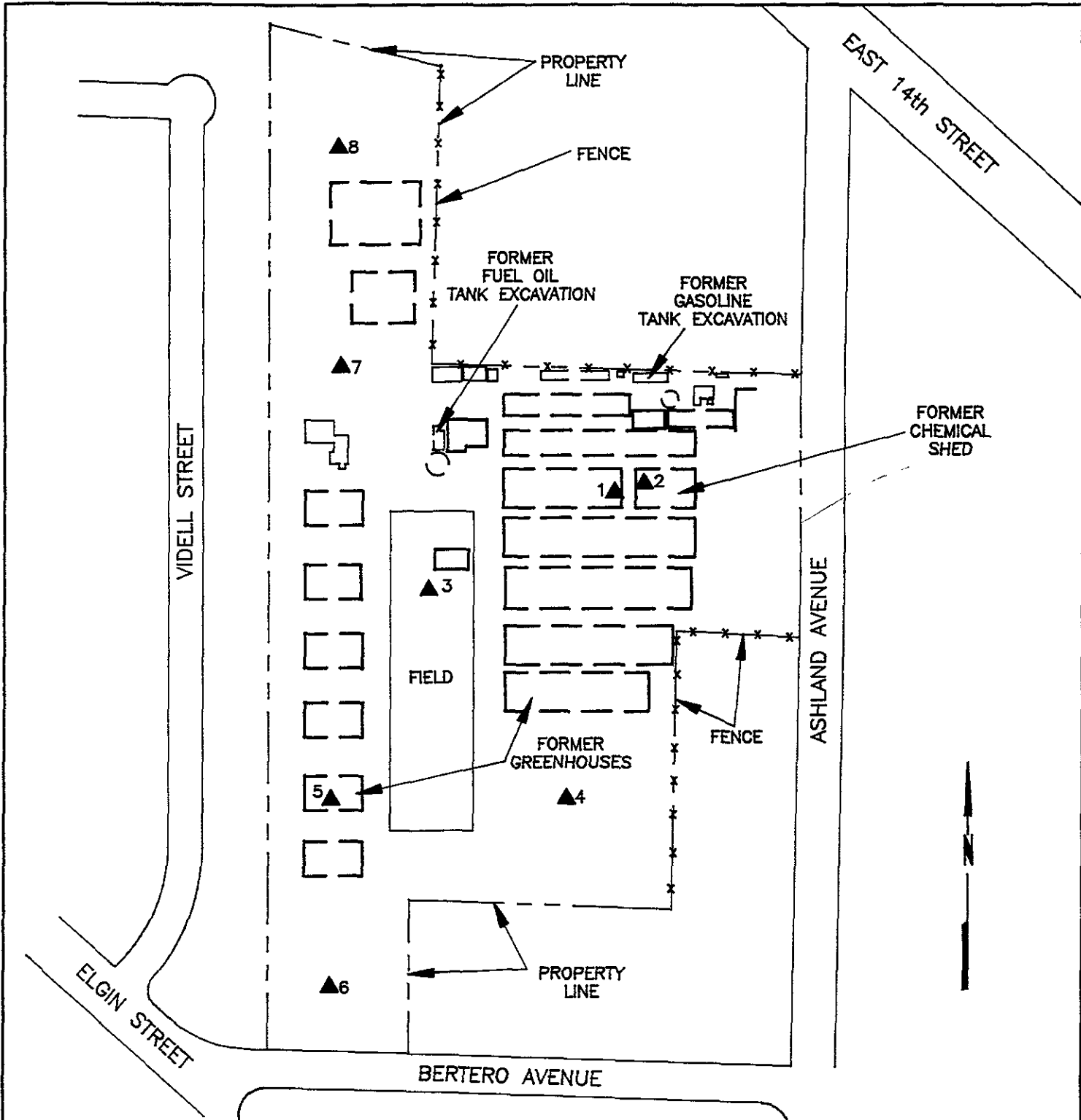


**CLARK &
 WITHAM, INC.**

PROJECT NO. CHO002-B

**SITE VICINITY MAP
 Former Okada Property
 16109 Ashland Avenue
 San Lorenzo, California**

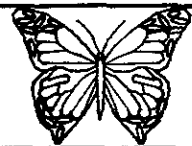
PLATE 1



LEGEND

8▲ = Location of shallow soil sample

Approximate Scale

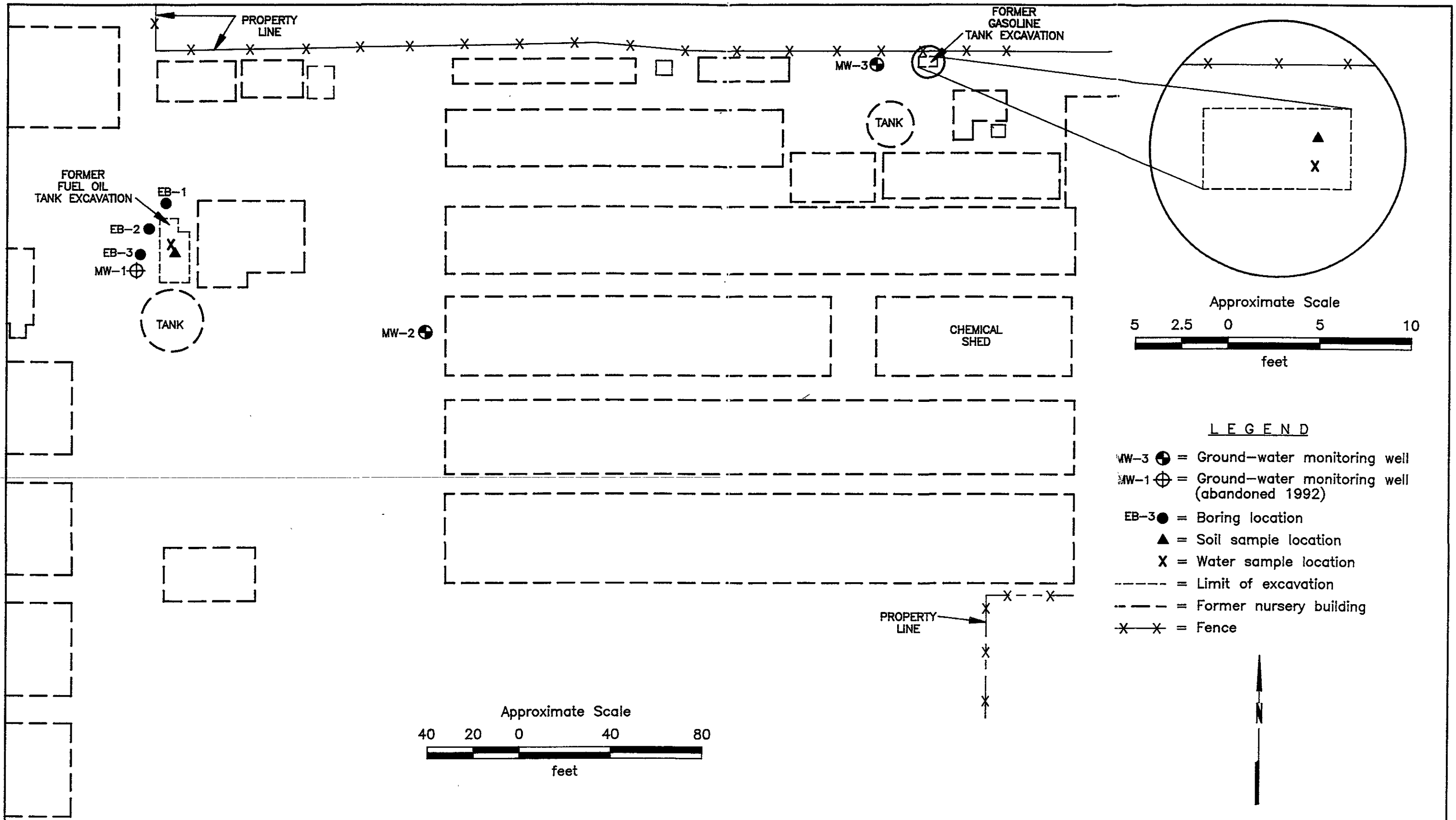


**CLARK &
WITHAM, INC.**

PROJECT NO. CH0002-B

SITE PLAN
Former Okada Property
16109 Ashland Avenue
San Lorenzo, California

PLATE 2



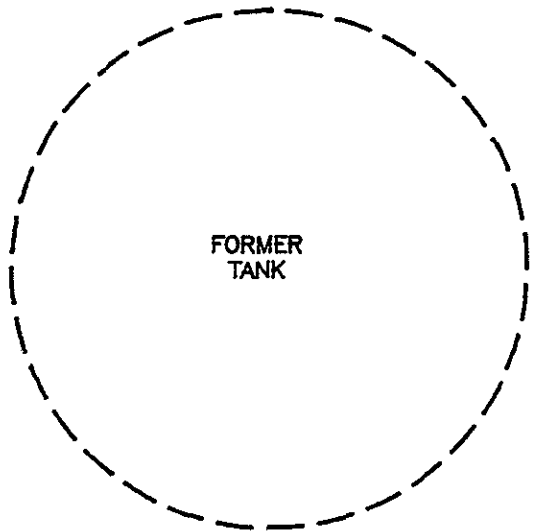
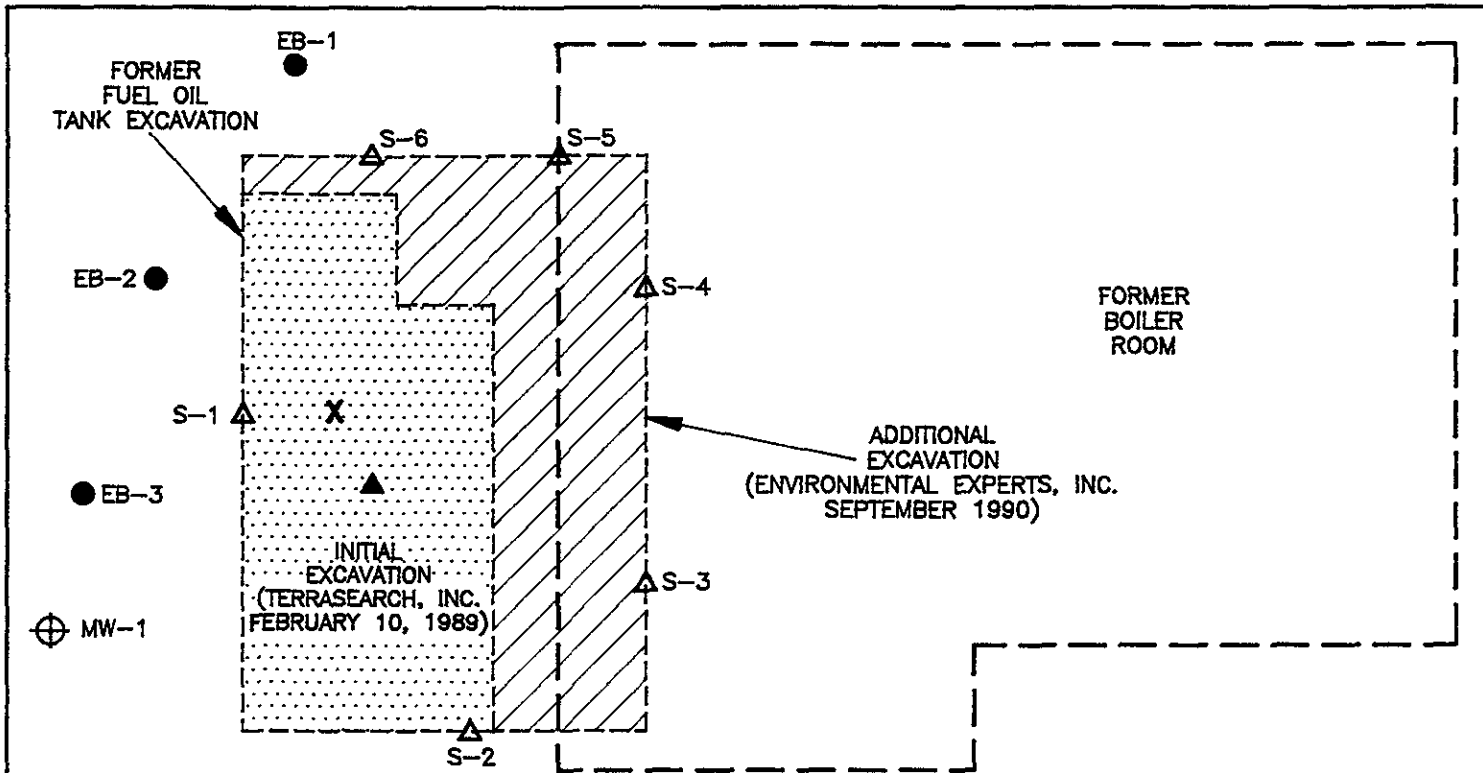
**CLARK &
WITHAM, INC.**

PROJECT NO.

CH0002-B

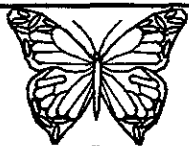
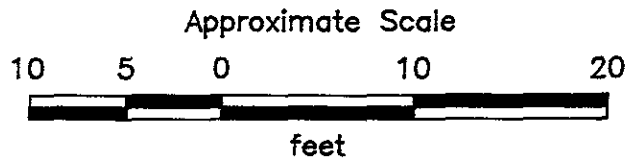
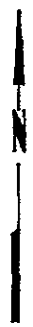
SITE PLAN - NORTHEAST PORTION
Former Okada Property
16109 Ashland Avenue
San Lorenzo, California

PLATE 3



LEGEND

- MW-1 ⊕ = Ground-water monitoring well (abandoned 1992)
- EB-3 ● = Boring location
- ▲ = Soil sample location (TERRASEARCH, INC.)
- S-6 Δ = Soil sample location (Environmental Experts, Inc.)
- X = Water sample location



**CLARK &
WITHAM, INC.**

PROJECT NO. CHO002-B

FUEL-OIL TANK EXCAVATION
Former Okada Property
16109 Ashland Avenue
San Lorenzo, California

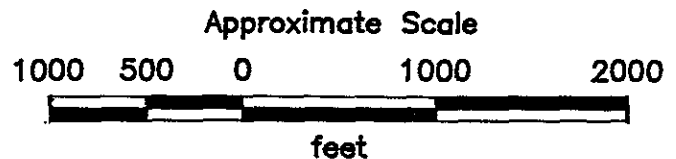
PLATE 4



Source: U.S. Geological Survey
 7.5-Minute Quadrangle
 Hayward/San Leandro, California
 Photorevised 1980

8D2 ● = Well location

Refer to Table 5 for well information



**CLARK &
 WITHAM, INC.**

WELLS WITHIN 1/2-MILE OF SITE
 Former Okada Property
 16109 Ashland Avenue
 San Lorenzo, California

PLATE 5

PROJECT NO. CH0002-B

APPENDIX A
CHAIN OF CUSTODY
AND
LABORATORY REPORTS FOR SOIL SAMPLES



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

earch, Inc.	Client Project ID: #E5999, Okata	Sampled: Jan 11, 1989
North 4th Street	Sample Descript: Soil	Received: Jan 11, 1989
ose, CA 95112	Analysis for: Arsenic	
ion: Mark Detterman	First Sample #: 901-0976	Analyzed: Jan 30, 1989
		Reported: Feb 3, 1989

LABORATORY ANALYSIS FOR: Arsenic

Sample Number	Sample Description	Detection Limit mg/kg	Sample Result mg/kg
901-0976	1A	0.1	4.0
901-0977	1B	0.1	3.1
901-0978	2A	0.1	2.8
901-0979	2B	0.1	4.6
901-0980	C-1A	0.1	3.4
901-0981	C-1B	0.1	3.1
901-0982	C-2A	0.1	4.3
901-0983	C-2B	0.1	5.9
901-0984	5A	0.1	3.4
901-0985	5B	0.1	3.1

analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Research, Inc.
80 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999, Okata
Sample Descript: Soil
Analysis for: Lead
First Sample #: 901-0976

Sampled: Jan 11, 1989
Received: Jan 11, 1989
Analyzed: Jan 27, 1989
Reported: Feb 3, 1989

LABORATORY ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit mg/kg	Sample Result mg/kg
901-0976	1A	0.05	59
901-0977	1B	0.05	19
901-0978	2A	0.05	11
901-0979	2B	0.05	24
901-0980	C-1A	0.05	9.9
901-0981	C-1B	0.05	6.7
901-0982	C-2A	0.05	24
901-0983	C-2B	0.05	10
901-0984	5A	0.05	11
901-0985	5B	0.05	5.0

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Research, Inc.
10 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999, Okata
Sample Descript: Soil, 1A
Analysis Method: EPA 8150
Lab Number: 901-0976

Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 19, 1989
Analyzed: Jan 28, 1989
Reported: Feb 3, 1989

CHLORINATED HERBICIDES (EPA 8150)

analyte	Detection Limit mg/kg	Sample Results mg/kg
D.....	1.0	N.D.
DB.....	1.0	N.D.
5-T.....	0.2	N.D.
5-TP (Silvex).....	0.2	N.D.
lapon.....	5.0	N.D.
amba.....	0.25	N.D.
chloroprop.....	0.5	N.D.
noseb.....	0.2	N.D.
CPA.....	200.0	N.D.
CPP.....	200.0	N.D.

analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

search, Inc.
North 4th Street
Jose, CA 95112
ation: Mark Detterman

Client Project ID: #E5999, Okata
Sample Descript: Soil, 1B
Analysis Method: EPA 8150
Lab Number: 901-0977

Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 19, 1989
Analyzed: Jan 28, 1989
Reported: Feb 3, 1989

CHLORINATED HERBICIDES (EPA 8150)

lyte	Detection Limit mg/kg	Sample Results mg/kg
D.....	1.0	N.D.
DB.....	1.0	N.D.
5-T.....	0.2	N.D.
5-TP (Silvex).....	0.2	N.D.
apon.....	5.0	N.D.
amba.....	0.25	N.D.
loroprop.....	0.5	N.D.
oseb.....	0.2	N.D.
PA.....	200.0	N.D.
PP.....	200.0	N.D.

analytes reported as N.D. were not present above the stated limit of detection.

QUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Research, Inc.
100 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999, Okata
Sample Descript: Soil, 2A
Analysis Method: EPA 8150
Lab Number: 901-0978

Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 19, 1989
Analyzed: Jan 28, 1989
Reported: Feb 3, 1989

CHLORINATED HERBICIDES (EPA 8150)

analyte	Detection Limit mg/kg	Sample Results mg/kg
D.....	1.0	N.D.
DB.....	1.0	N.D.
5-T.....	0.2	N.D.
5-TP (Silvex).....	0.2	N.D.
lapon.....	5.0	N.D.
amba.....	0.25	N.D.
chloroprop.....	0.5	N.D.
oseb.....	0.2	N.D.
CPA.....	200.0	N.D.
CPP.....	200.0	N.D.

analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Arch, Inc.
North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999, Okata
Sample Descript: Soil, 2B
Analysis Method: EPA 8150
Lab Number: 901-0979

Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 19, 1989
Analyzed: Jan 28, 1989
Reported: Feb 3, 1989

CHLORINATED HERBICIDES (EPA 8150)

Analyte	Detection Limit mg/kg	Sample Results mg/kg
1-D.....	1.0	N.D.
1-DB.....	1.0	N.D.
1,5-T.....	0.2	N.D.
1,5-TP (Silvex).....	0.2	N.D.
Alaopar.....	5.0	N.D.
Alcamba.....	0.25	N.D.
Alchloroprop.....	0.5	N.D.
Alinoseb.....	0.2	N.D.
AlCPA.....	200.0	N.D.
AlCPP.....	200.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Research, Inc.
80 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999, Okata
Sample Descript: Soil, C-1A
Analysis Method: EPA 8150
Lab Number: 901-0980

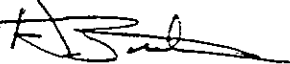
Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 19, 1989
Analyzed: Jan 28, 1989
Reported: Feb 3, 1989

CHLORINATED HERBICIDES (EPA 8150)

Analyte	Detection Limit mg/kg	Sample Results mg/kg
2,4-D.....	1.0	N.D.
2,4-DB.....	1.0	N.D.
2,4,5-T.....	0.2	N.D.
2,4,5-TP (Silvex).....	0.2	N.D.
2,4,6-Trifl. (Alar).....	5.0	N.D.
2,4-Dicamba.....	0.25	N.D.
Dichloroprop.....	0.5	N.D.
Dinoseb.....	0.2	N.D.
MCPA.....	200.0	N.D.
MOPP.....	200.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL


Arthur G. Burton
Laboratory Director



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Research, Inc.
80 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999, Okata
Sample Descript: Soil, C-1B
Analysis Method: EPA 8150
Lab Number: 901-0981

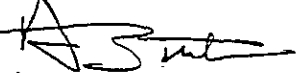
Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 24, 1989
Analyzed: Jan 30, 1989
Reported: Feb 3, 1989

CHLORINATED HERBICIDES (EPA 8150)

Analyte	Detection Limit mg/kg	Sample Results mg/kg
4-D.....	1.0	N.D.
4-DB.....	1.0	N.D.
4,5-T.....	0.2	N.D.
4,5-TP (Silvex).....	0.2	N.D.
Alachlor.....	5.0	N.D.
Alifluralon.....	0.25	N.D.
Allylchloroprop.....	0.5	N.D.
Alloxy.....	0.2	N.D.
AlCPA.....	200.0	N.D.
AlCPP.....	200.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL


Arthur G. Burton
Laboratory Director



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Terrasearch, Inc.
1580 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999, Okata
Sample Descript: Soil, C-2A
Analysis Method: EPA 8150
Lab Number: 901-0982

Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 24, 1989
Analyzed: Jan 30, 1989
Reported: Feb 3, 1989

CHLORINATED HERBICIDES (EPA 8150)

Analyte	Detection Limit mg/kg	Sample Results mg/kg
2,4-D.....	1.0	N.D.
2,4-DB.....	1.0	N.D.
2,4,5-T.....	0.2	N.D.
2,4,5-TP (Silvex).....	0.2	N.D.
Dalapon.....	5.0	N.D.
Dicamba.....	0.25	N.D.
Dichloroprop.....	0.5	N.D.
Dinoseb.....	0.2	N.D.
MCPA.....	200.0	N.D.
MCPP.....	200.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director



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680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Terrasearch, Inc.
1580 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999, Okata
Sample Descript: Soil, C-2B
Analysis Method: EPA 8150
Lab Number: 901-0983

Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 24, 1989
Analyzed: Jan 30, 1989
Reported: Feb 3, 1989

CHLORINATED HERBICIDES (EPA 8150)

Analyte	Detection Limit mg/kg	Sample Results mg/kg
2,4-D.....	1.0	N.D.
2,4-DB.....	1.0	N.D.
2,4,5-T.....	0.2	N.D.
2,4,5-TP (Silvex).....	0.2	N.D.
Dalapon.....	5.0	N.D.
Dicamba.....	0.25	N.D.
Dichloroprop.....	0.5	N.D.
Dinoseb.....	0.2	N.D.
MCPA.....	200.0	N.D.
MCPP.....	200.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Terrasearch, Inc.
1580 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999, Okata
Sample Descript: Soil, 5A
Analysis Method: EPA 8150
Lab Number: 901-0984

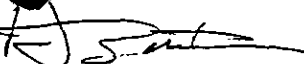
Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 24, 1989
Analyzed: Jan 30, 1989
Reported: Feb 3, 1989

CHLORINATED HERBICIDES (EPA 8150)

Analyte	Detection Limit mg/kg	Sample Results mg/kg
2,4-D.....	1.0	N.D.
2,4-DB.....	1.0	N.D.
2,4,5-T.....	0.2	N.D.
2,4,5-TP (Silvex).....	0.2	N.D.
Dalapon.....	5.0	N.D.
Dicamba.....	0.25	N.D.
Dichloroprop.....	0.5	N.D.
Dinoseb.....	0.2	N.D.
MCPA.....	200.0	N.D.
MCPP.....	200.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Terrasearch, Inc.
1580 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999, Okata
Sample Descript: Soil, 5B
Analysis Method: EPA 8150
Lab Number: 901-0985

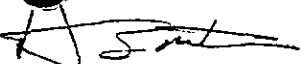
Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 24, 1989
Analyzed: Jan 30, 1989
Reported: Feb 3, 1989

CHLORINATED HERBICIDES (EPA 8150)

Analyte	Detection Limit mg/kg	Sample Results mg/kg
2,4-D.....	1.0	N.D.
2,4-DB.....	1.0	N.D.
2,4,5-T.....	0.2	N.D.
2,4,5-TP (Silvex).....	0.2	N.D.
Dalapon.....	5.0	N.D.
Dicamba.....	0.25	N.D.
Dichloroprop.....	0.5	N.D.
Dinoseb.....	0.2	N.D.
MCPA.....	200.0	N.D.
MCPP.....	200.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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errasearch, Inc.
580 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999, Okata
Sample Descript: Soil, 1A
Analysis Method: EPA 8080
Lab Number: 901-0976

Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 18, 1989
Analyzed: Jan 20, 1989
Reported: Feb 3, 1989

ORGANOCHLORINE PESTICIDES AND PCB'S (EPA 8080)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Aldrin.....	5.0	N.D.
alpha-BHC.....	5.0	N.D.
beta-BHC.....	5.0	N.D.
sigma-BHC.....	10.0	N.D.
gamma-BHC (Lindane).....	5.0	N.D.
Chlordane.....	50.0	N.D.
4,4'-DDD.....	10.0	N.D.
4,4'-DDE.....	5.0	10
4,4'-DDT.....	10.0	29
Dieldrin.....	5.0	10
Endosulfan I.....	10.0	N.D.
Endosulfan II.....	5.0	N.D.
Endosulfan sulfate.....	50.0	N.D.
.....	10.0	N.D.
..... aldehyde.....	15.0	N.D.
Heptachlor.....	5.0	N.D.
Heptachlor epoxide.....	5.0	N.D.
Methoxychlor.....	150.0	N.D.
Toxaphene.....	175.0	N.D.
PCB-1016.....	50.0	N.D.
PCB-1221.....	50.0	N.D.
PCB-1232.....	50.0	N.D.
PCB-1242.....	50.0	N.D.
PCB-1248.....	50.0	N.D.
PCB-1254.....	50.0	N.D.
PCB-1260.....	50.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Terrasearch, Inc.	Client Project ID: #E5999, Okata	Sampled: Jan 11, 1989
1580 North 4th Street	Sample Descript: Soil, 1B	Received: Jan 11, 1989
San Jose, CA 95112	Analysis Method: EPA 8080	Extracted: Jan 18, 1989
Attention: Mark Detterman	Lab Number: 901-0977	Analyzed: Jan 23, 1989
		Reported: Feb 3, 1989

ORGANOCHLORINE PESTICIDES AND PCB'S (EPA 8080)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Aldrin.....	5.0	N.D.
alpha-BHC.....	5.0	N.D.
beta-BHC.....	5.0	N.D.
sigma-BHC.....	10.0	N.D.
gamma-BHC (Lindane).....	5.0	N.D.
Chlordane.....	50.0	N.D.
4,4'-DDD.....	10.0	N.D.
4,4'-DDE.....	5.0	N.D.
4,4'-DDT.....	10.0	43
Dieldrin.....	5.0	N.D.
Endosulfan I.....	10.0	N.D.
Endosulfan II.....	5.0	N.D.
Endosulfan sulfate.....	50.0	N.D.
.....rin.....	10.0	N.D.
.....rin aldehyde.....	15.0	N.D.
Heptachlor.....	5.0	N.D.
Heptachlor expoxide.....	5.0	N.D.
Methoxychlor.....	150.0	N.D.
Toxaphene.....	175.0	N.D.
PCB-1016.....	50.0	N.D.
PCB-1221.....	50.0	N.D.
PCB-1232.....	50.0	N.D.
PCB-1242.....	50.0	N.D.
PCB-1248.....	50.0	N.D.
PCB-1254.....	50.0	N.D.
PCB-1260.....	50.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Terrasearch, Inc.
1580 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999
Sample Descript: Soil, 2A
Analysis Method: EPA 8080
Lab Number: 901-0978

Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 18, 1989
Analyzed: Jan 23, 1989
Reported: Feb 3, 1989

ORGANOCHLORINE PESTICIDES AND PCB'S (EPA 8080)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Aldrin.....	5.0	N.D.
alpha-BHC.....	5.0	N.D.
beta-BHC.....	5.0	N.D.
sigma-BHC.....	10.0	N.D.
gamma-BHC (Lindane).....	5.0	N.D.
Chlordane.....	50.0	N.D.
4,4'-DDD.....	10.0	N.D.
4,4'-DDE.....	5.0	N.D.
4,4'-DDT.....	10.0	N.D.
Dieldrin.....	5.0	N.D.
Endosulfan I.....	10.0	N.D.
Endosulfan II.....	5.0	N.D.
Endosulfan sulfate.....	50.0	N.D.
.....	10.0	N.D.
Enferin aldehyde.....	15.0	N.D.
Heptachlor.....	5.0	N.D.
Heptachlor expoxide.....	5.0	N.D.
Methoxychlor.....	150.0	N.D.
Toxaphene.....	175.0	N.D.
PCB-1016.....	50.0	N.D.
PCB-1221.....	50.0	N.D.
PCB-1232.....	50.0	N.D.
PCB-1242.....	50.0	N.D.
PCB-1248.....	50.0	N.D.
PCB-1254.....	50.0	N.D.
PCB-1260.....	50.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Terrasearch, Inc.	Client Project ID: #E5999	Sampled: Jan 11, 1989
1580 North 4th Street	Sample Descript: Soil, 2B	Received: Jan 11, 1989
San Jose, CA 95112	Analysis Method: EPA 8080	Extracted: Jan 18, 1989
Attention: Mark Determan	Lab Number: 901-0979	Analyzed: Jan 23, 1989
		Reported: Feb 3, 1989

ORGANOCHLORINE PESTICIDES AND PCB'S (EPA 8080)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Aldrin.....	5.0	N.D.
alpha-BHC.....	5.0	N.D.
beta-BHC.....	5.0	N.D.
sigma-BHC.....	10.0	N.D.
gamma-BHC (Lindane).....	5.0	N.D.
Chlordane.....	50.0	N.D.
4,4'-DDD.....	10.0	N.D.
4,4'-DDE.....	5.0	N.D.
4,4'-DDT.....	10.0	N.D.
Dieldrin.....	5.0	N.D.
Endosulfan I.....	10.0	N.D.
Endosulfan II.....	5.0	N.D.
Endosulfan sulfate.....	50.0	N.D.
Heptachlor.....	10.0	N.D.
Heptachlor aldehyde.....	15.0	N.D.
Heptachlor.....	5.0	N.D.
Heptachlor epoxide.....	5.0	N.D.
Methoxychlor.....	150.0	N.D.
Toxaphene.....	175.0	N.D.
PCB-1016.....	50.0	N.D.
PCB-1221.....	50.0	N.D.
PCB-1232.....	50.0	N.D.
PCB-1242.....	50.0	N.D.
PCB-1248.....	50.0	N.D.
PCB-1254.....	50.0	N.D.
PCB-1260.....	50.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Laboratory Director



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Terrasearch, Inc.	Client Project ID: #E5999	Sampled: Jan 11, 1989
1580 North 4th Street	Sample Descript: Soil, C-1A	Received: Jan 11, 1989
San Jose, CA 95112	Analysis Method: EPA 8080	Extracted: Jan 18, 1989
Attention: Mark Detterman	Lab Number: 901-0980	Analyzed: Jan 25, 1989
		Reported: Feb 3, 1989

ORGANOCHLORINE PESTICIDES AND PCB'S (EPA 8080)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Aldrin.....	5.0	N.D.
alpha-BHC.....	5.0	N.D.
beta-BHC.....	5.0	N.D.
sigma-BHC.....	10.0	N.D.
gamma-BHC (Lindane).....	5.0	N.D.
Chlordane.....	50.0	N.D.
4,4'-DDD.....	10.0	N.D.
4,4'-DDE.....	5.0	N.D.
4,4'-DDT.....	10.0	N.D.
Diieldrin.....	5.0	5.5
Endosulfan I.....	10.0	N.D.
Endosulfan II.....	5.0	N.D.
Endosulfan sulfate.....	50.0	N.D.
ldrin.....	10.0	N.D.
ldrin aldehyde.....	15.0	N.D.
Heptachlor.....	5.0	N.D.
Heptachlor epoxide.....	5.0	N.D.
Methoxychlor.....	150.0	N.D.
Toxaphene.....	175.0	N.D.
PCB-1016.....	50.0	N.D.
PCB-1221.....	50.0	N.D.
PCB-1232.....	50.0	N.D.
PCB-1242.....	50.0	N.D.
PCB-1248.....	50.0	N.D.
PCB-1254.....	50.0	N.D.
PCB-1260.....	50.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Terrasearch, Inc.
1580 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999
Sample Descript: Soil, C-1B
Analysis Method: EPA 8080
Lab Number: 901-0981

Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 18, 1989
Analyzed: Jan 26, 1989
Reported: Feb 3, 1989

ORGANOCHLORINE PESTICIDES AND PCB'S (EPA 8080)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Aldrin.....	5.0	N.D.
alpha-BHC.....	5.0	N.D.
beta-BHC.....	5.0	N.D.
sigma-BHC.....	10.0	N.D.
gamma-BHC (Lindane).....	5.0	N.D.
Chlordane.....	50.0	N.D.
4,4'-DDD.....	10.0	N.D.
4,4'-DDE.....	5.0	N.D.
4,4'-DDT.....	10.0	N.D.
Dieldrin.....	5.0	N.D.
Endosulfan I.....	10.0	N.D.
Endosulfan II.....	5.0	N.D.
Endosulfan sulfate.....	50.0	N.D.
Endrin.....	10.0	N.D.
Endrin aldehyde.....	15.0	N.D.
Heptachlor.....	5.0	N.D.
Heptachlor expoxide.....	5.0	N.D.
Methoxychlor.....	150.0	N.D.
Toxaphene.....	175.0	N.D.
PCB-1016.....	50.0	N.D.
PCB-1221.....	50.0	N.D.
PCB-1232.....	50.0	N.D.
PCB-1242.....	50.0	N.D.
PCB-1248.....	50.0	N.D.
PCB-1254.....	50.0	N.D.
PCB-1260.....	50.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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680 Chesapeake Drive • Redwood City, CA 94063

(415) 364-9600 • FAX (415) 364-9233

Research, Inc.
680 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999
Sample Descript: Soil, C-2A
Analysis Method: EPA 8080
Lab Number: 901-0982

Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 18, 1989
Analyzed: Jan 26, 1989
Reported: Feb 3, 1989

ORGANOCHLORINE PESTICIDES AND PCB'S (EPA 8080)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Aldrin.....	5.0	N.D.
alpha-BHC.....	5.0	N.D.
beta-BHC.....	5.0	N.D.
sigma-BHC.....	10.0	N.D.
gamma-BHC (Lindane).....	5.0	N.D.
Chlordane.....	50.0	N.D.
4,4'-DDD.....	10.0	N.D.
4,4'-DDE.....	5.0	20
4,4'-DDT.....	10.0	28
Dieldrin.....	5.0	N.D.
Endosulfan I.....	10.0	N.D.
Endosulfan II.....	5.0	N.D.
Endosulfan sulfate.....	50.0	N.D.
Endrin.....	10.0	N.D.
Endrin aldehyde.....	15.0	N.D.
Heptachlor.....	5.0	N.D.
Heptachlor expoxide.....	5.0	N.D.
Methoxychlor.....	150.0	N.D.
Toxaphene.....	175.0	N.D.
PCB-1016.....	50.0	N.D.
PCB-1221.....	50.0	N.D.
PCB-1232.....	50.0	N.D.
PCB-1242.....	50.0	N.D.
PCB-1248.....	50.0	N.D.
PCB-1254.....	50.0	N.D.
PCB-1260.....	50.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Terrasearch, Inc.
1580 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999
Sample Descript: Soil, C-2B
Analysis Method: EPA 8080
Lab Number: 901-0983

Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 18, 1989
Analyzed: Jan 25, 1989
Reported: Feb 3, 1989

ORGANOCHLORINE PESTICIDES AND PCB'S (EPA 8080)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Aldrin.....	5.0	N.D.
alpha-BHC.....	5.0	N.D.
beta-BHC.....	5.0	N.D.
sigma-BHC.....	10.0	N.D.
gamma-BHC (Lindane).....	5.0	N.D.
Chlordane.....	50.0	N.D.
4,4'-DDD.....	10.0	N.D.
4,4'-DDE.....	5.0	N.D.
4,4'-DDT.....	10.0	N.D.
Dieldrin.....	5.0	N.D.
Endosulfan I.....	10.0	N.D.
Endosulfan II.....	5.0	N.D.
Endosulfan sulfate.....	50.0	N.D.
Endrin.....	10.0	N.D.
Endrin aldehyde.....	15.0	N.D.
Heptachlor.....	5.0	N.D.
Heptachlor epoxide.....	5.0	N.D.
Methoxychlor.....	150.0	N.D.
Toxaphene.....	175.0	N.D.
PCB-1016.....	50.0	N.D.
PCB-1221.....	50.0	N.D.
PCB-1232.....	50.0	N.D.
PCB-1242.....	50.0	N.D.
PCB-1248.....	50.0	N.D.
PCB-1254.....	50.0	N.D.
PCB-1260.....	50.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Terrasearch, Inc.
1580 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999
Sample Descript: Soil, 5A
Analysis Method: EPA 8080
Lab Number: 901-0984

Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 18, 1989
Analyzed: Jan 25, 1989
Reported: Feb 3, 1989

ORGANOCHLORINE PESTICIDES AND PCB'S (EPA 8080)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Aldrin.....	5.0	N.D.
alpha-BHC.....	5.0	N.D.
beta-BHC.....	5.0	N.D.
sigma-BHC.....	10.0	N.D.
gamma-BHC (Lindane).....	5.0	N.D.
Chlordane.....	50.0	N.D.
4,4'-DDD.....	10.0	N.D.
4,4'-DDE.....	5.0	N.D.
4,4'-DDT.....	10.0	N.D.
Dieldrin.....	5.0	N.D.
Endosulfan I.....	10.0	N.D.
Endosulfan II.....	5.0	N.D.
Endosulfan sulfate.....	50.0	N.D.
Endrin.....	10.0	N.D.
Endrin aldehyde.....	15.0	N.D.
Heptachlor.....	5.0	N.D.
Heptachlor expoxide.....	5.0	N.D.
Methoxychlor.....	150.0	N.D.
Toxaphene.....	175.0	N.D.
PCB-1016.....	50.0	N.D.
PCB-1221.....	50.0	N.D.
PCB-1232.....	50.0	N.D.
PCB-1242.....	50.0	N.D.
PCB-1248.....	50.0	N.D.
PCB-1254.....	50.0	N.D.
PCB-1260.....	50.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

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Terrasearch, Inc.
1580 North 4th Street
San Jose, CA 95112
Attention: Mark Detterman

Client Project ID: #E5999
Sample Descript: Soil, 5B
Analysis Method: EPA 8080
Lab Number: 901-0985

Sampled: Jan 11, 1989
Received: Jan 11, 1989
Extracted: Jan 18, 1989
Analyzed: Jan 25, 1989
Reported: Feb 3, 1989

ORGANOCHLORINE PESTICIDES AND PCB'S (EPA 8080)

Analyte	Detection Limit ug/kg	Sample Results ug/kg
Aldrin.....	5.0	N.D.
alpha-BHC.....	5.0	N.D.
beta-BHC.....	5.0	N.D.
sigma-BHC.....	10.0	N.D.
gamma-BHC (Lindane).....	5.0	N.D.
Chlordane.....	50.0	N.D.
4,4'-DDD.....	10.0	N.D.
4,4'-DDE.....	5.0	8.8
4,4'-DDT.....	10.0	29
Dieldrin.....	5.0	N.D.
Endosulfan I.....	10.0	N.D.
Endosulfan II.....	5.0	N.D.
Endosulfan sulfate.....	50.0	N.D.
Endrin.....	10.0	N.D.
Endrin aldehyde.....	15.0	N.D.
Heptachlor.....	5.0	N.D.
Heptachlor expoxide.....	5.0	N.D.
Methoxychlor.....	150.0	N.D.
Toxaphene.....	175.0	N.D.
PCB-1016.....	50.0	N.D.
PCB-1221.....	50.0	N.D.
PCB-1232.....	50.0	N.D.
PCB-1242.....	50.0	N.D.
PCB-1248.....	50.0	N.D.
PCB-1254.....	50.0	N.D.
PCB-1260.....	50.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director



INTERNATIONAL
TECHNOLOGY
CORPORATION

FEB 27 1989

Terrasearch, Inc.
1580 North 4th Street
San Jose, CA 95112

February 24, 1989

ATTN: Mark Detterman

Following are the results of analyses on the samples described below.

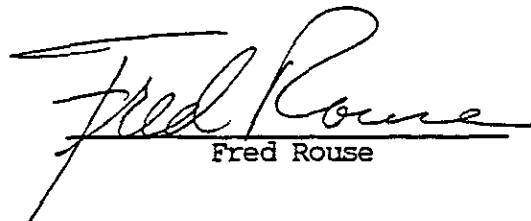
Project: 5999E, Okata Property, Ashland Ave.,
San Leandro
Lab Numbers: S9-01-305-01 thru S9-01-305-06
Sample Type: 5 soil, 2 composited to 1 and
3 individual and 2 waters
Date Received: 1/27/89
Analyses Requested: Low Boiling Hydrocarbons, High Boiling
Hydrocarbons, Lead

The method of analysis for low boiling hydrocarbons is taken from EPA Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photoionization detector. The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethyl benzene and xylenes.

The method of analysis for high boiling hydrocarbons in soil involves extracting the sample with acetone. The mixture is partitioned with hexane and the resulting extract is examined by gas chromatography using a flame ionization detector.

The method of analysis for high boiling hydrocarbons in water is taken from EPA Method 3510. The sample is partitioned with hexane and the resulting extract is examined by gas chromatography using a flame ionization detector.

The samples were analyzed for inorganic parameters following E.P.A. Protocol, using methods from SW 846 3rd Edition or Methods For Chemical Analysis of Water and Wastes 600/4-79-020. The method employed is listed adjacent to the parameter in the table.


Fred Rouse

FR/an

7 Pages Following - Tables of Results

ITAS/San Jose to Terrasearch
ATTN: Mark Detterman

February 24, 1989
Page 1 of 7

Project: 5999E, Okata Property, Ashland Avenue, San Leandro

Lab Numbers: S9-01-305-01A, S9-01-305-01B [composite]

Sample Identification: Gas Tank 7.5-8' [composite]

Results

Total Petroleum Hydrocarbons	Milligrams per Kilogram - dry soil basis		
	Detected	Detection Limit	Calculated as
Low Boiling Hydrocarbons	None	5.	Gasoline
Benzene	None	0.05	—
Toluene	None	0.1	—
Ethyl benzene	None	0.1	—
Xylenes	None	0.3	—

ITAS/San Jose to Terrasearch
 ATTN: Mark Detterman

February 24, 1989
 Page 2 of 7

Project: 5999E, Okata Property, Ashland Avenue, San Leandro

Lab Numbers: S9-01-305-02

Sample Identification: Oil Tank 5.5-6' A

Results

Total Petroleum Hydrocarbons	Milligrams per Kilogram - dry soil basis		
	Detected	Detection Limit	Calculated as
Low Boiling Hydrocarbons	28.	5.	Gasoline
Benzene	None	0.05	--
Toluene	None	0.1	--
Ethyl benzene	0.1	0.1	--
Xylenes	0.4	0.3	--
High Boiling Hydrocarbons	4,100.*	200.	Diesel
Oil and Grease	2,000.	800.	--

*Chromatographic pattern of compounds detected and calculated as diesel is similar to but does not match that of the diesel standard used for calibration.

ITAS/San Jose to Terrasearch
 ATTN: Mark Detterman

February 24, 1989
 Page 3 of 7

Project: 5999E, Okata Property, Ashland Avenue, San Leandro

Lab Numbers: S9-01-305-03

Sample Identification: Oil Tank 5.5-6' B

Results

Total Petroleum Hydrocarbons	Milligrams per Kilogram - dry soil basis		
	Detected	Detection Limit	Calculated as
Low Boiling Hydrocarbons	None	5.	Gasoline
Benzene	None	0.05	—
Toluene	None	0.1	—
Ethyl benzene	None	0.1	—
Xylenes	None	0.3	—
High Boiling Hydrocarbons	220.*	30.	Diesel
Oil and Grease	1,100.	200.	—

*Chromatographic pattern of compounds detected and calculated as diesel is similar to but does not match that of the diesel standard used for calibration.

ITAS/San Jose to Terrasearch
 ATTN: Mark Detterman

February 24, 1989
 Page 4 of 7

Project: 5999E, Okata Property, Ashland Avenue, San Leandro

Lab Numbers: S9-01-305-04

Sample Identification: Oil Tank 5.5-6' c

Results

Total Petroleum Hydrocarbons	Milligrams per Kilogram - dry soil basis		
	Detected	Detection Limit	Calculated as
Low Boiling Hydrocarbons	None	5.	Gasoline
Benzene	None	0.05	--
Toluene	None	0.1	--
Ethyl benzene	None	0.1	--
Xylenes	None	0.3	--
High Boiling Hydrocarbons	10.*	10.	Diesel
Oil and Grease	60.	10.	--

*Chromatographic pattern of compounds detected and calculated as diesel does not match that of the diesel standard used for calibration.

ITAS/San Jose to Terrasearch
 ATIN: Mark Detterman

February 24, 1989
 Page 5 of 7

Project: 5999E, Okata Property, Ashland Avenue, San Leandro

Lab Numbers: S9-01-305-05

Sample Identification: Gas Tank 6.5-7'

Results

Total Petroleum Hydrocarbons	Results - Micrograms per Liter		
	Detected	Detection Limit	Calculated as
Low Boiling Hydrocarbons	740.	50.	Gasoline
Benzene	None	2.	—
Toluene	None	1.	—
Ethyl benzene	2.	1.	—
Xylenes	3.	3.	—

ITAS/San Jose to Terrasearch
 ATTN: Mark Detterman

February 24, 1989
 Page 6 of 7

Project: 5999E, Okata Property, Ashland Avenue, San Leandro

Lab Numbers: S9-01-305-06

Sample Identification: Oil Tank 7.5'

Results

Total Petroleum Hydrocarbons	Results - Micrograms per Liter		
	Detected	Detection Limit	Calculated as
High Boiling Hydrocarbons	60,000.*	6,000.	Diesel
Oil and Grease	44,000.	30,000.	--

*Chromatographic pattern of compounds detected and calculated as diesel is similar to but does not match that of the diesel standard used for calibration.

ITAS/San Jose to Terrasearch, Inc.
ATTN: Mark Detterman

February 24, 1989
Page 7 of 7

Project: 5999E Okata Property, Ashland Avenue, San Leandro

ND = None Detected

Summary of Results - Milligrams per Kilogram

<u>Lab Number</u>	<u>Sample Identification</u>	<u>E.P.A. Method</u>	<u>Lead Detected</u>	<u>Detection Limit</u>
S9-01-305-01	Gas Tank 7.5-8'	7420	20.	3.0
S9-01-305-02	Oil Tank 5.5-6'A	7420	22.	3.0
S9-01-305-03	Oil Tank 5.5-6'B	7420	22.	3.0
S9-01-305-04	Oil Tank 5.5-6'C	7420	13.	3.0
S9-01-305-05	Gas Tank 6.5-7'	7420	ND	0.05
S9-01-305-06	Oil Tank 7.5'	7420	ND	0.05

PROJ. E 5999

PROJECT NAME OKATA PROPERTIES
ASHLAND AVE
SAN LEANDRO

NO OF
CON-
TAINERS

REMARKS

SAMPLERS: Signature

WALID NADUCHI

WALID
NADUCHI

High boiling oil

STA NO	DATE	TIME	COLE.	GRAB	STATION LOCATION
EB1.1 @ 5'	3-30-89	9:15 AM		/	
EB1.2 @ 10'		9:30 AM		/	
EB1.3 @ 15'		9:45 AM		/	
EB2.1 @ 5'		10:20 AM		/	
EB2.2 @ 10'		10:45 AM		/	
EB2.3 @ 15'		11:10 AM		/	
EB3.1 @ 5'		12:10 PM		/	
EB3.2 @ 10'		12:25 PM		/	
EB3.3 @ 15'		12:35 PM		/	
EB3.4 @ 3'		12 NOON		/	

5 Days Turn Around

Relinquished by: Signature
WALID NADUCHI

Date/Time
3-31-89
9 AM

Received by: Signature
Ann E. Dosnaugh

Date/Time
3-31-89
9 AM

Relinquished by: Signature
Ann E. Dosnaugh

Date/Time
3-31-89
10:05

Received by: Signature
[Signature]

Date/Time
3-31-89
10:05

Relinquished by: Signature

Date/Time

Received by: Signature

Date/Time

REMARKS:
*All liners / sleeves
To Be returned to
TERRAsearch*



TERRA SEARCH INC.

1580 NORTH FOURTH STREET, SAN JOSE, CALIFORNIA 95112

(408) 453-1180



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Terrasearch, Inc.
1580 North 4th Street
San Jose, CA 95112
Attention: Walid Naouchi

Client Project ID: E5999, Okata Properties, San Leandro
Matrix Descript: Soil
Analysis Method: EPA 3550/8015
First Sample #: 903-3420

Sampled: Mar 30, 1989
Received: Mar 31, 1989
Analyzed: Apr 6, 1989
Reported: Apr 7, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS (EPA 8015)

Sample Number	Sample Description	High B.P. Hydrocarbons mg/kg (ppm)
903-3420	EB1.1	2.5
903-3421	EB1.2	2.4
903-3422	EB1.3	3.9
903-3423	EB2.1	2.6
903-3424	EB2.2	3.0
903-3425	EB2.3	4.8
903-3426	EB3.1	N.D.
903-3427	EB3.2	3.2
903-3428	EB3.3	3.0
903-3429	EB3.4	3.1

Detection Limits: 1.0

High Boiling Point Hydrocarbons are quantitated against a diesel fuel standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

(408) 297-6969
SAN JOSE OFFICE



TERRATECH

CHAIN OF CUSTODY RECORD

"NORMAL TURNAROUND"

PROJECT NAME: #4486						Number of Containers	Analysis Required TPH-DIESEL (3550) BTEX	REMARKS		
SAMPLERS (signature): B. Kahl										
Station Number	Date 1989	Time	Comp.	Grab	Station Location					
MW-1	3/28	AM		X		1 BRASS LINER		DEPTH 5.5'		
MW-1	3/28	AM		X		1 BRASS LINER		15.5'		
MW-2	3/28	AM		X		1 BRASS LINER		5.5'		
MW-2	3/28	PM		X		1 BRASS LINER		15.5'		
Relinquished by(signature): B. Kahl						Date / Time	Received by (signature): R G (X447)	Relinquished by(signature):	Date / Time	Received by (signature):
Company or Agency: Terratech						3/29/89 0935	Company or Agency: EXPRESSIT	Company or Agency:		Company or Agency:
Relinquished by(signature):						Date / Time	Received by (signature):	Relinquished by:	Date / Time	Received by (signature):
Company or Agency:							Company or Agency:	Company or Agency:		Company or Agency:
Relinquished by(signature):						Date / Time	Received for Laboratory by: (signature)	Date / Time	Remarks/Shipping Information	
Company or Agency: TERRATECH, INC.									Send reports to: Eric Lautenbach 1365 VANDER WAY, SAN JOSE 95112	

TERRATECH

APR - 7 1989

RECEIVED

SUPERIOR ANALYTICAL LABORATORY, INC.

1385 FAIRFAX ST., STE D • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 50736
CLIENT: Terratech, Inc.
CLIENT ID: Four Soil Samples

DATE RECEIVED: 3/29/89
DATE REPORTED: 4/4/89
JOB NO.: 4486

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 8015

LAB#	Client Identification	Concentration (mg/kg)	
		Gasoline Range	Diesel Range
1	MW-1 5.5' 3/28/89 AM	ND <10	ND <10
2	MW-1 15.5' 3/28/89 AM	ND <10	ND <10
3	MW-2 5.5' 3/28/89 AM	ND <10	ND <10
4	MW-2 15.5' 3/28/89 PM	ND <10	ND <10

mg/kg = part per million (ppm)

Minimum Detection Limit for Gasoline and Diesel in Soil: 10mg/kg.

QA/QC SUMMARY:

Daily Standards run at 200 mg/L; RPD Gasoline= 8, Diesel= 7.
MS/MSD: Average Gasoline Recovery = 91%; Duplicate RPD <12.

Les Partridge, Ph.D.


Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.

1385 FAIRFAX ST., STE D • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 50761
CLIENT: Terratech, Inc.
CLIENT ID:

DATE RECEIVED: 4/5/89
DATE REPORTED: 4/6/89
JOB NO.: 4486

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 8015

LAB#	Client Identification	Concentration (mg/kg)	
		Gasoline Range	Diesel Range
1	MW-1 20.5 3/31 AM	ND <10	ND <10
2	MW-1 25.5 3/31 AM	ND <10	ND <10

mg/kg = part per million (ppm)

Minimum Detection Limit for Gasoline and Diesel in Soil: 10mg/kg.

QA/QC SUMMARY:

Daily Standards run at 200 mg/L; RPD Gasoline= 7, Diesel<11.
MS/MSD: Average Gasoline Recovery = 100%; Duplicate RPD <5.

Les Partridge, Ph.D.


Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.

1385 FAIRFAX ST., STE D • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 50736
CLIENT: Terratech, Inc.
JOB NO.: 4486

DATE SAMPLED: 3/28/89
DATE ANALYZED: 4/3/89
DATE REPORTED: 4/4/89

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

Concentration (ug/kg)

LAB#	CLIENT ID	Benzene	Toluene	Ethyl Benzene	Xylenes
1	MW-1 5.5' 3/28 AM	3.6	5.5	4.7	ND <3
2	MW-1 15.5' 3/28 AM	ND <3	280	24	210
3	MW-2 5.5' 3/28 AM	ND <3	3.2	4.0	ND <3
4	MW-2 15.5' 3/28 PM	ND <3	3.1	ND <3	ND <3

ug/kg = part per billion (ppb)

Minimum Detection Limit in Soil: 3ug/kg.

QA/QC SUMMARY:

Daily Standard run at 20 ug/kg: RPD < 15.
MS/MSD: Average Recovery = 71%: Duplicate RPD < 5.
Average Surrogate Recovery = 82%.

Les Partridge, Ph.D.


Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.

1385 FAIRFAX ST., STE D • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 50761
CLIENT: Terratech, Inc.
JOB NO.: 4486

DATE SAMPLED: 3/31/89
DATE ANALYZED: 4/6/89
DATE REPORTED: 4/6/89

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

Concentration (ug/kg)

LAB#	CLIENT ID	Benzene	Toluene	Ethyl Benzene	Xylenes
1	MW-1 20.5' 3/31	ND<0.3	ND<0.3	ND<0.3	ND<0.3
2	MW-1 25.5' 3/31	ND<0.3	ND<0.3	ND<0.3	ND<0.3

ug/kg = part per billion (ppb)

Minimum Detection Limit in Soil: 3ug/kg.

QA/QC SUMMARY:

Daily Standard run at 20 ug/kg: RPD < 15.
MS/MSD: Average Recovery = 108%: Duplicate RPD < 7.
Average Surrogate Recovery = 99%.

Les Partridge, Ph.D.


Laboratory Manager

OUTSTANDING QUALITY AND SERVICE



(408) 297-6969
SAN JOSE OFFICE

TERRATECH

P.O. # 7931

SHEET 1 OF 1

CHAIN OF CUSTODY RECORD

"ONE-WEEK TURNAROUND"

PROJECT NAME: # 4486/1						Number of Containers	Analysts Required TPH as Gasoline TPH as Diesel BTEX	REMARKS	
SAMPLERS (signature): B. Kahl									
Station Number	Date 1989	Time	Comp.	Grab	Station Location				
MW-3	8/17	AM		X		1 Brass Liner ↓		DEPTH	
MW-3	8/17	AM		X					5.5-6'
MW-3	8/17	AM		X					10.5-11'
								15.5-16'	
Relinquished by (signature): B. Kahl Company or Agency: Terratech		Date / Time 8/17/89 15:10		Received by (signature): Company or Agency:		Relinquished by (signature): Company or Agency:		Received by (signature): Company or Agency:	
Relinquished by (signature): Company or Agency:		Date / Time		Received by (signature): Company or Agency:		Relinquished by: Company or Agency:		Date / Time Received by (signature): Company or Agency:	
Relinquished by (signature): Company or Agency: TERRATECH, INC.		Date / Time		Received for Laboratory by: (signature) Date / Time 8-17-89		Remarks/Shipping Information Send reports to: Eric Lautenbach 1365 VANDER WAY, SAN JOSE 95112			

ANAMETRIX INC

Environmental & Analytical Chemistry
4961 Concourse Drive, Suite E, San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198



REPORT

TERRATECH
AUG 23 1989
RECEIVED

Eric Lautenbach
Terratech, Inc.
1365 Vander Way
San Jose, CA 95112

August 23, 1989
Anamatrix W.O.#: 8908145
Date Received : 08/17/89
Purchase Order#: 7931
Project Number : 4486/1

Dear Mr. Lautenbach:

Your samples have been received for analysis. The REPORT SUMMARY lists your sample identifications and the analytical methods you requested. The following sections are included in this report: RESULTS.

NOTE: Amounts reported are net values, i.e. corrected for method blank contamination.

If there is any more that we can do, please give us a call. Thank you for using ANAMETRIX, INC.

Sincerely,

ANAMETRIX, INC.

Terry Cooke
TPH Supervisor

TC/dag

REPORT SUMMARY
ANAMETRIX, INC. (408) 432-8192

Client : Terratech, Inc.
Address : 1365 Vander Way
City : San Jose, CA 95112
Attn. : Eric Lautenbach

Anamatrix W.O.#: 8908145
Date Received : 08/17/89
Purchase Order#: 7931
Project No. : 4486/1
Date Released : 08/23/89

Anamatrix I.D.	Sample I.D.	Matrix	Date Sampled	Method	Date Extract	Date Analyzed	Inst I.D.
RESULTS							
8908145-01	MW-3 5.5-6'	SOIL	08/17/89	TPH	08/18/89	08/22/89	N/A
8908145-02	MW-3 10.5-11'	SOIL	08/17/89	TPH	08/18/89	08/22/89	N/A
8908145-03	MW-3 15.5-16'	SOIL	08/17/89	TPH	08/18/89	08/22/89	N/A

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 4486/1 MW-3 5.5-6'
Matrix : SOIL
Date sampled : 08/17/89
Date anl.TPHg: 08/22/89
Date ext.TPHd: 08/18/89
Date anl.TPHd: 08/22/89

Anamatrix I.D. : 8908145-01
Analyst : *CB*
Supervisor : *TC*
Date released : 08/23/89
Date ext. TOG : N/A
Date anl. TOG : N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	5	ND
108-88-3	Toluene	5	ND
100-41-4	Ethylbenzene	5	ND
1330-20-7	Total Xylenes	5	ND
	TPH as Gasoline	1000	ND
	TPH as Diesel	10000	30000

- ND - Not detected at or above the practical quantitation limit for the method.
- TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
- TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following either EPA Method 3510 or 3550.
- TEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 4486/1 MW-3 10.5-11'
Matrix : SOIL
Date sampled : 08/17/89
Date anl.TPHg: 08/22/89
Date ext.TPHd: 08/18/89
Date anl.TPHd: 08/22/89

Anamatrix I.D. : 8908145-02
Analyst : CZ
Supervisor : TC
Date released : 08/23/89
Date ext. TOG : N/A
Date anl. TOG : N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	5	ND
108-88-3	Toluene	5	ND
100-41-4	Ethylbenzene	5	ND
1330-20-7	Total Xylenes	5	ND
	TPH as Gasoline	1000	ND
	TPH as Diesel	10000	ND

- ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following either EPA Method 3510 or 3550.
EX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 4486/1 MW-3 15.5-16'
 Matrix : SOIL
 Date sampled : 08/17/89
 Date anl.TPHg: 08/22/89
 Date ext.TPHd: 08/18/89
 Date anl.TPHd: 08/22/89

Anamatrix I.D. : 8908145-03
 Analyst : *CS*
 Supervisor : *72*
 Date released : 08/23/89
 Date ext. TOG : N/A
 Date anl. TOG : N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	5	ND
108-88-3	Toluene	5	ND
100-41-4	Ethylbenzene	5	ND
1330-20-7	Total Xylenes	5	ND
	TPH as Gasoline	1000	ND
	TPH as Diesel	10000	ND

- ND - Not detected at or above the practical quantitation limit for the method.
- TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
- TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following either EPA Method 3510 or 3550.
- TEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

CHROMALAB, INC.

Environmental Laboratory (1094)

5 DAYS TURNAROUND

September 5, 1990

ChromaLab File No.: 0890251
REVISION April 21, 1993

ENVIRONMENTAL EXPERTS, INC.

Attn: Rasmi El-Jurf

RE: Six soil samples for BTEX, Diesel and Oil & Grease analyses

Project Name: CITATION

Date Sampled: Aug. 29, 1990

Date Submitted: Aug. 29, 1990


Date Extracted: 8/31-9/4/90

Date Analyzed: 3/31-9/4/90

RESULTS:

Sample I.D.	Diesel (mg/Kg)	Benzene (µg/Kg)	Toluene (µg/Kg)	Ethyl Benzene (µg/Kg)	Total Xylenes (µg/Kg)	Oil & Grease (mg/Kg)
S-1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
S-2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
S-3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
S-4	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
S-5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
S-6	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BLANK	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
SPIKE RECOVERY	98.9%	86.1%	92.5%	94.4%	93.5%	----
DUP SPIKE RECOVERY	94.4%	92.5%	107.9%	102.5%	89.1%	----
DETECTION LIMIT	5.0	5.0	5.0	5.0	5.0	50.0
METHOD OF ANALYSIS	3550/8015	8020	8020	8020	8020	503 D&E

ChromaLab, Inc.


David Duong
Senior Chemist


Eric Tam
Laboratory Director

APPENDIX B
CHAIN OF CUSTODY
AND
LABORATORY REPORTS FOR WATER SAMPLES

PROJ.
E 5999

PROJECT NAME ASHLAND AVE
SAN LEANDRO

NO
OF
CON-
TAINERS

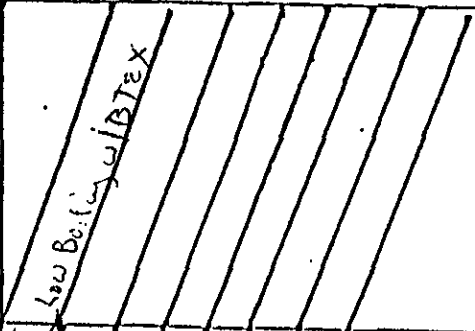
REMARKS

SAMPLERS: Signature

W. Fabrici

STA NO DATE TIME COMP. CRG. STATION LOCATION

EGW3 3-27-89 12:19 / Groundwater Gasoline Tank 1 40 ML



Relinquished by: Signature
W. Fabrici

Date/Time
3-27-89
12:19

Received by: Signature
Mark E. Dettman

Date/Time
3/27/89
12:20 PM

Relinquished by: Signature
Mark E. Dettman

Date/Time
3/28/89
8:30 AM

Received by: Signature
Ann E. Osraugh

Date/Time
3/28/89
8:30 AM

Relinquished by: Signature
Ann E. Osraugh

Date/Time
3/28/89
10:20

Received by: Signature
Don W. ...

Date/Time
3/28/89
10:20

REMARKS:



TERRA SEARCH INC.

1580 NORTH FOURTH STREET, SAN JOSE, CALIFORNIA 95112

13



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Terrasearch, Inc.
1580 North 4th Street
San Jose, CA 95112
Attention: Walid Naouchi

Client Project ID: E5999, Okata Properties, San Leandro
Sample Descript.: Water, EGW3
Analysis Method: EPA 5030/ 8015/8020
Lab Number: 903-2926

Sampled: Mar 27, 1989
Received: Mar 28, 1989
Analyzed: Apr 5, 1989
Reported: Apr 7, 1989

TOTAL PETROLEUM FUEL HYDROCARBONS WITH BTEX DISTINCTION (EPA 8015/8020)

Analyte	Detection Limit µg/L (ppb)	Sample Results µg/L (ppb)
Low to Medium Boiling Point Hydrocarbons.....	50.0	N.D.
Benzene.....	0.5	N.D.
Toluene.....	0.5	N.D.
Ethyl Benzene.....	0.5	N.D.
Xylenes.....	0.5	N.D.

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Arthur G. Burton
Laboratory Director

(408) 297-6969
SAN JOSE OFFICE



TERRATECH

CHAIN OF CUSTODY RECORD

PROJECT NAME: 4486						Number of Containers	Analysis Required TPH-D (3550) BTEX	REMARKS												
SAMPLERS (signature):																				
Station Number	Date 1989	Time	Comp.	Grab	Station Location													DEPTH		
MW-1	3/31	AM		X		2 VOLS	X	X												
MW-2	3/31	AM		X		2 VOLS	X	X												
Relinquished by(signature):		Date / Time		Received by (signature):		Relinquished by(signature):		Date / Time		Received by (signature):										
Company or Agency:				Company or Agency:		Company or Agency:				Company or Agency:										
Relinquished by(signature):		Date / Time		Received by (signature):		Relinquished by:		Date / Time		Received by (signature):										
Company or Agency:				Company or Agency:		Company or Agency:				Company or Agency:										
Relinquished by(signature):		Date / Time		Received for Laboratory by:		Date / Time		Remarks/Shipping Information												
Company or Agency: TERRATECH, INC.		3/31/89 1:25pm		(signature) <i>[Signature]</i>				Send reports to: Eric Lautenbach 1365 VANDER WAY, SAN JOSE 95112												

SUPERIOR ANALYTICAL LABORATORY, INC.

1385 FAIRFAX ST., STE D • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 50751
CLIENT: Terratech, Inc.
CLIENT JOB NO.: 4-486

DATE RECEIVED: 03/31/89
DATE REPORTED: 04/04/89

ANALYSIS FOR TOTAL PERTROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 8015

LAB #	Sample Identification	Concentration (mg/L)	
		Gasoline Range	Diesel Range
1	MW-1; 3/31/89; AM	ND<1	ND<1
2	MW-2; 3/31/89; AM	ND<1	ND<1


mg/L - parts per million (ppm)

Minimum Detection Limit for Gasoline and Diesel in Water: 1mg/L

QAQC Summary:

Daily Standard run at 200mg/L: RPD Gasoline = <1
RPD Diesel = <9
MS/MSD Average Recovery = 91%: Duplicate RPD = 12

Les Partridge, Ph.D.



Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.

1385 FAIRFAX ST., STE D • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 50751
CLIENT: Terratech, Inc.
JOB NO.: 4-486

DATE SAMPLED: 3/31/89
DATE ANALYZED: 3/31/89
DATE REPORTED: 4/3/89

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

LAB#	CLIENT ID	Concentration (ug/L)			
		Benzene	Toluene	Ethyl Benzene	Xylenes
1	MW-1 3/31/89 AM	0.4	1.8	ND<0.3	ND<0.3
2	MW-2 3/31/89 AM	0.4	1.8	0.4	1.8

ug/L = part per billion (ppb)

Minimum Detection Limit in Water: 0.3 ug/L.

QA/QC SUMMARY:

Daily Standard run at 20 ug/L: RPD < 15.
MS/MSD: Average Recovery = 71%; Duplicate RPD < 5.
Average Surrogate Recovery = 87%.

Les Partridge, Ph.D.


Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

ANAMETRIX INC

Environmental & Analytical Chemistry
1961 Concourse Drive, Suite E, San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198



REPORT

TERRATECH
AUG 31 1989
RECEIVED

Eric Lautenbach
Terratech, Inc.
1365 Vander Way
San Jose, CA 95112

August 29, 1989
Anamatrix W.O.#: 8908178
Date Received : 08/22/89
Purchase Order#: 7934

Dear Mr. Lautenbach:

Your sample has been received for analysis. The REPORT SUMMARY lists your sample identifications and the analytical methods you requested. The following sections are included in this report: RESULTS.

NOTE: Amounts reported are net values, i.e. corrected for method blank contamination.

If there is any more that we can do, please give us a call. Thank you for using ANAMETRIX, INC.

Sincerely,

ANAMETRIX, INC.

Terry Cooke
TPH Supervisor

TC/dm

REPORT SUMMARY
ANAMETRIX, INC. (408) 432-8192

Client : Terratech, Inc.
Address : 1365 Vander Way
City : San Jose, CA 95112
Attn. : Eric Lautenbach

Anamatrix W.O.#: 8908178
Date Received : 08/22/89
Purchase Order#: 7934
Project No. : 4486/1
Date Released : 08/29/89

Anamatrix I.D.	Sample I.D.	Matrix	Date Sampled	Method	Date Extract	Date Analyzed	Inst I.D.
RESULTS							
8908178-01	MW-3	WATER	08/21/89	TPH		08/25/89	N/A

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 4386/1 MW-3
 Matrix : WATER
 Date sampled : 08/21/89
 Date anl.TPHg: 08/25/89
 Date ext.TPHd: 08/23/89
 Date anl.TPHd: 08/24/89

Anamatrix I.D. : 8908178-01
 Analyst : CB
 Supervisor : TC
 Date released : 08/29/89
 Date ext. TOG : N/A
 Date anl. TOG : N/A

CAS #	Compound Name	Reporting Limit (ug/l)	Amount Found (ug/l)
71-43-2	Benzene	0.5	ND
108-88-3	Toluene	0.5	ND
100-41-4	Ethylbenzene	0.5	ND
1330-20-7	Total Xylenes	1	ND
	TPH as Gasoline	50	ND
	TPH as Diesel	50	ND

- ND - Below reporting limit.
- TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
- TPHd - Total Petroleum Hydrocarbons and diesel is determined by GCFID using either EPA Method 3510 or 3550.
- BTTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.



TERRATECH

CHAIN OF CUSTODY RECORD

Amended 8/11/09

P.O. NO. 5685

TURNAROUND: 3 weeks

PROJECT NUMBER: AA86/1					Number of Containers	Analysis Required					REMARKS	SAMPLE DEPTH
SAMPLERS (signature): <i>[Signature]</i>						TPH as Gasoline	BTEX	TPH as Diesel				
Station Number	Date	Time	Comp.	Grab	Station Location							
MW-1	11-20-89			X		2-11cc Ombars		X				
						2-40ml Vials	X	X				
MW-2				X		2-11cc Ombars		X				
						2-40ml Vials	X	X				
MW-3				X		2-11cc Ombars		X				
				X		2-40ml Vials	X	X				
Relinquished by(signature): <i>[Signature]</i>		Date / Time		Received by (signature):		Relinquished by(signature):		Date / Time		Received by (signature):		
Company or Agency: TERRATECH, INC.		11-20-89 2:15pm.		Company or Agency:		Company or Agency:				Company or Agency:		
Relinquished by(signature):		Date / Time		Received by (signature):		Relinquished by:		Date / Time		Received by (signature):		
Company or Agency:				Company or Agency:		Company or Agency:				Company or Agency:		
Relinquished by(signature):		Date / Time		Received for Laboratory by: (signature)		Date / Time		Remarks/Shipping Information				
Company or Agency: TERRATECH, INC.				<i>[Signature]</i>		11/20/89 14:26		Send reports to: Eric Lautenbach 1365 VANDER WAY, SAN JOSE 95112				

TERRATECH

DEC 05 1989

RECEIVED



REPORT

ANAMETRIX INC

Environmental & Analytical Chemistry
1964 Concourse Drive Suite B San Jose, CA 95128
(408) 432-8192 • Fax (408) 432-8198

Eric Lautenbach
Terratech, Inc.
1365 Vander Way
San Jose, CA 95112

November 30, 1989
Anamatrix W.O.#: 8911157
Date Received : 11/20/89
Purchase Order#: 5685
Project No. : 4486/1

Dear Mr. Lautenbach:

Your samples have been received for analysis. The REPORT SUMMARY shows which of the following reports have been included: RESULTS and QUALITY ASSURANCE.

NOTE: Amounts reported are net values, i.e. corrected for method blank contamination.

If there is any more that we can do, please give us a call. Thank you for using ANAMETRIX, INC.

Sincerely,

Terry Cooke
TPH Supervisor

TC/lm

REPORT SUMMARY
ANAMETRIX, INC. (408) 432-8192

Client : Terratech, Inc.
Address : 1365 Vander Way
City : San Jose, CA 95112
Attn. : Eric Lautenbach

Anamatrix W.O.#: 8911157
Date Received : 11/20/89
Purchase Order#: 5685
Project No. : 4486/1
Date Released : 11/30/89

Anamatrix I.D.	Sample I.D.	Matrix	Date Sampled	Method	Date Extract	Date Analyzed	Inst I.D.
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RESULTS

8911157-01	MW-1	WATER	11/20/89	TPH	11/28/89	11/29/89	N/A
8911157-02	MW-2	WATER	11/20/89	TPH	11/28/89	11/29/89	N/A
8911157-03	MW-3	WATER	11/20/89	TPH	11/28/89	11/29/89	N/A

QUALITY ASSURANCE (QA)

8911157-02	MW-2	WATER	11/20/89	TPH	11/28/89	11/29/89	N/A
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ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 4486/1 MW-1
 Matrix : WATER
 Date sampled : 11/20/89
 Date anl.TPHg: 11/21/89
 Date ext.TPHd: 11/28/89
 Date anl.TPHd: 11/29/89

Anametrix I.D. : 8911157-01
 Analyst : ml
 Supervisor : TC
 Date released : 11/30/89
 Date ext. TOG : N/A
 Date anl. TOG : N/A

CAS #	Compound Name	Detection Limit (ug/l)	Amount Found (ug/l)
71-43-2	Benzene	0.5	ND
108-88-3	Toluene	0.5	ND
100-41-4	Ethylbenzene	0.5	ND
1330-20-7	Total Xylenes	1	ND
	TPH as Gasoline	50	ND
	TPH as Diesel	50	ND

- ND - Not detected at or above the practical quantitation limit for the method.
- TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
- TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following either EPA Method 3510 or 3550.
- BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 4486/1 MW-2
 Matrix : WATER
 Date sampled : 11/20/89
 Date anl.TPHg: 11/21/89
 Date ext.TPHd: 11/28/89
 Date anl.TPHd: 11/29/89

Anamatrix I.D. : 8911157-02
 Analyst : *mi*
 Supervisor : *7C*
 Date released : 11/30/89
 Date ext. TOG : N/A
 Date anl. TOG : N/A

CAS #	Compound Name	Detection Limit (ug/l)	Amount Found (ug/l)
71-43-2	Benzene	0.5	ND
108-88-3	Toluene	0.5	ND
100-41-4	Ethylbenzene	0.5	ND
1330-20-7	Total Xylenes	1	ND
	TPH as Gasoline	50	ND
	TPH as Diesel	50	ND

ND - Not detected at or above the practical quantitation limit for the method.

TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.

TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following either EPA Method 3510 or 3550.

BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 4486/1 MW-3
 Matrix : WATER
 Date sampled : 11/20/89
 Date anl.TPHg: 11/21/89
 Date ext.TPHd: 11/28/89
 Date anl.TPHd: 11/29/89

Anamatrix I.D. : 8911157-03
 Analyst : *ml*
 Supervisor : *TC*
 Date released : 11/30/89
 Date ext. TOG : N/A
 Date anl. TOG : N/A

CAS #	Compound Name	Detection Limit (ug/l)	Amount Found (ug/l)
71-43-2	Benzene	0.5	ND
108-88-3	Toluene	0.5	ND
100-41-4	Ethylbenzene	0.5	ND
1330-20-7	Total Xylenes	1	ND
	TPH as Gasoline	50	ND
	TPH as Diesel	50	80

ND - Not detected at or above the practical quantitation limit for the method.

TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.

TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following either EPA Method 3510 or 3550.

BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

TOTAL EXTRACTABLE HYDROCARBON MATRIX SPIKE REPORT
 EPA METHOD 3510 WITH GC/FID
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 4486/1 MW-2
 Matrix : WATER
 Date sampled : 11/20/89
 Date extracted: 11/28/89
 Date analyzed : 11/29/89

Anamatrix I.D. : 8911157-02
 Analyst : *ml*
 Supervisor : *TC*
 Date Released : 11/30/89

COMPOUND	SPIKE AMT. (UG/L)	MS (UG/L)	%REC MS	MSD (UG/L)	%REC MSD	RPD	%REC LIMITS
Diesel	500	280	56%				32-93

* Limits established by Anamatrix, Inc.



TERRATECH

CHAIN OF CUSTODY RECORD

P.O. NO. 3698

TURNAROUND: 2-week

PROJECT NUMBER: A1810/1						Number of Containers	Analysis Required				REMARKS	SAMPLE DEPTH
SAMPLERS (signature): <i>[Signature]</i> <i>(Steph Christley)</i>							TPH as Gasoline	BTEX	TPH as Diesel			
Station Number	Date	Time	Comp.	Grab	Station Location							
MW-1	2-22-90	AM		X		2-LITER Ambers						~8'
				X		2-40ML VOA'S	X	X				
MW-2	"	AM		X		2-LITER Amber's						~7'
				X		2-40ML VOA'S	X	X				
MW-3	"	AM		X		2-LITER Amber's						~8'
				X		2-40ML VOA'S	X	X				

Relinquished by(signature): <i>[Signature]</i> Company or Agency: TERRATECH, INC.	Date / Time 2-22-90 12:45	Received by (signature): <i>[Signature]</i> Company or Agency: TERRATECH, INC.	Relinquished by(signature):	Date / Time	Received by (signature):
Relinquished by(signature):	Date / Time	Received by (signature):	Relinquished by:	Date / Time	Received by (signature):
Relinquished by(signature): <i>[Signature]</i> Company or Agency: TERRATECH, INC.	Date / Time 2/22/90 15:47	Received for Laboratory by: (signature) <i>[Signature]</i>	Date / Time 2/22/90 15:47	Remarks/Shipping Information Send reports to: Eric Lautenbach 1365 VANDER WAY, SAN JOSE 95112	

TERRATECH

MAR 09 1990

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REPORT

ANAMATRIX INC

Environmental & Analytical Chemistry
1961 Concourse Drive Suite E San Jose CA 95131
(408) 432-8192 • Fax (408) 432-8198

Eric Lautenbach
Terratech, Inc. - San Jose
1365 Vander Way
San Jose, CA 95112

March 08, 1990
Anamatrix W.O.#: 9002232
Date Received : 02/22/90
Purchase Order#: 3698
Project Number : 4486/1

Dear Mr. Lautenbach:

Your samples have been received for analysis. The REPORT SUMMARY lists your sample identifications and the analytical methods you requested. The following sections are included in this report: RESULTS.

NOTE: Amounts reported are net values, i.e. corrected for method blank contamination.

If there is any more that we can do, please give us a call. Thank you for using ANAMATRIX, INC.

Sincerely,

ANAMATRIX, INC.

A handwritten signature in cursive script, appearing to read "Terry Cooke".

Terry Cooke
TPH Supervisor

TC/dag

REPORT SUMMARY
ANAMETRIX, INC. (408) 432-8192

Client : Terratech, Inc. - San Jose
 Address : 1365 Vander Way
 City : San Jose, CA 95112
 Attn. : Eric Lautenbach

Anamatrix W.O.#: 9002232
 Date Received : 02/22/90
 Purchase Order#: 3698
 Project No. : 4486/1
 Date Released : 03/08/90

Anamatrix I.D.	Sample I.D.	Matrix	Date Sampled	Method	Date Extract	Date Analyzed	Inst I.D.
----------------	-------------	--------	--------------	--------	--------------	---------------	-----------

RESULTS

9002232-01	MW-1		WATER	02/22/90	TPH	02/27/90	02/28/90	N/A
9002232-02	MW-2		WATER	02/22/90	TPH	02/27/90	02/28/90	N/A
9002232-03	MW-3		WATER	02/22/90	TPH	02/27/90	02/28/90	N/A

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 4486/1 MW-1
 Matrix : WATER
 Date sampled : 02/22/90
 Date anl.TPHg: 02/26/90
 Date ext.TPHd: 02/27/90
 Date anl.TPHd: 02/28/90

Anamatrix I.D. : 9002232-01
 Analyst : CB
 Supervisor : TC
 Date released : 03/08/90
 Date ext. TOG : N/A
 Date anl. TOG : N/A

CAS #	Compound Name	Reporting Limit (ug/l)	Amount Found (ug/l)
71-43-2	Benzene	0.5	ND
108-88-3	Toluene	0.5	ND
100-41-4	Ethylbenzene	0.5	ND
1330-20-7	Total Xylenes	1	ND
	TPH as Gasoline	50	ND
	TPH as Diesel	50	ND

- ND - Below reporting limit.
 TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
 TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following either EPA Method 3510 or 3550.
 PTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 4486/1 MW-2
 Matrix : WATER
 Date sampled : 02/22/90
 Date anl.TPHg: 02/26/90
 Date ext.TPHd: 02/27/90
 Date anl.TPHd: 02/28/90

Anamatrix I.D. : 9002232-02
 Analyst : *CP*
 Supervisor : *TC*
 Date released : 03/08/90
 Date ext. TOG : N/A
 Date anl. TOG : N/A

CAS #	Compound Name	Reporting Limit (ug/l)	Amount Found (ug/l)
71-43-2	Benzene	0.5	ND
108-88-3	Toluene	0.5	ND
100-41-4	Ethylbenzene	0.5	ND
1330-20-7	Total Xylenes	1	ND
	TPH as Gasoline	50	ND
	TPH as Diesel	50	ND

ND - Below reporting limit.

TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.

TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following either EPA Method 3510 or 3550.

BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 4486/1 MW-3
 Matrix : WATER
 Date sampled : 02/22/90
 Date anl.TPHg: 02/26/90
 Date ext.TPHd: 02/27/90
 Date anl.TPHd: 02/28/90

Anamatrix I.D. : 9002232-03
 Analyst : CB
 Supervisor : TC
 Date released : 03/08/90
 Date ext. TOG : N/A
 Date anl. TOG : N/A

CAS #	Compound Name	Reporting Limit (ug/l)	Amount Found (ug/l)
71-43-2	Benzene	0.5	ND
108-88-3	Toluene	0.5	ND
100-41-4	Ethylbenzene	0.5	ND
1330-20-7	Total Xylenes	1	ND
	TPH as Gasoline	50	280
	TPH as Diesel	50	1100

ND - Below reporting limit.

TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.

TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following either EPA Method 3510 or 3550.

PTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

NSI Technology Services Corporation

CHROMALAB FILE # 790045

A Subsidiary of
ManTech International Corporation
 Commercial Environmental Services
 155A Moffett Park Drive, Suite 220
 Sunnyvale, CA 94089
 Telephone (408) 745-6345
 Facsimile (408) 747-1918

SAMPLE CHAIN OF CUSTODY

Survey #: _____
 Collector: RASMI Date Sampled: 7/9/90 Time: AM
 Sampling Location: _____
 Project Name: Citation Homes Project Number: _____
 Container Used: 10A + AMBER BOTTLES
 Laboratory: CHROMA LAB

Sample ID	Type	Location	Analysis Requested
MW-1	water	MW-1	TPH-G + BTEX + TPH-D
MW-2	"	MW-2	"
MW-3	"	MW-3	"

Remarks: _____

Results Required By: NORMAL TURNAROUND

Travel Blank: YES NO
 Duplicate Samples: YES NO
 Field Blank: YES NO
 Background Sample: YES NO

RELEASED BY: RASMI TIME: 3:30 PM DATE: 7/9/90
 RECEIVED BY: [Signature] TIME: 3:30 pm DATE: 7/9/90
 RELEASED BY: _____ TIME: _____ DATE: _____
 RECEIVED BY: _____ TIME: _____ DATE: _____
 RELEASED BY: _____ TIME: _____ DATE: _____
 RECEIVED BY: _____ TIME: _____ DATE: _____

Send Results and Invoice To: NSI Technology Services Corporation
 155A Moffett Park Drive
 Suite 220
 Sunnyvale, CA 94089
 Attn: _____

CHROMALAB, INC.

Analytical Laboratory
Specializing in GC-GC/MS

- Environmental Analysis
- Hazardous Waste (#E694)
- Drinking Water (#955)
- Waste Water
- Consultation

July 16, 1990

ChromaLab File No.: 0790045

NSI TECHNOLOGY SERVICES CORPORATION

Attn: Rasmi

RE: Three water samples for Gasoline/BTEX and Diesel analyses

Project Name: CITATION HOMES

Date Sampled: July 9, 1990

Date Submitted: July 9, 1990


Date Extracted: July 11-14, 1990

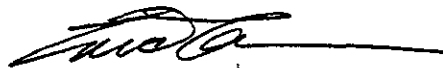
Date Analyzed: July 11-14, 1990

RESULTS:

Sample No.	Gasoline (mg/L)	Diesel (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl Benzene (µg/L)	Total Xylenes (µg/L)
MW-1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
MW-2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
MW-3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
BLANK SPIKE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
RECOVERY	97.1%	102.4%	91.6%	102.3%	111.0%	106.7%
DUP SPIKE						
RECOVERY	101.7%	86.0%	83.2%	86.5%	103.2%	93.1%
DETECTION LIMIT	0.5	0.5	0.5	0.5	0.5	0.5
METHOD OF ANALYSIS	5030/ 8015	3550/ 8015	602	602	602	602

ChromaLab, Inc.


David Duong
Senior Chemist


Eric Tam
Laboratory Director

2456

{0805CoC.WK1} CLARK & WITHAM, INC. CHAIN OF CUSTODY

Project No. CH0002-A Project Name/Site Citations Homes Okata Property, Sam Lorenzo ANALYSES REQUESTED Turn Around Time: Normal

Sampler (Print) Rodger C. Witham (Signature) Rodger C. Witham O&G (5520EF) BTEX (EPA602) TPHd TPHg P.O. # CH0002-A.1A

Table with columns: Sample Id., Date, Time, Compst., Grab, Iced, Num. Cont., and Comments. Contains handwritten entries for samples W-9-MW2 and W-9-MW3, and a note about walk-in water.

Relinquished By: Rodger C. Witham Date: 9/2/92 Time: 3:25p Received By: Call Results To: (510) 659-1805 Send Results To: Clark & Witham, Inc. 3499 Edison Way Fremont, CA 94538 FAX: (510) 659-6344



September 22, 1992

Mr. Rodger Witham
Clark and Witham, Inc.
3499 Edison Way
Fremont, California 94538

Dear Mr. Witham:

Trace Analysis Laboratory received two water samples on September 2, 1992 for your Project No. CH0002-A, Citation Homes, Okata Property, San Lorenzo (our custody log number 2456).

These samples were analyzed for Total Petroleum Hydrocarbons as Diesel and Gasoline, Benzene, Toluene, Ethylbenzene and Xylenes. Our analytical report and a copy of the completed chain of custody form are enclosed for your review.

Trace Analysis Laboratory is certified under the California Environmental Laboratory Accreditation Program. Our certification number is 1199.

If you should have any questions or require additional information, please call me.

Sincerely yours,

A handwritten signature in cursive script, appearing to read 'Jennifer Pekol', written in black ink.

Jennifer Pekol
Project Specialist

Enclosures

Trace Analysis Laboratory, Inc.

3423 Investment Boulevard, #8 • Hayward, California 94545

Telephone (510) 783-6960

Facsimile (510) 783-1512



LOG NUMBER: 2456
DATE SAMPLED: 09/02/92
DATE RECEIVED: 09/02/92
DATE EXTRACTED: 09/11/92
DATE ANALYZED: 09/17/92
DATE REPORTED: 09/22/92

CUSTOMER: Clark and Witham, Inc.
REQUESTER: Rodger Witham
PROJECT: No. CH0002-A, Citation Homes, Okata Property, San Lorenzo

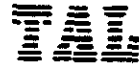
Sample Type: Water

Method and Constituent:	Units	W-9-MW2		W-9-MW3		Method Blank	
		Concen- tration	Reporting Limit	Concen- tration	Reporting Limit	Concen- tration	Reporting Limit
DHS Method: Total Petroleum Hydro- carbons as Diesel	ug/l	97	50	ND	50	ND	50

QC Summary:

% Recovery: 96
% RPD: 15

Concentrations reported as ND were not detected at or above the reporting limit.



LOG NUMBER: 2456
DATE SAMPLED: 09/02/92
DATE RECEIVED: 09/02/92
DATE ANALYZED: 09/11/92
DATE REPORTED: 09/22/92
PAGE: Two


Sample Type: Water

Method and Constituent:	Units	W-9-MW2		W-9-MW3		Method Blank	
		Concentration	Reporting Limit	Concentration	Reporting Limit	Concentration	Reporting Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/l	ND	50	ND	50	ND	50
EPA Method 8020 for:							
Benzene	ug/l	ND	0.50	ND	0.50	ND	0.50
Toluene	ug/l	16	0.55	ND	0.50	ND	0.50
Ethylbenzene	ug/l	ND	0.68	ND	0.50	ND	0.50
Xylenes	ug/l	ND	1.8	ND	1.5	ND	1.5

QC Summary:

% Recovery: 111
% RPD: 7.9

Concentrations reported as ND were not detected at or above the reporting limit.


Louis W. DuPuis
Quality Assurance/Quality Control Manager