REPORT

[redacted] LIMITED PHASE II

SITE ASSESSMENT

4800 COLISEUM WAY

OAKLAND,

CALIFORNIA

Prepared for:
Mr. John E. Miller
250 Cambridge Avenue, Suite 102
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March 24, 1993

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Woodward-Clyde Consultants

Engineering & sciences applied to the earth & its environment

March 24, 1993

Project 92C-0480-R

Mr. John E. Miller
250 Cambridge Avenue, Suite 102
Palo Alto, CA 94306-1504

Subject: Report
Limited Phase II Site Assessment
4800 Coliseum Way, Oakland California

Dear Mr. Miller:

In accordance with our Contract for Services, 92C-0480-R, as revised January 7, 1993, Woodward-Clyde Consultants is pleased to present this report of our Phase II Limited Site Assessment on your property located at 4800 Coliseum Way (the subject site).

This report summarizes the project background and describes the field methodology, the laboratory analysis procedures, and our findings and conclusions following a limited subsurface environmental investigation at the subject site.

Five copies of this report are being delivered to you today. Please do not hesitate to call us with your comments or questions.

Sincerely,

Charles D. Conway

Charles D. Conway, R.G. 4530
Project Manager

Alan V. Lattanner

Alan V. Lattanner, R.G. 4599
Senior Consultant

CDC:nl

attachments

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1.0
INTRODUCTION

1.1 PROJECT BACKGROUND

The subject property at 4800 Coliseum Way is about 1 acre in area, and it is occupied by an approximately 30,000 square-foot operating foundry known as Superior Plaster Castings, doing business as Metalcraft Engineering. The facility is engaged in the production of plaster cast aluminum products for varied industrial uses. Figure 1, "Site Location Map", identifies the site with respect to other regional features. Figure 2, "Site and Boring Location Plan", identifies the approximate locations of soil borings and a monitoring well installed by Woodward-Clyde Consultants (WCC), as well as the approximate locations of two soil borings (SB-1 and SB-2) installed by other consultants who have performed work at the site. Figure 3, "Enlarged Plan of Soil Borings", identifies the closely spaced soil borings installed along the eastern edge of the property by WCC and by other consultants.

1.1.1 Previous Work

Previous work at the site included a Preliminary Site Assessment (Aqua Terra Technologies [ATT] 1991); two subsurface investigations (Simon-EEI 1991) involving the collection and analysis of shallow soil samples and groundwater samples; and a limited subsurface investigation involving the analysis of shallow soil samples in order to verify a baseline [establish naturally occurring background concentrations] of soil chemistry (Earth Metrics Incorporated, 1992).

In their Preliminary Site Assessment report, ATT (1991) was unable to find documentation of any past unauthorized releases of regulated chemicals from the subject site which would have contributed to contamination of soil and groundwater at the subject site. However, they did report that historical evidence suggested a significant potential for contamination of the subject property from off-site sources. They recommended a Phase II site investigation because of the close proximity of potential upgradient sources of petroleum hydrocarbons and heavy metals.

During a preliminary Phase II investigation (1991a), Simon-EEI installed four shallow soil borings identified as SB-1 through SB-4 to about 5 feet below ground surface along the eastern boundary of the property (Figures 2 and 3). They reported concentrations of diesel fuel at 690 milligrams per kilogram (mg/kg) in a soil sample collected from their boring SB-3. In grab groundwater samples (samples collected from temporarily installed boreholes), they reported concentrations of arsenic, chromium, lead, and mercury above the established or proposed EPA and State Maximum Contaminant Levels (MCLs) in all four of their borings.

During a follow-on Phase II investigation (1991b), Simon-EEI collected soil samples at about 5 feet below ground surface from an additional 15 shallow soil borings designated in Figure 3 as SB-5 through SB-19. They reported petroleum hydrocarbons from these borings at concentrations ranging from below laboratory detection limits to about 6,200 mg/kg. The boring locations where hydrocarbons were detected were distributed over an area approximately 110-feet long by 30-feet wide along the railroad spur behind the foundry, with the highest analytical result (6,200 mg/kg) located near the easternmost corner of the property. The locations of the remaining detectable analytical results were distributed over the remainder of the affected area. They concluded that the petroleum contamination was the result of multiple surface spills.

As an independent review of the work conducted by Simon-EEI, Earth Metrics Incorporated (1992) collected one soil sample from each of four shallow soil borings designated as TS3-1, TS3-2, TS3-3, and TS3-4. These borings were installed along the east boundary of the subject site to about three feet below ground surface. Soil samples collected from TS3-1 through TS3-3 were analyzed for the metals arsenic and lead to verify a baseline of soil chemistry, because Simon-EEI had previously tested unfiltered groundwater samples from unscreened boreholes and had detected these heavy metals at concentrations above their Maximum Contaminant Levels (MCLs). In addition, the soil sample from boring TS3-2 was analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX compounds), and the soil sample from boring TS3-4 was analyzed for Total Oil and Grease (TOG). Figure 3 shows the approximate location of TS3-4, the only boring among these four in which petroleum hydrocarbons were reported as oil and grease (TOG at 29,000 milligrams per kilogram [mg/kg]).

Earth Metrics did not detect arsenic or lead above their California Total Threshold Limit Concentrations (TTLC) in any soil sample, and they concluded that the detected levels of arsenic and lead in soil may or may not be distinguishable from naturally occurring background levels generally prevailing in the area.

1.1.2 Rationale for Current Scope of Services

Based on a review of the previous reports, we concluded in our proposal (WCC, 1992) that the soil in the vicinity of the railroad spur along the east property boundary (Figure 2) was contaminated with petroleum hydrocarbons and that remediation might be necessary. We also concluded that existing data were inadequate to prove or disprove groundwater contamination by regulated metals, because previous groundwater analyses were performed on samples which were not taken from a completed monitoring well as Alameda County and California regulations require (Alameda County Flood Control and Water Conservation District, 1988; State of California, 1981).

WCC recommended (1992) that a limited Phase II investigation be performed at the site. The purpose of this investigation was to address deficiencies in prior investigations and to address possible remedial measures for the hydrocarbon contamination in shallow soil near the northeastern site boundary (Figure 3).

1.1.3 Site Geology and Hydrogeology

The subject property is located about 0.4 mile north of the San Leandro Bay inlet of San Francisco Bay (Figure 1). The property lies within the East Bay Plain Area of the San Francisco Bay Depression, a broad, irregular downwarp characterized by northwest trending faults and modified by erosion and deposition. Geologic units in the East Bay Plain are classified into two general groups, consolidated, i.e., bedrock, and unconsolidated, i.e., sand, gravel, silt, and clay not characterized as rock. The subject site is located within the unconsolidated portion of the East Bay Plain, sitting near the transition from Bay Mud to a geologic unit mapped (Alameda County Flood Control and Water Conservation District, 1988) as "fluvial [water-borne] deposits".

Both the Bay Mud and the fluvial deposits are of Holocene age (11,000 years old). The Bay Mud ranges in thickness from less than 1 foot to more than 120 feet thick beneath the Bay. Bay Mud is characterized by its saturation with salt water and low permeability. The fluvial deposits are thin and surficial, generally less than about 15 feet thick. They are characterized by moderate permeability and relatively low yields to wells.

Groundwater flow is generally known to be southwest toward San Leandro Bay. However, an accurate estimate of the groundwater flow direction at the subject site can be obtained only by the measurement of groundwater surface elevations in at least three monitoring wells properly located on the property. At present, there is only one well on the property.

1.2 LIMITATIONS

This document and the information presented herein have been prepared solely for Mr. John E. Miller. We have performed our services for this project in accordance with our agreement and to current professional standards of practice for subsurface environmental contamination investigations in the San Francisco Bay Area.

The subsurface investigation involved a limited number of sampling points. Because of the limited number of soil and groundwater samples analyzed, it is possible that hazardous materials which are present may not have been fully detected, and the lateral and vertical extent of contamination may not have been fully discovered. Because regulatory evaluation criteria are constantly changing, concentrations of contaminants presently considered low may in the future fall under different regulatory standards that require remediation. Therefore, we cannot be held responsible if the investigation failed to detect all hazardous substances, present and future, or to fully characterize the contaminant plume(s). Our soil and groundwater investigation was limited to the property described herein, and our opinions regarding soil and groundwater conditions are valid for that property only.

2.0
FIELD AND LABORATORY WORK

2.1 INTRODUCTION

Woodward-Clyde Consultants' field work at the subject site consisted of the following:

- Drilling three soil borings identified as WCC-1B, WCC-2B, and WCC-3B to about 5 to 6 feet below ground surface;
- Drilling one soil boring/wellbore identified as WCC-1A to about 19 feet below ground surface and installing a monitoring well within this boring;
- Collecting and testing soil samples from borings WCC-1B, WCC-2B, and WCC-3B, and collecting and testing water samples from monitoring well WCC-1A.

The approximate locations of borings WCC-1B through WCC-3B and of well WCC-1A are shown on the Site and Boring Location Plan (Figure 2). Monitoring well WCC-1A is also shown on the Enlarged Plan of Soil Borings (Figure 3). The boring/well locations shown on Figures 2 and 3 as well as the features of the manufacturing facility are not to exact scale. The field locations of the borings with respect to the footprint of the building were estimated in the field by WCC personnel using a measuring wheel calibrated in feet, and working from an existing site plan obtained from previously published reports (Simon-EEI 1991a,b).

2.2 PREPARATION FOR FIELD WORK

2.2.1 Site Health and Safety Plan

Field work performed by Woodward-Clyde Consultants was conducted in accordance with WCC's standard Health and Safety Plan (HSP) for fuel leak investigations. This plan describes the basic safety requirements for subsurface environmental investigations of fuel leaks, which include safety considerations for drilling soil borings and for installing,

developing, and sampling monitoring wells. The site HSP was applicable to personnel of Woodward-Clyde Consultants performing work at the site. The Woodward-Clyde Consultants on-site staff geologist acted as the Site Safety Officer.

2.2.2 Drilling Permits and Utility Plan Checks

Before beginning drilling, a permit for the monitoring well was acquired from the Alameda County Flood Control and Water Conservation District, Zone 7. This was in accordance with Article 14, Section 3-160.1, of the Alameda County Code of Regulations (1988). About two weeks prior to drilling, WCC personnel visited the site and marked the boring locations on the ground. Underground Service Alert was notified about one week prior to the start-up of drilling to help identify and locate buried public utilities in the area to be investigated. A visual inspection of the site was also conducted by WCC personnel in a further attempt to locate buried obstructions prior to drilling and to check the locations of overhead utility lines on the property.

2.3 SOIL BORING INSTALLATION AND SAMPLING

Borings WCC-1B, WCC-2B, and WCC-3B (Figure 2) were installed to approximately coincide with boring locations where prior consultants had detected no petroleum hydrocarbon contamination, but where they had not tested for the presence of metals. A fourth soil boring (WCC-1A) was installed near the northeast corner of the property and converted to a groundwater monitoring well to assess potential contamination in the groundwater directly beneath that portion of the site where shallow soil contamination was previously reported (Figures 2 and 3).

A Woodward-Clyde Consultants geologist was present at the site on December 7 and 8, 1992 to observe the drilling of the four soil borings and to log and collect soil samples from the borings for field and laboratory testing. Drilling and sampling were performed using 8-1/4 inch-diameter continuous flight hollow-stem augers. The augers were steam cleaned prior to drilling and before each use to reduce the possibility of introducing downhole or cross-hole contamination. Steam cleaning water was placed in 55-gallon approved storage drums approved for liquid waste and left temporarily on site.

Borings WCC-1B through WCC-3B were drilled using a CME-55 truck mounted drill rig operated by West Hazmat Drilling Corporation of Hayward, California. Soil boring/monitoring well WCC-1A was drilled with a Soilmaster 50 truck-mounted drill rig specially designed for limited overhead access because of the proximity of overhead high voltage power lines in the vicinity of WCC-1A. All of the cuttings generated from the drilling of the soil borings were placed in 55-gallon approved solid waste storage drums and left at the site temporarily pending permanent disposal.

Soil borings WCC-1B and WCC-2B were drilled to 6-1/2 feet below ground surface. In order to locate the depth to groundwater and assist in the construction of Well WCC-1A, boring WCC-3B was drilled to about 12 feet below ground surface. This depth was about 6 feet below groundwater level.

2.3.1 Soil Sampling

Soil samples were collected from the borings using a 2-1/2-inch nominal outside diameter, California-modified, split spoon sampler lined with 2-inch diameter by 6-inch long clean stainless steel sleeves. The samples selected for laboratory analysis were promptly sealed in their metal sleeves with Teflon (TM) sheeting, and covered with plastic end caps. The samples were then labeled and placed in a cooled ice chest for transport to Anametrix, Inc., a State of California certified analytical laboratory for chemical testing. A Chain-of-Custody Record, initiated by the sampling technician, accompanied each shipment of samples to the laboratory. Copies of the completed Chain-of-Custody Records for the samples are included in Appendix A to this report.

In boring WCC-1B, a soil sample was collected from 5 feet, and in boring WCC-2B two soil samples were collected from 4 feet and 5 feet below ground surface. In boring

WCC-3B, two soil samples were collected from 5 feet and 10 feet. In wellbore WCC-1A, the first sample was collected from 5 feet below ground surface and at 5-foot intervals from a depth of approximately 5 feet to a final sample at the total depth of the boring at 19 feet.

In each boring, soil samples were collected by advancing the augers to a point immediately above the sampling depth and then driving the sampler into the soil through the hollow

center of the auger. In all but the first sample in each boring, the sampler was driven 18 inches with a standard 140-pound hammer repeatedly dropped 30 inches. The first sample in each boring was advanced only 12 inches. This was because the first sample interval was started at 4 feet, and the second sample interval in each boring started from 5 feet below ground surface. The number of blows to drive the sampler each 6-inch increment was counted and recorded to evaluate the relative consistency of the soil.

Soil encountered during drilling was logged and classified according to the Unified Soil Classification System. Samples were also inspected for visual or olfactory evidence of organic contaminants, including product discoloration and/or noticeable product odor. Descriptions of soil encountered in the borings are presented in the Logs of Borings/Wells in Appendix B to this report.

A hand-held flame ionization detector (FID) was used to measure the organic vapor concentrations in soil samples from each sample interval. The detector was calibrated prior to use at the site using a 100 parts per million (ppm) by volume methane standard. The procedure involved removing at least 50 grams of soil from the center of the brass sleeve located directly above the adjacent metal sleeve selected for laboratory analysis, placing the soil inside a plastic ziplock bag, sealing the bag, and allowing the bagged sample to sit for at least 15 minutes. The bag was then punctured with the probe tip of the FID detector to assess potential relative concentrations of volatile constituents. This procedure is commonly called "head-space analysis".

Field instruments such as the FID indicate relative organic vapor concentrations in soil, but they cannot be used to measure concentrations of hydrocarbon contaminants in the soil with the confidence of a certified laboratory analysis. Normally, head space analysis is used as a preliminary field screening technique to assist in selecting soil samples for laboratory analysis. With the exception of boring WCC-2B, in which the 4-foot sample had a head space reading of 400 parts per million, the head space readings in the borehole samples were all low to non-detect. Since most head space measurements were low, selection of samples for analysis was based on site knowledge and professional judgment (see Section 2.6, this report). The FID readings are shown in the right-hand column of the Boring/Well logs (Appendix B).

2.4 MONITORING WELL INSTALLATION

One groundwater monitoring well was installed in boring WCC-1A (Figures 2 and 3). The rationale for the placement of well WCC-1A is presented in Section 2.3 of this report, and its approximate location is presented on Figure 2. The monitoring well was installed according to guidelines established by the Alameda County Flood Control and Water Conservation District, Zone 7 (Zone 7). Well construction was in accordance with Article 14 of the Alameda County Code of Regulations (1988).

The well was completed with 2-inch inside diameter polyvinyl chloride (PVC) casing. The well screen consisted of machine-perforated PVC with 0.010-inch slots. The perforated interval ranged from 19 feet to 4 feet below ground surface. Unperforated (solid) PVC casing was set from the top of the second casing in the well to just below the ground surface. The casing joints in the well were flush threaded; no glues, cements, or solvents were used to construct the well. The top of the casing was covered with a locking compression cap, and the bottom was fitted with a threaded end plug.

The annular space of monitoring well WCC-1A was backfilled with No. 2/12 clean, sorted sand from the bottom of the casing to a height about even with the top of the screened casing. A bentonite plug about 1 foot thick was placed above the sand pack to prevent cement sealing material from entering the screened area. The remaining annulus to about 1 foot below ground surface was filled with a slurry of water, neat cement, and 5 percent bentonite. A graphic representation of the well construction is presented in the central column of the Log of Well WCC-1A (Appendix B). A permanent vault box was installed over the well and set with concrete to approximately 1 inch above current grade.

Woodward-Clyde Consultants obtained a variance from Alameda County Zone 7 guidelines governing monitoring well construction in order to install a shallower seal in WCC-1A than the minimum seal length of 10 feet normally allowed. This was because the groundwater beneath the site stabilized at about 6 feet below ground surface, and a seal length of not more than 5 feet was required to construct the well.

2.5 WELL DEVELOPMENT AND GROUNDWATER SAMPLING

Woodward-Clyde Consultants' personnel visited the site to develop the well on December 11, 1992, 72 hours after well WCC-1A was installed in order to allow the grout seal to set. Prior to developing well WCC-1A, the depth to groundwater was measured using a resistivity-based electronic water-level indicator, reportedly accurate to the nearest 0.01 foot. The initial depth to groundwater (depth below the top of the well casing) before development was 5.40 feet.

Well WCC-1A was developed to remove any sediment that might have accumulated during drilling and installation in order to improve groundwater production from the well. The well was developed by surging with a 2-inch surge block and by removing water with a standard Teflon™ bailer. The bailer and surge block were cleaned prior to use to minimize the possibility of introducing contamination. Well WCC-1A was purged of 20 gallons of water, corresponding to about 10 well casing volumes of water.

During development, purged groundwater was monitored for pH, electrical conductivity, and temperature. These data were recorded on a Field Well Data Sheet, a copy of which is included in Appendix C. The well was developed until readings of temperature, pH, and conductivity stabilized and until water clarity indicated that the well had been developed to the extent practicable. We note that in wells constructed in clay and silt-rich substrates, as WCC-1A is, water clarity is difficult to achieve with virtually any degree of development. Water removed from each well was inspected for floating product, sheen, and noticeable product odor. No sheen or odor were observed in the water removed from the well, but Woodward-Clyde Consultants' personnel noted a fuel odor in every volume increment that was purged and tested (Appendix C). Purged water was placed in a 55-gallon container approved for the storage of liquid wastes and left at the site.

On December 12, 1992, Woodward-Clyde Consultants' personnel returned to the site to purge the newly-installed well and to collect groundwater samples for visual inspection and analysis. Prior to collecting samples for laboratory testing, the total well depth and the depth to groundwater were measured using a resistivity-based water-level indicator. The initial depth to groundwater was measured at 4.65 feet below the top of the well casing. The depth to groundwater and total well depth were used to calculate the well-casing

volume of water in each well. The well was then purged of about 4 well casing volumes of water using a standard Teflon™ bailer which was cleaned prior to use to minimize the possibility of introducing contaminants. Purged water was discharged into the 55-gallon drum approved for liquid storage utilized during well development and left at the site.

During well purging, the discharged groundwater was monitored to evaluate the water quality parameters of pH, electrical conductivity, and temperature. During purging, Woodward-Clyde Consultants' personnel also noted an odor from the purged volumes. Purging continued until these parameters stabilized after about 4 well casing volumes had been removed. This was done to ensure that water representative of the aquifer was collected for analysis. Values for these parameters and field notes were recorded on Field Well Data Sheets reproduced in Appendix C.

The water level in the well was allowed to recover to about 80 percent of its initial level before collecting water samples for laboratory analysis. Groundwater samples were collected from the well using a cleaned reuseable Teflon™ bailer. About half the length of the bailer was gently lowered past the air/water interface to collect the groundwater samples.

Groundwater samples were collected into laboratory-cleaned and prepared glass or polyurethane bottles supplied with Teflon™-lined caps and 40-milliliter (ml) glass vials sealed with Teflon™-lined septa, depending on the analyses required. The analytical laboratory prepared and labelled each bottle with the appropriate preservatives as specified by the Federal EPA protocol (USEPA, 1986) for each chemical constituent.

The groundwater sample collected for metals analysis was filtered on-site using a FF-8500 QuickFilter™ transfer vessel and a 0.45-micron in-line filter, and it was transferred into an appropriate polyurethane bottle. A Chain of Custody record for all groundwater samples was initiated in the field by WCC personnel and accompanied the sample shipment to the laboratory. A copy of the Chain of Custody for the groundwater sample is presented in Appendix A.

2.6 RATIONALE FOR SOIL ANALYSES

All of the soil analyses performed at the site are summarized in Table 1, "Summary Soil Analytical Results, TPH as Gasoline, BTEX, Diesel, Oil and Grease, and HVOC", and in Table 2, "Summary Soil Analytical Results, RCRA Metals". The RCRA metals include Silver (Ag), Arsenic (As), Barium (Ba), Cadmium (Cd), Total Chromium (Cr), Mercury (Hg), Lead (Pb), and Selenium (Se).

2.6.1 Organic Analyses

Two soil samples from 6 feet and 10.5 feet below ground surface from boring WCC-1A were analyzed for Total Petroleum Hydrocarbons as Gasoline, with Benzene, Toluene, Ethylbenzene, and Total Xylenes (TPH-g/BTEX); Total Petroleum Hydrocarbons as Diesel (TPH-d); and Total Oil and Grease (TOG). These analyses were intended to assess the petroleum hydrocarbon contamination in an area where shallow soil hydrocarbon contamination had been documented by other consultants (see Section 1.1.1, this report). Halogenated Volatile Organic Compounds (HVOC) were analyzed from 6 feet below ground surface in WCC-1A in order to establish whether HVOC were also associated with the petroleum contaminants in this area (Table 1).

One soil sample collected from WCC-1B at 6 feet was also analyzed for TPH-g/BTEX, TPH-d, and HVOCs (Table 1), because of the relatively high headspace reading (400 ppm) recorded at the 6-foot sampling interval in this borehole (Appendix B).

2.6.2 Metals

Soil samples from all four borings were analyzed for the eight RCRA metals in order to evaluate the findings of other consultants who had reported relatively high concentrations of selected RCRA metals in groundwater samples collected from temporarily installed boreholes (see Section 1.1.1, this report). The purpose was to assess whether the metal concentrations reported in groundwater samples by previous consultants could be related to correspondingly high metal concentrations in the soil.

One soil sample was analyzed from between 5 feet and 6.5 feet below ground surface in each of borings WCC-1B through WCC-3B (Table 2). Two soil samples from 6 feet and 10.5 feet below ground surface were analyzed from boring WCC-1A. The 10.5-foot sample from below the approximately 6-foot depth to stabilized groundwater level was analyzed to assess the possible soil-groundwater interaction between the two potentially contaminated phases.

2.7 SOIL RESULTS

2.7.1 Organic Analyses

Table 1 summarizes the results of the organic analyses for all soil samples collected at the site. Copies of the Certified Analytical Reports for all soil analyses are presented in Appendix A. The laboratory reported non-detectable concentrations of TPH-g, BTEX, and TPH-d in the sample collected from 6 feet below ground surface in boring WCC-1A.

The halogenated volatile organic compounds (HVOC) 1,3-Dichlorobenzene (1,3-DCB) and 1,4-Dichlorobenzene (1,4-DCB) were reported at concentrations of 2.0 μg/kg (micrograms per kilogram) and at 4.8 μg/kg, respectively, in the sample collected from 6-feet below ground surface from WCC-1A.

In the soil sample collected from 10-1/2 feet below ground surface in Boring WCC-1A, non-detectable concentrations of TPH-g and TPH-d were reported, while Total Xylenes were reported at 0.007 mg/kg.

Total Oil and Grease (TOG) was reported from Boring WCC-1A at 40 mg/kg in the sample collected from 6 feet below ground surface and at 47 mg/kg in the sample collected from 10-1/2 feet below ground surface.

None of the components analyzed for in the 5-foot sample collected from Boring WCC-1B were reported above the laboratory detection limits.

2.7.2 Metals Analyses

Table 2 summarizes the results of the RCRA metals analytical results for two soil samples collected from a depth of 6 feet and from a depth of 10-1/2 feet from boring WCC-1A, and one sample each collected from depths of 5 feet to 6-1/2 feet in borings WCC-1B, WCC-2B, and WCC-3B. The results indicate that all of the RCRA metals are present at concentrations below their Total Threshold Limit Concentrations (TTLCs).

2.8 WATER RESULTS

One water sample from well WCC-1A was analyzed for the RCRA metals. One groundwater sample collected from well WCC-1A was analyzed for TPH-g/BTEX, TPH-d, Total Oil and Grease, Halogenated Volatile Organic Compounds (HVOC), and eight RCRA metals. WCC-1A D is a duplicate groundwater sample collected to independently confirm the contract laboratory's accuracy and precision. WCC-1A D was analyzed for HVOC only. Table 3 summarizes the results of the organic and inorganic analyses, respectively. Copies of the Certified Analytical Reports for the groundwater analyses are presented in Appendix A.

The RCRA metals Arsenic and Barium were reported in the water sample collected from WCC-1A at 24.1 μg/l and at 226 μg/l, respectively (Table 3).

TPH-g and TPH-d were reported at 4,000 micrograms per liter (μg/l) and 7,000 μg/l, respectively, in the sample collected from well WCC-1A (Table 3). Total Xylenes, reported in the water sample at 11 μg/l, constituted the only BTEX compound detected. Oil and grease was reported at 12 mg/l. The HVOC 1,3-Dichlorobenzene (1,3-DCB [1,400 μg/l]); 1,4-Dichlorobenzene (1,4-DCB [1,500 μg/l]); 1,2-Dichlorobenzene (1,2-DCB [290 μg/l]); and Chlorobenzene (270 μg/l) were also reported in WCC-1A. Analysis of the duplicate sample WCC-1B confirmed the presence of these HVOCs and their approximate concentrations.

The contract laboratory indicated in its analytical report (Appendix A) that the petroleum hydrocarbon concentration reported as diesel fuel actually represented a heavier petroleum product, possibly motor oil. When we asked the contract laboratory for additional details

about this notation, they said that the analyte could have been either motor oil or hydraulic oil, but that the analytical result was not strictly indicative of diesel fuel. In their report, the laboratory also stated that the "concentration reported as gasoline was primarily due to the presence of discrete hydrocarbon peaks not indicative of gasoline". When we asked the laboratory what these discrete hydrocarbon peaks were, they said that they represented several dichlorobenzene compounds. They said that they could not quantify the dichlorobenzene or differentiate between the different compounds present in the sample, because their analytical instrument for gasoline was not calibrated for dichlorobenzene.

3.0
DISCUSSION OF ANALYTICAL RESULTS

3.1 SOIL

3.1.1 Petroleum Hydrocarbons

In the following discussion, we define "elevated" petroleum hydrocarbon concentrations as those equal to or above 100 mg/kg and "low" as any detectable concentrations below 100 mg/kg. This definition is used, because the California Tri-Regional Water Board defines 100 mg/kg and above as "priority concentrations" which require further subsurface investigation by the responsible party (Tri-Regional Board Recommendations, August 1990).

Relatively insignificant petroleum hydrocarbon concentrations were reported in soil samples collected from borings WCC-1A and WCC-1B. The petroleum hydrocarbon concentrations reported from WCC-1A contrast with those reported by previous consultants (Simon-EEI, 1991a,b; Earth Metrics, 1992) from other borings which they installed in the vicinity of the railroad spur along the east boundary of the property. We note that high concentrations of petroleum hydrocarbons in shallow soil were reported from six of 13 soil borings installed along the railroad spur by WCC and by other consultants (Figure 3). An inspection of Figure 3 shows that borings with high petroleum concentrations are interspersed among borings with low to non-detectable hydrocarbon concentrations. No single subarea having elevated contaminant concentrations can be seen from a simple inspection of the existing site plans.

In the vertical direction, most of the reported petroleum contamination occurs at depths shallower than about 5 feet below ground surface. Visible petroleum contamination had been reported from depths as shallow as 1 foot to 2 feet (Simon-EEI, 1991a).

3.1.2 Halogenated Volatile Organic Compounds and RCRA Metals

None of the previous consultants analyzed soil samples for halogenated volatile organic compounds (HVOC). Thus, we only have HVOC data from the soil samples which we

collected from two locations at the subject site (WCC-1A at 6 feet and 10-1/2 feet and WCC-1B at 5 feet), and we do not know if HVOC might occur elsewhere in this area.

Another consultant (Earth Metrics, 1992) had reported the results of soil analyses for the RCRA metals arsenic and lead from four borings along the eastern site boundary. Their results indicated that these metals occurred at the site at concentrations considered to be non-hazardous, below their regulatory thresholds. Our analyses, which included one soil sample from one location (WCC-1A) near the eastern site boundary and three locations (WCC-1B, -2B, and -3B) from other parts of the property, also indicated that the RCRA metal concentrations were below regulatory thresholds for hazardous waste.

3.1.3 Origin of Soil Contamination

3.1.3.1 Petroleum Hydrocarbons

The shallow depth of soil contamination by petroleum hydrocarbons in several locations suggests on on-site origin. Because of the observed scatter in the affected locations, and because no underground fuel tanks are known to exist on the property, we suspect that the contamination resulted from multiple surface spills, as a previous consultant had also concluded (see Section 1.1.1, this report).

The location of the affected area is adjacent to a formerly active railroad spur on the northeast side of the plant. We can only speculate about the specific causes of the contamination, but trains loading and unloading supplies in this area over time could have caused it by spilling some of their hydraulic oil. This could help explain the observation that the contamination is somewhat scattered over the area in the vicinity of the tracks.

3.1.3.2 Halogenated Volatile Organic Compounds

The sample collected from 6-feet below ground surface in boring WCC-1A contained relatively low levels of two dichlorobenzene compounds (1,3-dichlorobenzene at 2 μg/kg and 1,4-dichlorobenzene at 4.8 μg/kg) which were also identified in the groundwater (See Tables 1 and 3 and Section 2.3.1, this report).

Because no on-site source for chlorinated solvents was identified in the Preliminary Site Assessment report (ATT, 1991), we believe that the dichlorobenzene detected in the soil probably did not originate from the subject site, but instead migrated onto the subject site from some other unknown location. Because the depth of the dichlorobenzene detection approximately coincided with the depth to groundwater in boring WCC-1A (about 6 feet below ground surface), we suspect that the groundwater itself contaminated the soil by contact.

3.2 GROUNDWATER

3.2.1 RCRA Metals and Petroleum Hydrocarbons

Neither arsenic, reported at 24.1 μg/L, nor barium, reported at 226 μg/L, occur in excess of their California Maximum Contaminant Levels (50 μg/L and 1,000 μg/L, respectively), in groundwater, as shown in Table 3. These data indicate that groundwater contamination by RCRA metals is not occurring in the groundwater in the vicinity of well WCC-1A at the subject site. We believe that the groundwater results of Simon-EEI (1991a), which indicated that several of the RCRA metals occurred at concentrations above their maximum contaminant levels are invalid. This is because these samples were unfiltered, and they were not collected from properly constructed monitoring wells.

Not all of the constituents reported by the contract laboratory as petroleum hydrocarbons actually represented the petroleum constituents for which they were analyzed by the laboratory's standard analytical techniques for fuels (see preceding Section 2.8, this report). Specifically, Table 3 shows that the petroleum hydrocarbons identified with the standard technique used for diesel fuel actually represented hydraulic or motor oil. Table 3 also shows that the contaminant whose concentration was reported as gasoline actually represented certain unidentified dichlorobenzene compounds which constitute a family of halogenated volatile organic compounds not generally associated with gasoline.

3.2.2 Halogenated Volatile Organic Compounds

In the following discussion, we emphasize that Federal and State standards for drinking water contaminant levels are shown for comparative purposes only. They do not

necessarily represent recommended clean-up levels, because the shallow groundwater beneath the subject site is not a drinking water source (Alameda County Flood Control and Water Conservation District, 1988). Further evaluation would be required to recommend clean-up goals, based on beneficial uses, health and ecological risks, or other studies. Additional information related to clean-up goals in the vicinity of the subject site would be required to recommend clean-up levels.

The allowable maximum drinking water concentrations of all four halogenated volatile organic compounds reported from well WCC-1A are currently regulated by California. The detected concentration of 1,4-DCB (about 1,500 μg/l) exceeds by 300 times its published California Maximum Contaminant Level (MCL) of 5 μg/l. The detected concentration of chlorobenzene (270 μg/L) exceeds its current California MCL of 30 μg/L by about 10 times. The concentrations of 1,2-DCB (about 290 μg/l) and of 1,3-DCB (about 1,400 μg/l) both occur at concentrations above their published California Action Levels (ALs) of 130 μg/l.

We note that MCLs are enforceable primary drinking water standards, adopted in California under the Safe Drinking Water Act, which must be met by all public drinking water systems to which they apply. In cases where no MCL has been established, ALs serve as non-enforceable health-based guidance numbers, affected only by currently attainable analytical detection limits (Published Memorandum, California Office of Drinking Water, 1990). ALs are provided by the Office of Drinking Water as interim guidance for "safe" levels of contaminants in drinking water.

The Federal EPA has also established drinking water MCLs, some of which will be adopted in California, for a number of chemicals. These Federal MCLs add new organic and inorganic chemicals to the California's published MCL list, and they change the MCLs on some compounds already regulated by the State. Our understanding of the significance of the relationship between the EPA and State regulations is that some compounds, identified by the State, which are currently regulated by differing Federal and State MCLs will be regulated by the Federal MCLs starting on the official adoption date of January 1, 1994 (California Department of Health Services, Published Memorandum, 1992). However, if the State has established MCLs for certain contaminants in drinking water

which are not regulated by the EPA, or if the State chooses to retain lower MCLs for certain compounds than those set by the EPA, then the State's standards will apply.

The regulatory levels of chlorobenzene and 1,2-dichlorobenzene, two of the compounds detected in the groundwater beneath the subject site, will be affected by the EPA standards to be adopted by the State. Currently, California has set 30 μg/L as its maximum contaminant level for chlorobenzene and 130 μg/L as its action level for 1,2-DCB. Beginning on the 1994 target date discussed above, California will adopt the EPA's maximum contaminant levels for these compounds. These maximum contaminant levels will be 70 μg/L for chlorobenzene and 600 μg/L for 1,2-DCB (California Department of Health Services, Published Memorandum, 1992). Thus the reported 270 μg/L chlorobenzene concentration will still be above the regulatory drinking water threshold when the EPA's Maximum Contaminant Levels take effect, but the reported 290 μg/L 1,2-DCB concentration will be below its EPA regulatory level.

3.2.3 Origin of Groundwater Contamination

3.2.3.1 Petroleum Hydrocarbons

In our professional opinion, the primary source for the hydraulic oil in the groundwater sample collected from well WCC-1A is located on-site. This is because:

- The reported petroleum concentrations in shallow soil samples collected from six soil borings installed by other consultants in the affected area (Simon-EEI 1991a,b; Earth Metrics 1992) were high relative to the 100 mg/kg regulatory threshold for soil (See Section 1.1.1, this report);

- Soil discoloration typical of surface spills of hydrocarbons was observed by WCC personnel along the loading/unloading area alongside the railroad tracks at the subject site;

- Groundwater occurs at about 6 feet beneath the subject site, and leaching of hydrocarbon contaminants from the soil to the groundwater might be possible under these conditions;

We cannot, however, rule out the possibility that off-site sources might exist for the motor oil. This is because at least one of the adjacent sites, Triple A Equipment, is documented to have used motor oils, and the eastern edge of the affected area at the subject site is less than 1 foot away from the property formerly occupied by Triple A. Thus, we can speculate that Triple A Equipment might have also contributed to the observed motor oil concentrations in the groundwater. However, our evidence suggests that the primary source for the motor oil is the subject site itself.

3.2.3.2 Halogenated Volatile Organic Compounds

On the basis of our data and the Preliminary Site Assessment report prepared by another consultant (ATT 1991), we believe that the HVOC reported in the groundwater beneath the subject site have an off-site source. This is because:

- Chlorobenzene and dichlorobenzene are not normally associated with fuels or with motor oil;

- Mr. Bob Evans, Vice President of Manufacturing at Superior Castings, stated that lacquer thinner, acetone, and isopropyl alcohol, are the only solvents that have ever been used for manufacturing at Superior Castings. Mr. Evans also sent copies of the material safety sheets to WCC for each of the solvents utilized at Superior Castings. These indicated that no chlorinated solvents were present in the formulations.

- At least two nearby upgradient locations have been sites of manufacturing and processing which could have generated these solvents in relatively large amounts (See Section 1.1.1, this report). The solvents, in turn, could have entered the groundwater beneath these nearby sites and migrated beneath the subject site.

- Regional groundwater contamination by chlorinated solvents has been documented in the San Leandro area east of the Oakland Airport about 1 mile south of the subject site (Woodward-Clyde Consultants staff, personal communication, 1993). Because the subject site is in a similarly developed

area, we believe that similar regional contamination from multiple sources is possible.

4.0
CONCLUSIONS

Our conclusions concerning the subject site are summarized as follows:

- The soil and groundwater contamination by motor oil probably originated on-site as multiple surface spills;

- Concentrations of RCRA metals are not present in the soil or groundwater at or above regulatory thresholds; and

- The groundwater contaminant concentrations of chlorinated solvents (halogenated volatile organic compounds) occur above regulatory thresholds and probably originated off-site.

5.0 REFERENCES

Alameda County Flood Control and Water Conservation District, 1988. "Geohydrology and Groundwater - Quality Overview East Bay Plain Area, Alameda County, California", June.

Aqua Terra Technologies, 1991. "Preliminary (Phase I) Environmental Site Assessment for the Property at 4800 Coliseum Way, Oakland, CA 94601," April 8.

California Regional Water Quality Control Board, San Francisco Bay Region, 1990. "Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites." August 10, 1990.

Earth Metrics Incorporated, 1992. "Limited Subsurface Soil Chemistry Analysis for 4800 Coliseum Way, Oakland, California", May 8.

Simon-EEI, Inc., 1991a. "Report on Phase II Site Assessment, Superior Plaster Castings, 4800 Coliseum Way, Oakland, California", May 16.

Simon-EEI, Inc., 1991b. "Confirmation of Delineation Results of Environmental Site Assessment Performed at 4800 Coliseum Avenue, Oakland, California", June 17.

State of California, 1981. "Water Well Standards: State of California, Bulletin 74-81", December.

Woodward-Clyde Consultants. 1992. "Proposal, Limited Phase II Site Assessment, 4800 Coliseum Way, Oakland, California", August 6.

Table 1
Summary Soil Analytical Results
TPH as Gasoline, BTEX, Diesel, Oil and Grease, and HVOC

Sample ID	Approx. Depth, ft	TPH-g (a) EPA Method 8015, mg/kg (e)	BTEX (b) EPA Method 8020, mg/kg	TPH-d (c) EPA Method 8015, mg/kg	Oil and Grease EPA Method 5520EF, mg/kg	HVOC (d) EPA Method 8010, ug/kg (f)
WCC-1A	6	<0.5	Benzene <0.005 Toluene <0.005 Ethylbenzene <0.005 Xylenes <0.005	<10	40	1,3-Dichlorobenzene (2.0) 1,4-Dichlorobenzene(4.8)
	10.5	<0.5	Benzene <0.005 Toluene <0.005 Ethylbenzene <0.005 Xylenes 0.007	<10	47	None detected
WCC-1B	5	<0.5	Benzene <0.005 Toluene <0.005 Ethylbenzene <0.005 Xylenes <0.005	<10	Not Analyzed	None detected

(a) Total Petroleum Hydrocarbons as Gasoline
(b) Benzene, Toluene, Ethylbenzene, and Total Xylenes
(c) Total Petroleum Hydrocarbons as Diesel
(d) Halogenated Volatile Organic Compounds
(e) Concentrations in milligrams per kilogram (mg/kg)
(f) Concentrations in micrograms per kilogram (ug/kg)

Table 2
Summary Soil Analytical Results
RCRA Metals - Total Concentrations

		Metals, EPA 6000 & 7000, milligrams per kilogram (mg/kg)							
Sample ID	Depth, ft.	Silver (Ag)	Arsenic (As)	Barium (Ba)	Cadmium (Cd)	Total Chromium (Cr)	Mercury (Hg)	Lead (Pb)	Selenium (Se)
WCC-1A	6	<1.2	<5.0	160	<0.62	47.2	0.34	6.5	<2.5
	10.5	<1.2	6.3	176	<0.62	72.2	0.14	6.3	<2.5
WCC-1B	5	<1.2	6.2	221	<0.62	44.5	0.10	15.5	<2.5
WCC-2B	6.5	<1.2	4.3	62.5	<0.62	45.1	0.15	<5.0	<2.5
WCC-3B	5.5	<1.2	2.2	167	<0.62	31.8	<0.10	<5.0	<2.5
TTLC (a)		500	500	10,000	100	2,500 (Cr III [b])	20	1,000	100

(a) Total Threshold Limit Concentration

(b) Chromium III (most common isotope)

Table 3

Summary Water Analytical Results

TPH as Gasoline, BTEX, Diesel, Oil and Grease, HVOC, and RCRA Metals

Sample ID	TPH-g (a) EPA Method 8015, ug/L (e)	BTEX (b) EPA Method 8020, ug/L	TPH-d (c) EPA Method 8015, ug/L	Oil and Grease EPA Method 5520 , mg/L (f)	HVOC (d) EPA Method 601, ug/l	RCRA Metals EPA 6000 & 7000, ug/L
WCC-1A	4000 (g)	Xylenes (11)	7,300 (h)	12	Chlorobenzene (270) 1, 3-DCB (1,400; AL=130)(i) 1, 4-DCB (1,500; MCL=5)(j) 1, 2-DCB (290; AL=130)	Arsenic (24.1; MCL=50) Barium (226: MCL=1,000)
WCC-1A D	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	Chlorobenzene (260) 1, 3-Dichlorobenzene (1,300) 1, 4-Dichlorobenzene (1,400) 1, 2-Dichlorobenzene (270)	Not Analyzed

(a) Total Petroleum Hydrocarbons as Gasoline

(b) Benzene, Toluene, Ethylbenzene, and Total Xylenes

(c) Total Petroleum Hydrocarbons as Diesel

(d) Halogenated Volatile Organic Compounds

(e) Concentrations reported in micrograms per liter (ug/L)

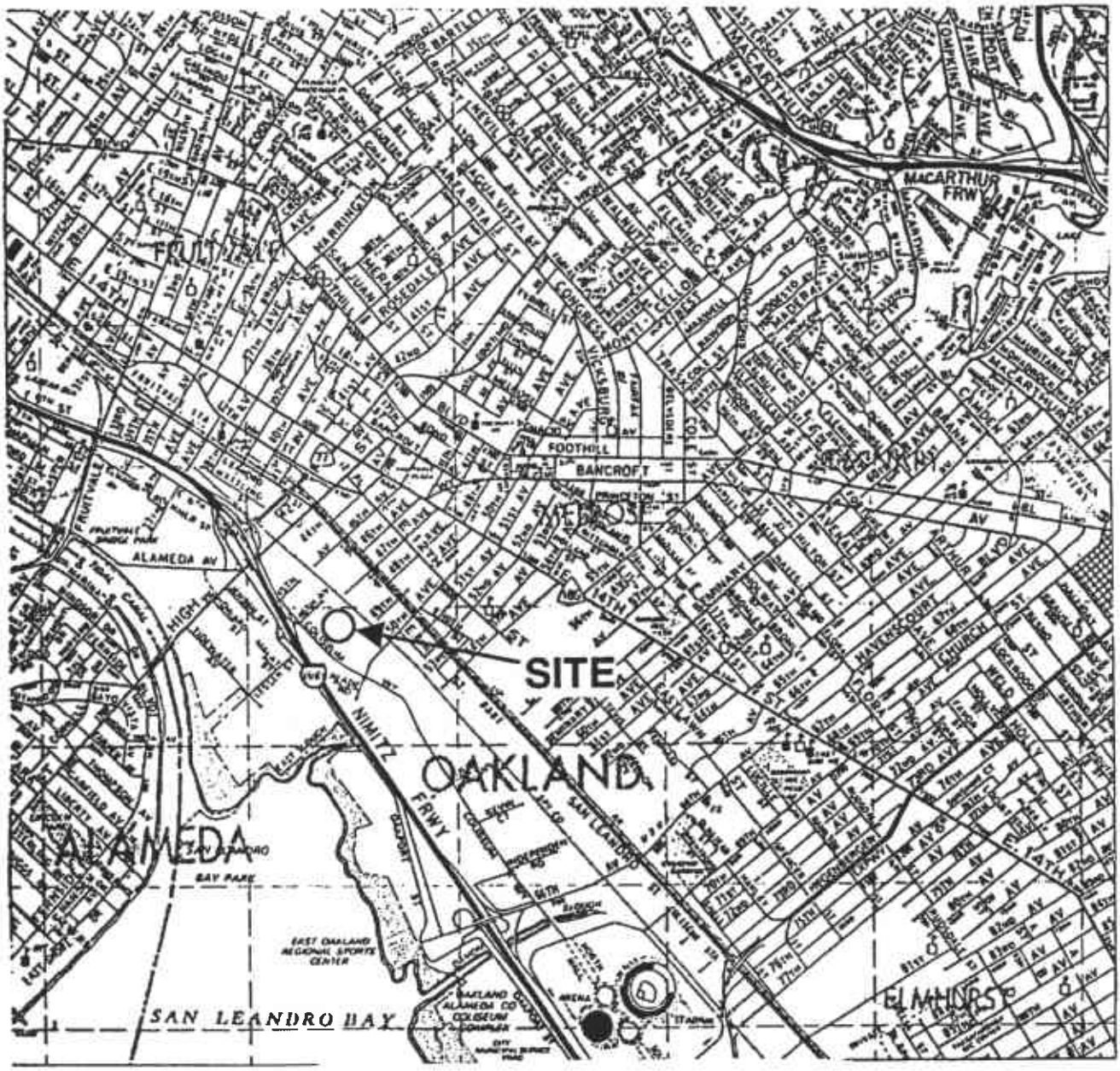
(f) Concentrations reported in milligrams per liter (mg/L)

(g) Laboratory reported that peaks reported as gasoline were primarily unidentified dichlorobenzene isomers. Laboratory could not identify specific isomers, because their instrument was not properly calibrated.

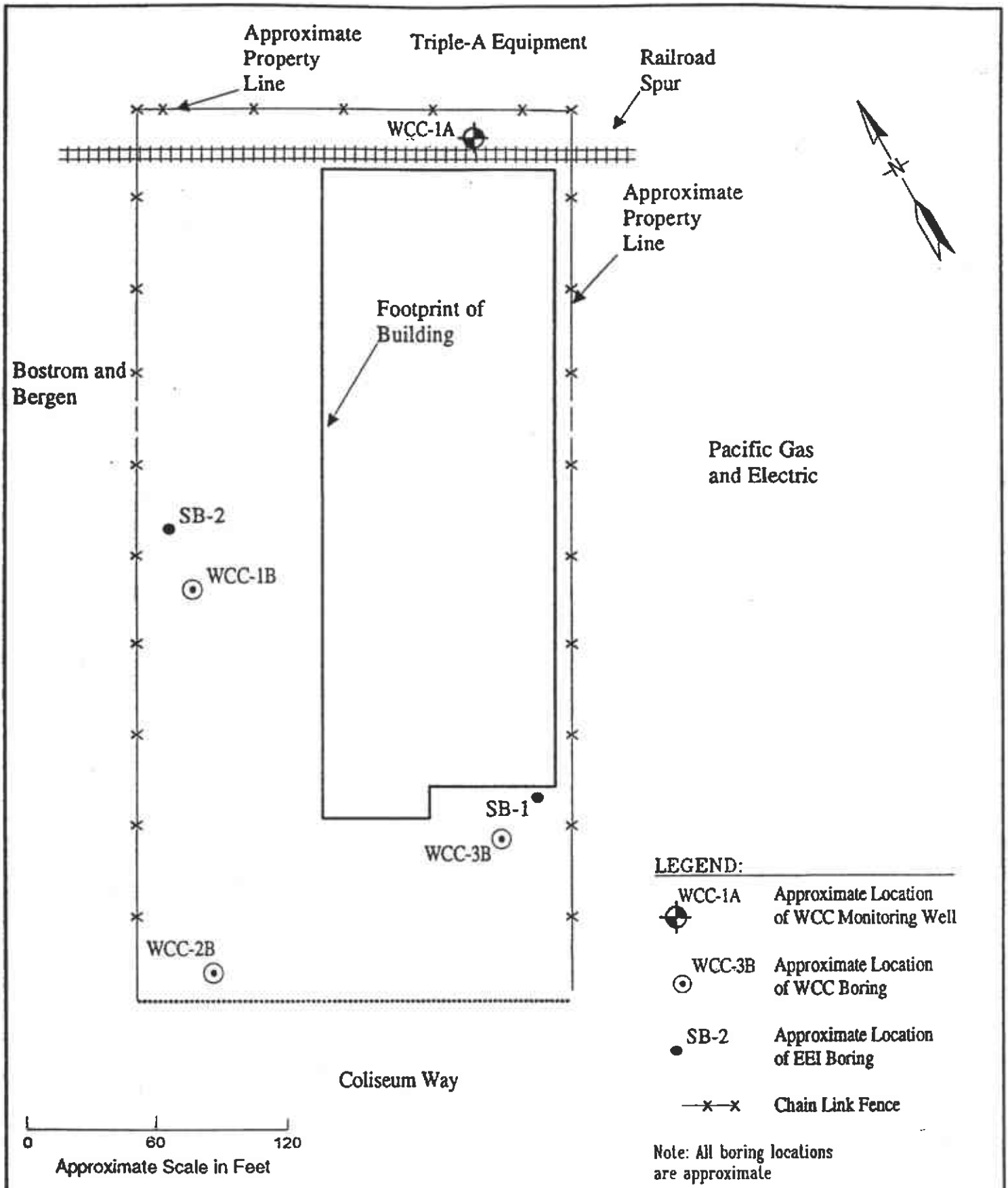
(h) Laboratory reported that peaks identified as diesel fuel were primarily a heavier petroleum prioduct, probably hydraulic or motor oil.

(i) AL indicates California Action Level

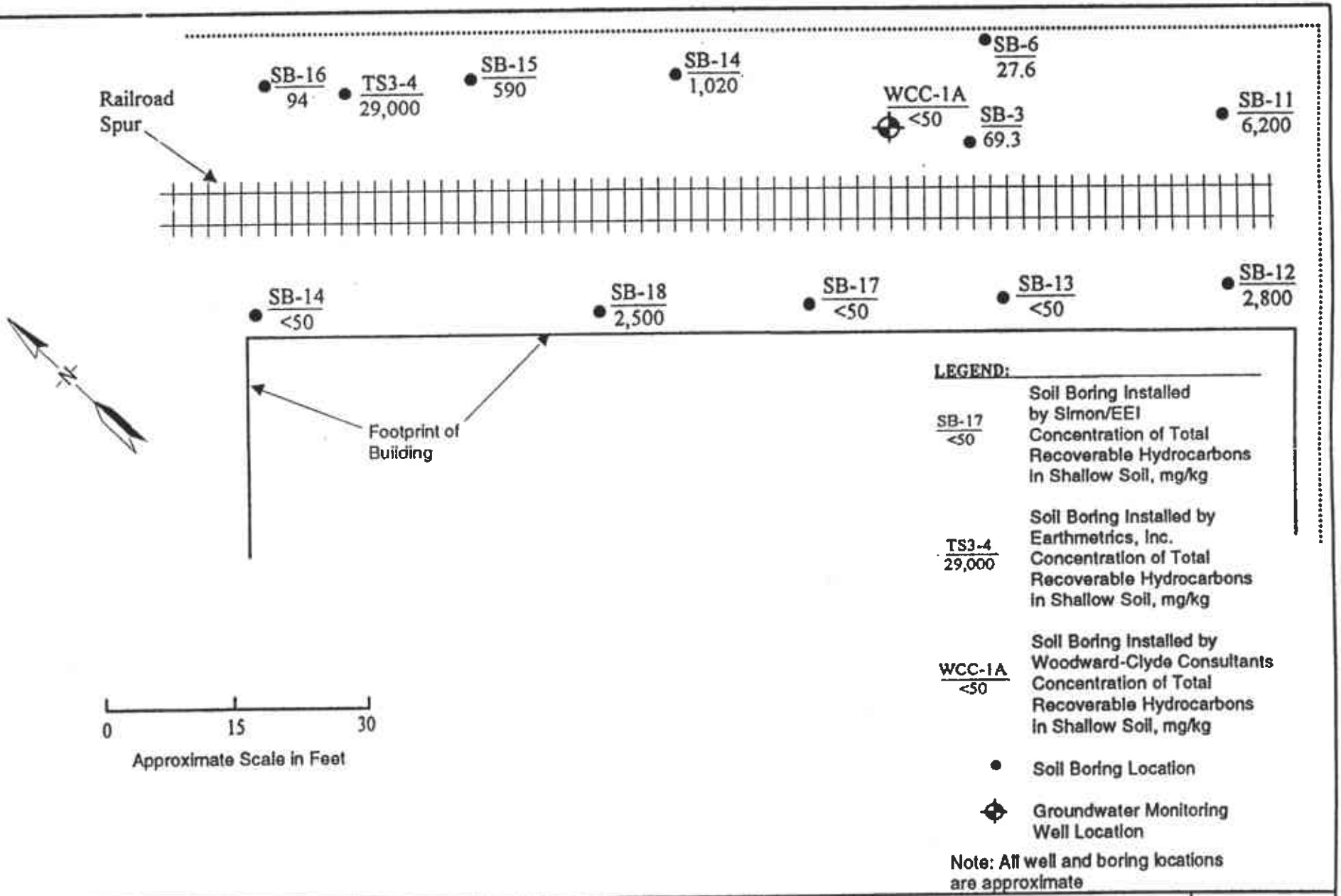
(j) MCL indicates California Maximum Contaminant Level



Project No. 92C-0480R	Superior Plaster Castings Oakland, California	SITE LOCATION MAP	Figure 1
02/25/93			
Woodward-Clyde Consultants			



Project No. 92C-0480R 02/25/93	Superior Plaster Castings, Inc. 4800 Coliseum Way Oakland, California	SITE AND BORING LOCATION PLAN	Figure 2
Woodward-Clyde Consultants			



Project No. 92C-0480R 02/26/93	Superior Plaster Castings, Inc. 4800 Coliseum Way Oakland, California	ENLARGED PLAN OF SOIL BORINGS	Figure 3
Woodward-Clyde Consultants			

APPENDIX A
CERTIFIED ANALYTICAL REPORTS
CHAIN OF CUSTODY RECORDS

ANAMETRIX INC
Environmental & Analytical Chemistry

Part of INCHCAPE ENVIRONMENTAL

REPORT

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212172
Date Received : 12/10/92
Project ID : 92C0480R/2000
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9212172- 1	WCC-1B-5
9212172- 2	WCC2B6.5
9212172- 3	WCC3B5.5
9212172- 4	WCC1A-6

This report consists of 33 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Sarah Schoen, Ph.D.
Laboratory Director

12-24-92
Date

ANAMETRIX REPORT DESCRIPTION
GC

Organic Analysis Data Sheets (OADS)

OADS forms contain tabulated results for target compounds. The OADS are grouped by method and, within each method, organized sequentially in order of increasing Anametrix ID number.

Surrogate Recovery Summary (SRS)

SRS forms contain quality assurance data. An SRS form will be printed for each method, if the method requires surrogate compounds. They will list surrogate percent recoveries for all samples and any method blanks. Any surrogate recovery outside the established limits will be flagged with an "*", and the total number of surrogates outside the limits will be listed in the column labelled "Total Out".

Matrix Spike Recovery Form (MSR)

MSR forms contain quality assurance data. They summarize percent recovery and relative percent difference information for matrix spikes and matrix spike duplicates. This information is a statement of both accuracy and precision. Any percent recovery or relative percent difference outside established limits will be flagged with an "*", and the total number outside the limits will be listed at the bottom of the page. Not all reports will contain an MSR form.

Qualifiers

Anametrix uses several data qualifiers (Q) in it's report forms. These qualifiers give additional information on the compounds reported. They should help a data reviewer to verify the integrity of the analytical results. The following is a list of qualifiers and their meanings:

U - Indicates that the compound was analyzed for, but was not detected at or above the specified reporting limit.

B - Indicates that the compound was detected in the associated method blank.

J - Indicates that the compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value. Tentatively identified compounds will always have a "J" qualifier because they are not included in the instrument calibration.

E - Indicates that the amount reported exceeded the linear range of the instrument calibration.

D - Indicates that the compound was detected in an analysis performed at a secondary dilution.

Absence of a qualifier indicates that the compound was detected at a concentration at or above the specified reporting limit.

REPORTING CONVENTIONS

- Due to a size limitation in our data processing step, only the first eight (8) characters of your project ID and sample ID will be printed on the report forms. However, the report cover letter and report summary pages display up to twenty (20) characters of your project and sample IDs.

- Amounts reported are gross values, i.e., not corrected for method blank contamination.

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212172
Date Received : 12/10/92
Project ID : 92C0480R/2000
Purchase Order: N/A
Department : GC
Sub-Department: VOA

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9212172- 1	WCC-1B-5	SOIL	12/07/92	8010
9212172- 4	WCC1A-6	SOIL	12/08/92	8010

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212172
Date Received : 12/10/92
Project ID : 92C0480R/2000
Purchase Order: N/A
Department : GC
Sub-Department: VOA

QA/QC SUMMARY :

- The surrogate recoveries of samples WCC-1B-5 and WCC-1B-5 DUP are outside of Anametrix control limits due to a matrix effect.

Corinne Khan 12/23/92
Department Supervisor Date

M. Hasselmann 12/23/92
Chemist Date

DESCRIPTIONS FOR SPECIFIC COMPOUNDS ANALYZED
EPA METHOD 601/8010

CAS #	COMPOUND NAME	ABBREVIATED NAME
74-87-3	Chloromethane	Chloromethane
74-83-9	Bromomethane	Bromoethane
75-71-8	Dichlorodifluoromethane	Freon 12
75-01-4	Vinyl Chloride	Vinyl Chloride
75-00-3	Chloroethane	Chloroethane
75-09-2	Methylene Chloride	Methylene Chlor
75-69-4	Trichlrofluoromethane	Freon 11
75-35-4	1,1-Dichloroethene	1,1-DCE
75-34-3	1,1-Dichloroethane	1,1-DCA
156-59-2	Cis-1,2-Dichloroethene	Cis-1,2-DCE
156-60-5	Trans-1,2-Dichloroethene	Trans-1,2-DCE
67-66-3	Chloroform	Chloroform
76-13-1	Trichlorotrifluoroethane	Freon 113
107-06-2	1,2-Dichloroethane	1,2-DCA
71-55-6	1,1,1-Trichloroethane	1,1,1-TCA
56-23-5	Carbon Tetrachloride	Carbon Tet
75-27-4	Bromodichloromethane	BromodichloroMe
78-87-5	1,2-Dichloropropane	1,2-DCPA
10061-02-6	Trans-1,3-Dichloropropene	Trans-1,3-DCPE
79-01-6	Trichloroethene	TCE
124-48-1	Dibromochloromethane	DibromochloroMe
79-00-5	1,1,2-Trichloroethane	1,1,2-TCA
10061-01-5	Cis-1,3-Dichloropropene	Cis-1,3-DCPE
110-75-8	2-Chloroethylvinylether	Chloroethylvinl
75-25-2	Bromoform	Bromoform
127-18-4	Tetrachloroethene	PCE
79-34-5	1,1,2,2-Tetrachloroethane	PCA
108-90-7	Chlorobenzene	Chlorobenzene
95-50-1	1,2-Dichlorobenzene	1,2-DCB
541-73-1	1,3-Dichlorobenzene	1,3-DCB
106-46-7	1,4-Dichlorobenzene	1,4-DCB
352-33-0	p-Chlorofluorobenzene	Chlorofluoroben

mh/3426 - 10MH

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 8010
ANAMETRIX, INC. (408)432-8192

Project ID : 92C0480R
Sample ID : WCC-1B-5
Matrix : SOIL
Date Sampled :12/ 7/92
Date Analyzed :12/18/92
Instrument ID : HP10

Anametrix ID : 9212172-01
Analyst : [illegible]
Supervisor : [illegible]

Dilution Factor : 1.0
Conc. Units : ug/Kg

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
75-71-8	Freon 12	1.0	ND	U
74-87-3	Chloromethane	1.0	ND	U
75-01-4	Vinyl Chloride	.50	ND	U
74-83-9	Bromomethane	.50	ND	U
75-00-3	Chloroethane	.50	ND	U
75-69-4	Freon 11	.50	ND	U
76-13-1	Freon 113	.50	ND	U
75-35-4	1,1-DCE	.50	ND	U
75-09-2	Methylene Chlor	1.0	ND	U
156-60-5	Trans-1,2-DCE	.50	ND	U
75-34-3	1,1-DCA	.50	ND	U
156-59-2	Cis-1,2-DCE	.50	ND	U
67-66-3	Chloroform	.50	ND	U
71-55-6	1,1,1-TCA	.50	ND	U
56-23-5	Carbon Tet	.50	ND	U
107-06-2	1,2-DCA	.50	ND	U
79-01-6	Trichloroethene	.50	ND	U
78-87-5	1,2-DCPA	.50	ND	U
75-27-4	Bromodichlorome	.50	ND	U
110-75-8	Chloroethylvinl	1.0	ND	U
10061-01-5	Cis-1,3-DCPE	.50	ND	U
10061-02-6	Trans-1,3-DCPE	.50	ND	U
79-00-5	1,1,2-TCA	.50	ND	U
127-18-4	PCE	.50	ND	U
124-48-1	Dibromochlorome	.50	ND	U
108-90-7	Chlorobenzene	.50	ND	U
75-25-2	Bromoform	.50	ND	U
79-34-5	1,1,2,2-PCA	.50	ND	U
541-73-1	1,3-DCB	1.0	ND	U
106-46-7	1,4-DCB	1.0	ND	U
95-50-1	1,2-DCB	1.0	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 8010
ANAMETRIX, INC. (408)432-8192

roject ID : 92C0480R
ample ID : WCC-1B-5
atrix : SOIL
ate Sampled :12/ 7/92
ate Analyzed :12/21/92
nstrument ID : HP10

Anametrix ID : 9212172-01
Analyst : ~~
Supervisor : CP

Dilution Factor : 1.0
Conc. Units : ug/Kg

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
75-71-8	Freon 12	1.0	ND	U
74-87-3	Chloromethane	1.0	ND	U
75-01-4	Vinyl Chloride	.50	ND	U
74-83-9	Bromomethane	.50	ND	U
75-00-3	Chloroethane	.50	ND	U
75-69-4	Freon 11	.50	ND	U
76-13-1	Freon 113	.50	ND	U
75-35-4	1,1-DCE	.50	ND	U
75-09-2	Methylene Chlor	1.0	ND	U
156-60-5	Trans-1,2-DCE	.50	ND	U
75-34-3	1,1-DCA	.50	ND	U
156-59-2	Cis-1,2-DCE	.50	ND	U
67-66-3	Chloroform	.50	ND	U
71-55-6	1,1,1-TCA	.50	ND	U
56-23-5	Carbon Tet	.50	ND	U
107-06-2	1,2-DCA	.50	ND	U
79-01-6	Trichloroethene	.50	ND	U
78-87-5	1,2-DCPA	.50	ND	U
75-27-4	Bromodichlorome	.50	ND	U
110-75-8	Chloroethylvinl	1.0	ND	U
10061-01-5	Cis-1,3-DCPE	.50	ND	U
10061-02-6	Trans-1,3-DCPE	.50	ND	U
79-00-5	1,1,2-TCA	.50	ND	U
127-18-4	PCE	.50	ND	U
124-48-1	Dibromochlorome	.50	ND	U
108-90-7	Chlorobenzene	.50	ND	U
75-25-2	Bromoform	.50	ND	U
79-34-5	1,1,2,2-PCA	.50	ND	U
541-73-1	1,3-DCB	1.0	ND	U
106-46-7	1,4-DCB	1.0	ND	U
95-50-1	1,2-DCB	1.0	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 8010
ANAMETRIX, INC. (408)432-8192

roject ID : 92C0480R
ample ID : WCC1A-6
atrix : SOIL
ate Sampled :12/ 8/92
ate Analyzed :12/18/92
nstrument ID : HP10

Anametrix ID : 9212172-04
Analyst :
Supervisor : CP

Dilution Factor : 1.0
Conc. Units : ug/Kg

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
75-71-8	Freon 12	1.0	ND	U
74-87-3	Chloromethane	1.0	ND	U
75-01-4	Vinyl Chloride	.50	ND	U
74-83-9	Bromomethane	.50	ND	U
75-00-3	Chloroethane	.50	ND	U
75-69-4	Freon 11	.50	ND	U
76-13-1	Freon 113	.50	ND	U
75-35-4	1,1-DCE	.50	ND	U
75-09-2	Methylene Chlor	1.0	ND	U
156-60-5	Trans-1,2-DCE	.50	ND	U
75-34-3	1,1-DCA	.50	ND	U
156-59-2	Cis-1,2-DCE	.50	ND	U
67-66-3	Chloroform	.50	ND	U
71-55-6	1,1,1-TCA	.50	ND	U
56-23-5	Carbon Tet	.50	ND	U
107-06-2	1,2-DCA	.50	ND	U
79-01-6	Trichloroethene	.50	ND	U
78-87-5	1,2-DCPA	.50	ND	U
75-27-4	Bromodichlorome	.50	ND	U
110-75-8	Chloroethylvinl	1.0	ND	U
10061-01-5	Cis-1,3-DCPE	.50	ND	U
10061-02-6	Trans-1,3-DCPE	.50	ND	U
79-00-5	1,1,2-TCA	.50	ND	U
127-18-4	PCE	.50	ND	U
124-48-1	Dibromochlorome	.50	ND	U
108-90-7	Chlorobenzene	.50	ND	U
75-25-2	Bromoform	.50	ND	U
79-34-5	1,1,2,2-PCA	.50	ND	U
541-73-1	1,3-DCB	1.0	2.0	
106-46-7	1,4-DCB	1.0	4.8	
95-50-1	1,2-DCB	1.0	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 8010
ANAMETRIX, INC. (408)432-8192

roject ID : 92C048
ample ID : VBLANK
atrix : SOIL
ate Sampled : 0/ 0/ 0
ate Analyzed :12/18/92
nstrument ID : HP10

Anametrix ID : 10B1218H01
Analyst :
Supervisor :

Dilution Factor : 1.0
Conc. Units : ug/Kg

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
75-71-8	Freon 12	1.0	ND	U
74-87-3	Chloromethane	1.0	ND	U
75-01-4	Vinyl Chloride	.50	ND	U
74-83-9	Bromomethane	.50	ND	U
75-00-3	Chloroethane	.50	ND	U
75-69-4	Freon 11	.50	ND	U
76-13-1	Freon 113	.50	ND	U
75-35-4	1,1-DCE	.50	ND	U
75-09-2	Methylene Chlor	1.0	ND	U
156-60-5	Trans-1,2-DCE	.50	ND	U
75-34-3	1,1-DCA	.50	ND	U
156-59-2	Cis-1,2-DCE	.50	ND	U
67-66-3	Chloroform	.50	ND	U
71-55-6	1,1,1-TCA	.50	ND	U
56-23-5	Carbon Tet	.50	ND	U
107-06-2	1,2-DCA	.50	ND	U
79-01-6	Trichloroethene	.50	ND	U
78-87-5	1,2-DCPA	.50	ND	U
75-27-4	Bromodichlorome	.50	ND	U
110-75-8	Chloroethylvinl	1.0	ND	U
10061-01-5	Cis-1,3-DCPE	.50	ND	U
10061-02-6	Trans-1,3-DCPE	.50	ND	U
79-00-5	1,1,2-TCA	.50	ND	U
127-18-4	PCE	.50	ND	U
124-48-1	Dibromochlorome	.50	ND	U
108-90-7	Chlorobenzene	.50	ND	U
75-25-2	Bromoform	.50	ND	U
79-34-5	1,1,2,2-PCA	.50	ND	U
541-73-1	1,3-DCB	1.0	ND	U
106-46-7	1,4-DCB	1.0	ND	U
95-50-1	1,2-DCB	1.0	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 8010
ANAMETRIX, INC. (408)432-8192

roject ID : 92C048
ample ID : VBLANK
atrix : SOIL
ate Sampled : 0/ 0/ 0
ate Analyzed :12/21/92
nstrument ID : HP10

Anametrix ID : 10B1221H01
Analyst : JL
Supervisor : CP

Dilution Factor : 1.0
Conc. Units : ug/Kg

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
75-71-8	Freon 12	1.0	ND	U
74-87-3	Chloromethane	1.0	ND	U
75-01-4	Vinyl Chloride	.50	ND	U
74-83-9	Bromomethane	.50	ND	U
75-00-3	Chloroethane	.50	ND	U
75-69-4	Freon 11	.50	ND	U
76-13-1	Freon 113	.50	ND	U
75-35-4	1,1-DCE	.50	ND	U
75-09-2	Methylene Chlor	1.0	ND	U
156-60-5	Trans-1,2-DCE	.50	ND	U
75-34-3	1,1-DCA	.50	ND	U
156-59-2	Cis-1,2-DCE	.50	ND	U
67-66-3	Chloroform	.50	ND	U
71-55-6	1,1,1-TCA	.50	ND	U
56-23-5	Carbon Tet	.50	ND	U
107-06-2	1,2-DCA	.50	ND	U
79-01-6	Trichloroethene	.50	ND	U
78-87-5	1,2-DCPA	.50	ND	U
75-27-4	Bromodichlorome	.50	ND	U
110-75-8	Chloroethylvinl	1.0	ND	U
10061-01-5	Cis-1,3-DCPE	.50	ND	U
10061-02-6	Trans-1,3-DCPE	.50	ND	U
79-00-5	1,1,2-TCA	.50	ND	U
127-18-4	PCE	.50	ND	U
124-48-1	Dibromochlorome	.50	ND	U
108-90-7	Chlorobenzene	.50	ND	U
75-25-2	Bromoform	.50	ND	U
79-34-5	1,1,2,2-PCA	.50	ND	U
541-73-1	1,3-DCB	1.0	ND	U
106-46-7	1,4-DCB	1.0	ND	U
95-50-1	1,2-DCB	1.0	ND	U

SURROGATE RECOVERY SUMMARY -- EPA METHOD 8010
ANAMETRIX, INC. (408)432-8192

Project ID : 92C0480R
Matrix : SOLID

Anametrix ID : 9212172
Analyst : ~1
Supervisor : CR

	SAMPLE ID	SU1	SU2	SU3
1	VBLANK	96		
2	WCC-1B-5	15 *		
3	WCC1A-6	58		
4	VBLANK	92		
5	WCC-1B-5	2 *		
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

	QC LIMITS
SU1 = CHLOROFLUOROBEN	(33-134)

* Values outside of Anametrix QC limits

HALOGENATED VOLATILE RECOVERY REPORT
EPA METHOD 601/8010
ANAMETRIX, INC. (408)432-8192

Sample I.D. : N/A
Matrix : SOIL
Date sampled : 12/07/92
Date analyzed : 12/21/92

Anametrix I.D. : N/A
Analyst :
Supervisor :
Date released : 12/23/92
Instrument I.D.: HP10

COMPOUND	SPIKE AMT. (ug/Kg)	MS (ug/Kg)	REC MS	MSD (ug/Kg)	REC MSD	RPD	%REC LIMITS
FREON 113	10	8.6	86%	8.5	85%	1%	50 - 150
1,1-DICHLOROETHENE	10	10.6	106%	10.4	104%	2%	37 - 97
trans-1,2-DICHLOROETHENE	10	9.6	96%	9.2	92%	4%	31 - 118
1,1-DICHLOROETHANE	10	10.3	103%	10.8	108%	-5%	53 - 111
cis-1,2-DICHLOROETHENE	10	11.9	119%	12.8	128%	-7%	50 - 150
1,1,1-TRICHLOROETHANE	10	11.8	118%	10.8	108%	9%	42 - 110
TRICHLOROETHENE	10	9.2	92%	9.0	90%	2%	36 - 126
TETRACHLOROETHENE	10	7.4	74%	8.3	83%	-11%	49 - 115
CHLOROBENZENE	10	8.4	84%	10.2	102%	-19%	35 - 105
1,3-DICHLOROBENZENE	10	8.1	81%	7.9	79%	2%	26 - 99
1,4-DICHLOROBENZENE	10	9.2	92%	9.8	98%	-6%	24 - 90
1,2-DICHLOROBENZENE	10	8.9	89%	9.1	91%	-2%	26 - 99

* Limits based on data generated by Anametrix, Inc., September 1992.

LABORATORY CONTROL SAMPLE
EPA METHOD 601/8010
ANAMETRIX, INC. (408)432-8192

Project/Case	: LABORATORY CONTROL SAMPLE	Anametrix I.D.	: WO121892
Matrix	: WATER	Analyst	:
SDG/Batch	: N/A	Supervisor	: CP
Date analyzed	: 12/18/92	Instrument I.D.	: HP10

COMPOUND	SPIKE AMOUNT (ug/L)	AMOUNT RECOVERED (ug/L)	PERCENT RECOVERY	%RECOVERY LIMITS
FREON 113	10	8.5	85%	34 - 128
1,1-DICHLOROETHENE	10	10.4	104%	63 - 133
trans-1,2-DICHLOROETHENE	10	9.2	92%	55 - 145
1,1-DICHLOROETHANE	10	10.8	108%	49 - 121
cis-1,2-DICHLOROETHENE	10	12.8	128%	66 - 168
1,1,1-TRICHLOROETHANE	10	10.8	108%	72 - 143
TRICHLOROETHENE	10	9.0	90%	63 - 147
TETRACHLOROETHENE	10	8.3	83%	60 - 133
CHLOROBENZENE	10	10.2	102%	70 - 148
1,3-DICHLOROBENZENE	10	7.9	79%	49 - 139
1,4-DICHLOROBENZENE	10	9.8	98%	70 - 133
1,2-DICHLOROBENZENE	10	9.1	91%	69 - 140

* Limits based on data generated by Anametrix, Inc., August, 1992.

LABORATORY CONTROL SAMPLE
EPA METHOD 601/8010
ANAMETRIX, INC. (408)432-8192

Project/Case : LABORATORY CONTROL SAMPLE
Matrix : WATER
SDG/Batch : N/A
Date analyzed : 12/21/92

Anametrix I.D. : WQ122192
Analyst : [illegible]
Supervisor : [illegible]
Instrument I.D.: HP10

COMPOUND	SPIKE AMOUNT (ug/L)	AMOUNT RECOVERED (ug/L)	PERCENT RECOVERY	%RECOVERY LIMITS
FREON 113	10	8.0	80%	34 - 128
1,1-DICHLOROETHENE	10	9.9	99%	63 - 133
trans-1,2-DICHLOROETHENE	10	9.9	99%	55 - 145
1,1-DICHLOROETHANE	10	9.1	91%	49 - 121
cis-1,2-DICHLOROETHENE	10	12.7	127%	66 - 168
1,1,1-TRICHLOROETHANE	10	10.2	102%	72 - 143
TRICHLOROETHENE	10	8.4	84%	63 - 147
TETRACHLOROETHENE	10	8.0	80%	60 - 133
CHLOROBENZENE	10	10.0	100%	70 - 148
1,3-DICHLOROBENZENE	10	8.0	80%	49 - 139
1,4-DICHLOROBENZENE	10	9.5	95%	70 - 133
1,2-DICHLOROBENZENE	10	9.0	89%	69 - 140

* Limits based on data generated by Anametrix, Inc., August, 1992.

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212172
Date Received : 12/10/92
Project ID : 92C0480R/2000
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9212172- 4	WCC1A-6	SOIL	12/08/92	TPHd
9212172- 1	WCC-1B-5	SOIL	12/07/92	TPHg/BTEX
9212172- 4	WCC1A-6	SOIL	12/08/92	TPHg/BTEX

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212172
Date Received : 12/10/92
Project ID : 92C0480R/2000
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Department Supervisor — Date 12/22/92

Chemist — Date 12/22/92

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9212172
Matrix : SOIL
Date Sampled : 12/07 & 08/92

Project Number : 92C0480R/2000
Date Released : 12/21/92

COMPOUNDS	Reporting Limit (mg/Kg)	Sample I.D.# WCC-1B-5 -01	Sample I.D.# WCC1A-6 -04	Sample I.D.# BD1401E2 BLANK	Sample I.D.# BD1501E2 BLANK
Benzene	0.005	ND	ND	ND	ND
Toluene	0.005	ND	ND	ND	ND
Ethylbenzene	0.005	ND	ND	ND	ND
Total Xylenes	0.005	ND	ND	ND	ND
TPH as Gasoline	0.5	ND	ND	ND	ND
% Surrogate Recovery		112%	96%	93%	99%
Instrument I.D.		HP8	HP8	HP8	HP8
Date Analyzed		12/14/92	12/15/92	12/14/92	12/15/92
RLMF		1	1	1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

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

Analyst 12/22/92 Date

Supervisor 12/22/92 Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS DIESEL
ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9212172
Matrix : SOIL
Date Sampled : 12/08/92
Date Extracted: 12/15/92

Project Number : 92C0480R/2000
Date Released : 12/21/92
Instrument I.D.: HP23

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)
9212172-04	WCC1A-6	12/16/92	10	ND
DSBL121592	METHOD BLANK	12/16/92	10	ND

Note : Reporting limit is obtained by multiplying the dilution factor times 10 mg/Kg.
ND - Not detected at or above the practical quantitation limit for the method.
TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following sample extraction by EPA Method 3550.

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

Dina Shar 12/22/92
Analyst Date

Cheryl Bauman 12/23/92
Supervisor Date

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 5030 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: LCSS1214
Matrix	: SOIL	Analyst	: IS
Date Sampled	: N/A	Supervisor	: CB
Date Analyzed	: 12/14/92	Date Released	: 12/21/92
		Instrument ID	: HP8

COMPOUND	SPIKE AMT (mg/Kg)	LCS (mg/Kg)	%REC LCS	%REC LIMITS
BENZENE	0.010	0.0088	88%	49-159
TOLUENE	0.010	0.0084	84%	53-156
ETHYLBENZENE	0.010	0.0085	85%	54-151
TOTAL-XYLENES	0.010	0.0086	86%	56-157
P-BFB			102%	53-147

* Quality control limit established by Anametrix, Inc.

TOTAL EXTRACTABLE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 3550 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: LCSS1215
Matrix	: SOIL	Analyst	: LS
Date Sampled	: N/A	Supervisor	: CB
Date Extracted	: 12/15/92	Date Released	: 12/22/92
Date Analyzed	: 12/21/92	Instrument I.D.	: HP19

COMPOUND	SPIKE AMT (mg/Kg)	REC LCS (mg/Kg)	% REC LCS	% REC LIMITS
Diesel	125	128	102%	72-143

*Limits established by Anametrix, Inc.

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212172
Date Received : 12/10/92
Project ID : 92C0480R/2000
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9212172- 4	WCC1A-6	SOIL	12/08/92	5520EF

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212172
Date Received : 12/10/92
Project ID : 92C0480R/2000
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

QA/QC SUMMARY :

- No QA/QC problems encountered for sample.

Cathy Mulkerney 12/18/92
Department Supervisor Date

C R Patel 12-18-92
Chemist Date

ANALYSIS DATA SHEET - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
ANAMETRIX, INC. (408) 432-8192

Project # : 92C0480R/2000
Matrix : SOIL
Date sampled : 12/08/92
Date extracted: 12/15/92
Date analyzed : 12/16/92

Anametrix I.D. : 9212172
Analyst : APP
Supervisor : CM
Date released : 12/17/92

Workorder #	Sample I.D.	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)
921172-04	WCC1A-6	30	40
GSBL121592	METHOD BLANK	30	ND

ND - Not detected at or above the practical quantitation limit for the method.
TRPH - Total Recoverable Petroleum Hydrocarbons are determined by - Standard Method 5520EF.

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

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS MATRIX SPIKE REPORT
STANDARD METHOD 5520EF
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 92C0480R/2000 WCC1A-6	Anametrix I.D.	: 9212172-04
Matrix	: SOIL	Analyst	: ARP
Date sampled	: 12/08/92	Supervisor	: CM
Date extracted	: 12/15/92	Date Released	: 12/17/92
Date analyzed	: 12/16/92		

COMPOUND	SPIKE AMT (mg/Kg)	SAMPLE CONC (mg/Kg)	MS AMT (mg/Kg)	%REC MS	MD AMT (mg/Kg)	%REC MD	%RPD	% REC LIMITS
Motor Oil	300	40	300	87%	290	83%	-4%	48-114%

* Quality control limits established by Anametrix, Inc.

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS LAB CONTROL SAMPLE REPORT
STANDARD METHOD 5520EF
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: LCSS1215
Matrix	: SOIL	Analyst	: ARP
Date sampled	: N/A	Supervisor	: CM
Date extracted	: 12/15/92	Date Released	: 12/17/92
Date analyzed	: 12/16/92		

COMPOUND	SPIKE AMT. (mg/Kg)	LCS (mg/Kg)	%REC LCS	%REC LIMITS
Motor Oil	300	270	90%	68-113%

Quality control established by Anametrix, Inc.

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212172
Date Received : 12/10/92
Project ID : 92C0480R/2000
Purchase Order: N/A
Department : METALS
Sub-Department: METALS

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9212172- 1	WCC-1B-5	SOIL	12/07/92	6010
9212172- 2	WCC2B6.5	SOIL	12/07/92	6010
9212172- 3	WCC3B5.5	SOIL	12/07/92	6010
9212172- 1	WCC-1B-5	SOIL	12/07/92	7060
9212172- 2	WCC2B6.5	SOIL	12/07/92	7060
9212172- 3	WCC3B5.5	SOIL	12/07/92	7060
9212172- 1	WCC-1B-5	SOIL	12/07/92	7471
9212172- 2	WCC2B6.5	SOIL	12/07/92	7471
9212172- 3	WCC3B5.5	SOIL	12/07/92	7471
9212172- 1	WCC-1B-5	SOIL	12/07/92	7740
9212172- 2	WCC2B6.5	SOIL	12/07/92	7740
9212172- 3	WCC3B5.5	SOIL	12/07/92	7740
9212172- 4	WCC1A-6	SOIL	12/08/92	RCRA

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212172
Date Received : 12/10/92
Project ID : 92C0480R/2000
Purchase Order: N/A
Department : METALS
Sub-Department: METALS

QA/QC SUMMARY :

- Spike recoveries for sample WCC1A-6 for selenium by EPA Method 7740, mercury by EPA Method 7471 and silver by EPA Method 6010 were outside of Anametrix control limits.
- Matrix and post digestion spike recoveries for sample WCC1A-6 for arsenic by EPA Method 7060 were outside of Anametrix control limits due to matrix effects.
- All samples were analyzed at 1:2.5 dilution for EPA Method 6010 due to spectral interferences.
- Result for method blank for chromium was found to be above reporting limits. No corrective action was taken because the sample concentration was more than ten times the blank concentration.

Mona Kane/for 12/24/92
Department Supervisor Date

Chemist 12/24/92
Date

ANALYSIS DATA SHEET - INDIVIDUAL METALS
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9212172
Matrix : SOIL
Date Sampled : 12/07/92
Project Number: 92C0480R/2000

Date Prepared : 12/11/92
Date Analyzed : 12/14/92
Date Released : 12/21/92
Instrument I.D.: HGA1/AA2/ICP1

ELEMENTS	EPA Method#	Reporting Limit (mg/Kg)	Sample I.D.# WCC-1B -5 -01	Sample I.D.# WCC2B 6.5 -02
Silver (Ag)	6010	1.2	ND	ND
Arsenic (As)	7060	5.0	6.2	4.3
Barium (Ba)	6010	12.5	221	62.5
Cadmium (Cd)	6010	0.62	ND	ND
Total Cr	6010	1.2	44.5	45.1
Mercury (Hg)	7471	0.10	0.10	0.15
Lead (Pb)	6010	5.0	15.5	ND
Selenium (Se)	7740	2.5	ND	ND

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

All Metals by EPA Method 6010/7000, Test Method for Evaluating Solid Waste, SW-846 3rd Edition November 1986, and California Code of Regulations Title 22, or Method for Chemical Analysis of Water and Wastes, EPA, 3rd edition, 1983.

Supervisor 12/22/92 Date

Chemist 12/22/92 Date

ANALYSIS DATA SHEET - INDIVIDUAL METALS
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9212172
Matrix : SOIL
Date Sampled : 12/07/92
Project Number: 92C0480R/2000

Date Prepared : 12/11/92
Date Analyzed : 12/14/92
Date Released : 12/21/92
Instrument I.D.: HGA1/AA2/ICP1

ELEMENTS	EPA Method#	Reporting Limit (mg/Kg)	Sample I.D.# WCC3B 5.5 -03
Silver (Ag)	6010	1.2	ND
Arsenic (As)	7060	0.50	2.2
Barium (Ba)	6010	12.5	167
Cadmium (Cd)	6010	0.62	ND
Total Cr	6010	1.2	31.8
Mercury (Hg)	7471	0.10	ND
Lead (Pb)	6010	5.0	ND
Selenium (Se)	7740	2.5	ND

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

All Metals by EPA Method 6010/7000, Test Method for Evaluating Solid Waste, SW-846 3rd Edition November 1986, and California Code of Regulations Title 22, or Method for Chemical Analysis of Water and Wastes, EPA, 3rd edition, 1983.

Mamy Nguyen 12/22/92
Supervisor / Date

Mona Kamel 12/22/92
Chemist Date

ANALYSIS DATA SHEET - RCRA METALS
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9212172
Matrix : SOIL
Date Sampled : 12/08/92
Project Number: 92C0480R/2000

Date Prepared : 12/11/92
Date Analyzed : 12/14/92
Date Released : 12/21/92
Instrument I.D.: HGA1/AA2/ICP1

	EPA Method#	Reporting Limit	Sample I.D.# WCC1A-6
ELEMENTS		(mg/Kg)	-04
Silver (Ag)	6010	1.2	ND
Arsenic (As)	7060	5.0	ND
Barium (Ba)	6010	12.5	160
Cadmium (Cd)	6010	0.62	ND
Total Cr	6010	1.2	47.2
Mercury (Hg)	7471	0.10	0.34
Lead (Pb)	7421	0.75	6.5
Selenium (Se)	7740	2.5	ND

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

All Metals by EPA Method 6010/7000, Test Method for Evaluating Solid Waste, SW-846 3rd Edition November 1986, and California Code of Regulations Title 22, or Method for Chemical Analysis of Water and Wastes, EPA, 3rd edition, 1983.

Supervisor 12/22/92 Date

Mona Kamel 12/22/92
Chemist Date

ANALYSIS DATA SHEET - RCRA METALS
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9212172
Matrix : SOIL
Date Sampled : N/A
Project Number: 92C0480R/2000

Date Prepared : 12/11/92
Date Analyzed : 12/14/92
Date Released : 12/21/92
Instrument I.D.: HGA1/AA2/ICP1

ELEMENTS	EPA Method#	Reporting Limit (mg/Kg)	Sample I.D.# BLANK MB1211S
Silver (Ag)	6010	0.50	ND
Arsenic (As)	7060	0.50	ND
Barium (Ba)	6010	5.0	ND
Cadmium (Cd)	6010	0.25	ND
Total Cr	6010	0.50	0.66
Mercury (Hg)	7471	0.14	ND
Lead (Pb)	6010	2.0	ND
Lead (Pb)	7421	0.15	ND
Selenium (Se)	7740	0.25	ND

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

All Metals by EPA Method 6010/7000, Test Method for Evaluating Solid Waste, SW-846 3rd Edition November 1986, and California Code of Regulations Title 22, or Method for Chemical Analysis of Water and Wastes, EPA, 3rd edition, 1983.

Supervisor 12/23/92 Date

Chemist 12/23/92 Date

ANAMETRIX, INC.
1961 CONCOURSE DRIVE, SUITE E
SAN JOSE, CA 95131, (408) 432-8192

INORGANICS MATRIX SPIKE REPORT

Spike I.D. : 9212172-04MS,MD
Date Prepared: 12/11/92
Date Analyzed: 12/14/92
Assoc. WO # : 9212172

Inst. ID : HGA1/AA2/ICP1
Date : 12/21/92
Matrix : SOIL
Conc. Units: mg/Kg

ELEMENTS	METHOD	SPIKE AMOUNT	SAMPLE CONC.*		M.S. CONC.	% REC.	M.S.D. CONC.	% REC.	R P D
Ag	6010	2.5	0.0		1.5	60.0	1.5	60.0	0.0
As	7060	2.0	4.9	**	8.4	175	8.8	195	10.8
Ba	6010	100	160		265	105	267	107	1.9
Cd	6010	2.5	0.0		2.5	100	2.4	96.0	4.1
TTl Cr	6010	10.0	47.2		57.4	102	57.7	105	2.9
Hg	7471	0.50	0.34		0.53	38.0	0.61	54.0	34.8
Pb	6010	25.0	6.6		26.7	80.4	26.2	78.4	2.5
Pb	7421	1.0	6.5		6.1	NR	6.5	NR	NR
Se	7740	0.50	0.0		0.031	6.2	0.0	0.0	200

COMMENT: Quality control limits for percent recovery are 75-125% and 25% for RPD.

* : Sample concentration of 0.0 indicates that the analyte in the sample was below detection limit for the method. 0.0 is entered for calculations of the percent recovery and RPD only.

** : Sample concentration was below the reporting limit but above the instrument detection limit. Result is entered for calculations of the percent recovery only.

NR : Not reported due to interferences from relatively high background levels in the unspiked sample.

Supervisor Date

Chemist 12/22/92 Date

ANAMETRIX, INC.
1961 CONCOURSE DRIVE, SUITE E
SAN JOSE, CA 95131, (408) 432-8192

POST DIGESTION SPIKE REPORT

Spike I.D. : 9212172-04PDS
Date Prepared: 12/11/92
Date Analyzed: 12/14/92
Assoc. WO # : 9212172

Inst. ID : AA2
Date : 12/21/92
Matrix : SOIL
Conc. Units: mg/Kg

ELEMENTS	METHOD	SPIKE AMOUNT	SAMPLE CONC.	P.D.S. CONC.	% REC.
As	7060	10.0 **	4.9	14.9	100
Se	7740	5.0	0.0	5.3	106

COMMENT: Quality control limits for percent recovery are 85-115%.

** : Sample concentration was below the reporting limit but above the instrument detection limit. Result is entered for calculations of the percent recovery only.

Sample was diluted 1:10 prior to post digestion spike addition for arsenic and selenium.

Supervisor 12/22/92 Date

Chemist 12/22/92 Date

ANAMETRIX, INC.
1961 CONCOURSE DRIVE, SUITE E
SAN JOSE, CA 95131, (408) 432-8192

INDIVIDUAL METALS METHOD SPIKE REPORT

Spike I.D. : LCS1211S, LCS1217S
Date Prepared: 12/11, 12/17/92
Date Analyzed: 12/14, 12/21/92
Assoc. WO # : 9212172

Inst. ID : HGA1/AA2/ICP1
Date : 12/21/92
Matrix : SOIL
Conc. Units: mg/Kg

ELEMENTS	METHOD	SPIKE AMOUNT	METHOD SPIKE	% REC.
Ag	6010	2.5	2.9	116
As	7060	2.0	2.0	100
Ba	6010	100	106	106
Cd	6010	2.5	2.9	116
TTl Cr	6010	10.0	10.2	102
Hg	7471	0.50	0.43	86.0
Pb	6010	25.0	25.5	102
Pb	7421	1.0	0.91	91.0
Se	7740	0.50	0.49	98.0

COMMENT: Quality control limits for percent recovery are 80-120%.

Supervisor 12/22/92 Date

Chemist 12/22/92 Date

ANAMETRIX INC
Environmental & Analytical Chemistry

Part of INCHCAPE ENVIRONMENTAL

REPORT

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212211
Date Received : 12/11/92
Project ID : 92C-0480-R
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9212211- 1	WCC-1A

This report consists of 28 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Sarah Schoen, Ph.D.
Laboratory Director

12-28-92
Date

ANAMETRIX REPORT DESCRIPTION
GC

Organic Analysis Data Sheets (OADS)

OADS forms contain tabulated results for target compounds. The OADS are grouped by method and, within each method, organized sequentially in order of increasing Anametrix ID number.

Surrogate Recovery Summary (SRS)

SRS forms contain quality assurance data. An SRS form will be printed for each method, if the method requires surrogate compounds. They will list surrogate percent recoveries for all samples and any method blanks. Any surrogate recovery outside the established limits will be flagged with an "*", and the total number of surrogates outside the limits will be listed in the column labelled "Total Out".

Matrix Spike Recovery Form (MSR)

MSR forms contain quality assurance data. They summarize percent recovery and relative percent difference information for matrix spikes and matrix spike duplicates. This information is a statement of both accuracy and precision. Any percent recovery or relative percent difference outside established limits will be flagged with an "*", and the total number outside the limits will be listed at the bottom of the page. Not all reports will contain an MSR form.

Qualifiers

Anametrix uses several data qualifiers (Q) in it's report forms. These qualifiers give additional information on the compounds reported. They should help a data reviewer to verify the integrity of the analytical results. The following is a list of qualifiers and their meanings:

- U - Indicates that the compound was analyzed for, but was not detected at or above the specified reporting limit.
- B - Indicates that the compound was detected in the associated method blank.
- J - Indicates that the compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value. Tentatively identified compounds will always have a "J" qualifier because they are not included in the instrument calibration.
- E - Indicates that the amount reported exceeded the linear range of the instrument calibration.
- D - Indicates that the compound was detected in an analysis performed at a secondary dilution.

Absence of a qualifier indicates that the compound was detected at a concentration at or above the specified reporting limit.

REPORTING CONVENTIONS

- Due to a size limitation in our data processing step, only the first eight (8) characters of your project ID and sample ID will be printed on the report forms. However, the report cover letter and report summary pages display up to twenty (20) characters of your project and sample IDs.
- Amounts reported are gross values, i.e., not corrected for method blank contamination.

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212211
Date Received : 12/11/92
Project ID : 92C-0480-R
Purchase Order: N/A
Department : GC
Sub-Department: VOA

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9212211- 1	WCC-1A	SOIL	12/08/92	8010

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212211
Date Received : 12/11/92
Project ID : 92C-0480-R
Purchase Order: N/A
Department : GC
Sub-Department: VOA

QA/QC SUMMARY :

- No QA/QC problems encountered for sample.

Grinnell Bauer 12/23/92
Department Supervisor Date

M. Hasselmann 12/23/92
Chemist Date

DESCRIPTIONS FOR SPECIFIC COMPOUNDS ANALYZED
EPA METHOD 601/8010

CAS #	COMPOUND NAME	ABBREVIATED NAME
74-87-3	Chloromethane	Chloromethane
74-83-9	Bromomethane	Bromoethane
75-71-8	Dichlorodifluoromethane	Freon 12
75-01-4	Vinyl Chloride	Vinyl Chloride
75-00-3	Chloroethane	Chloroethane
75-09-2	Methylene Chloride	Methylene Chlor
75-69-4	Trichlrofluoromethane	Freon 11
75-35-4	1,1-Dichloroethene	1,1-DCE
75-34-3	1,1-Dichloroethane	1,1-DCA
156-59-2	Cis-1,2-Dichloroethene	Cis-1,2-DCE
156-60-5	Trans-1,2-Dichloroethene	Trans-1,2-DCE
67-66-3	Chloroform	Chloroform
76-13-1	Trichlorotrifluoroethane	Freon 113
107-06-2	1,2-Dichloroethane	1,2-DCA
71-55-6	1,1,1-Trichloroethane	1,1,1-TCA
56-23-5	Carbon Tetrachloride	Carbon Tet
75-27-4	Bromodichloromethane	BromodichloroMe
78-87-5	1,2-Dichloropropane	1,2-DCPA
10061-02-6	Trans-1,3-Dichloropropene	Trans-1,3-DCPE
79-01-6	Trichloroethene	TCE
124-48-1	Dibromochloromethane	DibromochloroMe
79-00-5	1,1,2-Trichloroethane	1,1,2-TCA
10061-01-5	Cis-1,3-Dichloropropene	Cis-1,3-DCPE
110-75-8	2-Chloroethylvinylether	Chloroethylvinl
75-25-2	Bromoform	Bromoform
127-18-4	Tetrachloroethene	PCE
79-34-5	1,1,2,2-Tetrachloroethane	PCA
108-90-7	Chlorobenzene	Chlorobenzene
95-50-1	1,2-Dichlorobenzene	1,2-DCB
541-73-1	1,3-Dichlorobenzene	1,3-DCB
106-46-7	1,4-Dichlorobenzene	1,4-DCB
352-33-0	p-Chlorofluorobenzene	Chlorofluoroben

mh/3426 - 10MH

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 8010
ANAMETRIX, INC. (408)432-8192

Project ID : 92C-0480
Sample ID : WCC-1A
Matrix : SOIL
Date Sampled :12/ 8/92
Date Analyzed :12/18/92
Instrument ID : HP10

Anametrix ID : 9212211-01
Analyst : DL
Supervisor : CP

Dilution Factor : 1.0
Conc. Units : ug/Kg

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
75-71-8	Freon 12	1.0	ND	U
74-87-3	Chloromethane	1.0	ND	U
75-01-4	Vinyl Chloride	.50	ND	U
74-83-9	Bromomethane	.50	ND	U
75-00-3	Chloroethane	.50	ND	U
75-69-4	Freon 11	.50	ND	U
76-13-1	Freon 113	.50	ND	U
75-35-4	1,1-DCE	.50	ND	U
75-09-2	Methylene Chlor	1.0	ND	U
156-60-5	Trans-1,2-DCE	.50	ND	U
75-34-3	1,1-DCA	.50	ND	U
156-59-2	Cis-1,2-DCE	.50	ND	U
67-66-3	Chloroform	.50	ND	U
71-55-6	1,1,1-TCA	.50	ND	U
56-23-5	Carbon Tet	.50	ND	U
107-06-2	1,2-DCA	.50	ND	U
79-01-6	Trichloroethene	.50	ND	U
78-87-5	1,2-DCPA	.50	ND	U
75-27-4	Bromodichlorome	.50	ND	U
110-75-8	Chloroethylvinl	1.0	ND	U
10061-01-5	Cis-1,3-DCPE	.50	ND	U
10061-02-6	Trans-1,3-DCPE	.50	ND	U
79-00-5	1,1,2-TCA	.50	ND	U
127-18-4	PCE	.50	ND	U
124-48-1	Dibromochlorome	.50	ND	U
108-90-7	Chlorobenzene	.50	ND	U
75-25-2	Bromoform	.50	ND	U
79-34-5	1,1,2,2-PCA	.50	ND	U
541-73-1	1,3-DCB	1.0	ND	U
106-46-7	1,4-DCB	1.0	ND	U
95-50-1	1,2-DCB	1.0	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 8010
ANAMETRIX, INC. (408)432-8192

Project ID : 92C-04
Sample ID : VBLANK
Matrix : SOIL
Date Sampled : 0/ 0/ 0
Date Analyzed :12/18/92
Instrument ID : HP10

Anametrix ID : 10B1218H01
Analyst : [illegible]
Supervisor : [illegible]

Dilution Factor : 1.0
Conc. Units : ug/Kg

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
75-71-8	Freon 12	1.0	ND	U
74-87-3	Chloromethane	1.0	ND	U
75-01-4	Vinyl Chloride	.50	ND	U
74-83-9	Bromomethane	.50	ND	U
75-00-3	Chloroethane	.50	ND	U
75-69-4	Freon 11	.50	ND	U
76-13-1	Freon 113	.50	ND	U
75-35-4	1,1-DCE	.50	ND	U
75-09-2	Methylene Chlor	1.0	ND	U
156-60-5	Trans-1,2-DCE	.50	ND	U
75-34-3	1,1-DCA	.50	ND	U
156-59-2	Cis-1,2-DCE	.50	ND	U
67-66-3	Chloroform	.50	ND	U
71-55-6	1,1,1-TCA	.50	ND	U
56-23-5	Carbon Tet	.50	ND	U
107-06-2	1,2-DCA	.50	ND	U
79-01-6	Trichloroethene	.50	ND	U
78-87-5	1,2-DCPA	.50	ND	U
75-27-4	Bromodichlorome	.50	ND	U
110-75-8	Chloroethylvinl	1.0	ND	U
10061-01-5	Cis-1,3-DCPE	.50	ND	U
10061-02-6	Trans-1,3-DCPE	.50	ND	U
79-00-5	1,1,2-TCA	.50	ND	U
127-18-4	PCE	.50	ND	U
124-48-1	Dibromochlorome	.50	ND	U
108-90-7	Chlorobenzene	.50	ND	U
75-25-2	Bromoform	.50	ND	U
79-34-5	1,1,2,2-PCA	.50	ND	U
541-73-1	1,3-DCB	1.0	ND	U
106-46-7	1,4-DCB	1.0	ND	U
95-50-1	1,2-DCB	1.0	ND	U

SURROGATE RECOVERY SUMMARY -- EPA METHOD 8010
ANAMETRIX, INC. (408)432-8192

Project ID : 92C-0480
Matrix : SOLID

Anametrix ID : 9212211
Analyst : ph
Supervisor : CS

	SAMPLE ID	SU1	SU2	SU3
1	VBLANK	96		
2	WCC-1A	58		
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
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23				
24				
25				
26				
27				
28				
29				
30				

	QC LIMITS
SU1 = CHLOROFLUOROBEN	(33-134)

* Values outside of Anametrix QC limits

LABORATORY CONTROL SAMPLE
EPA METHOD 601/8010
ANAMETRIX, INC. (408)432-8192

Project/Case : LABORATORY CONTROL SAMPLE
Matrix : WATER
SDG/Batch : N/A
Date analyzed : 12/18/92

Anametrix I.D. : WO121892
Analyst :
Supervisor :
Instrument I.D.: HP10

COMPOUND	SPIKE AMOUNT (ug/L)	AMOUNT RECOVERED (ug/L)	PERCENT RECOVERY	%RECOVERY LIMITS
FREON 113	10	8.5	85%	34 - 128
1,1-DICHLOROETHENE	10	10.4	104%	63 - 133
trans-1,2-DICHLOROETHENE	10	9.2	92%	55 - 145
1,1-DICHLOROETHANE	10	10.8	108%	49 - 121
cis-1,2-DICHLOROETHENE	10	12.8	128%	66 - 168
1,1,1-TRICHLOROETHANE	10	10.8	108%	72 - 143
TRICHLOROETHENE	10	9.0	90%	63 - 147
TETRACHLOROETHENE	10	8.3	83%	60 - 133
CHLOROBENZENE	10	10.2	102%	70 - 148
1,3-DICHLOROBENZENE	10	7.9	79%	49 - 139
1,4-DICHLOROBENZENE	10	9.8	98%	70 - 133
1,2-DICHLOROBENZENE	10	9.1	91%	69 - 140

* Limits based on data generated by Anametrix, Inc., August, 1992.

HALOGENATED VOLATILE RECOVERY REPORT
EPA METHOD 601/8010
ANAMETRIX, INC. (408)432-8192

Sample I.D. : N/A
Matrix : SOIL
Date sampled : 12/07/92
Date analyzed : 12/21/92

Anametrix I.D. : N/A
Analyst :
Supervisor :
Date released : 12/23/92
Instrument I.D.: HP10

COMPOUND	SPIKE AMT. (ug/Kg)	MS (ug/Kg)	REC MS	MSD (ug/Kg)	REC MSD	RPD	%REC LIMITS
FREON 113	10	8.6	86%	8.5	85%	1%	50 - 150
1,1-DICHLOROETHENE	10	10.6	106%	10.4	104%	2%	37 - 97
trans-1,2-DICHLOROETHENE	10	9.6	96%	9.2	92%	4%	31 - 118
1,1-DICHLOROETHANE	10	10.3	103%	10.8	108%	-5%	53 - 111
cis-1,2-DICHLOROETHENE	10	11.9	119%	12.8	128%	-7%	50 - 150
1,1,1-TRICHLOROETHANE	10	11.8	118%	10.8	108%	9%	42 - 110
TRICHLOROETHENE	10	9.2	92%	9.0	90%	2%	36 - 126
TETRACHLOROETHENE	10	7.4	74%	8.3	83%	-11%	49 - 115
CHLOROBENZENE	10	8.4	84%	10.2	102%	-19%	35 - 105
1,3-DICHLOROBENZENE	10	8.1	81%	7.9	79%	2%	26 - 99
1,4-DICHLOROBENZENE	10	9.2	92%	9.8	98%	-6%	24 - 90
1,2-DICHLOROBENZENE	10	8.9	89%	9.1	91%	-2%	26 - 99

* Limits based on data generated by Anametrix, Inc., September 1992.

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212211
Date Received : 12/11/92
Project ID : 92C-0480-R
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9212211- 1	WCC-1A	SOIL	12/08/92	TPHd
9212211- 1	WCC-1A	SOIL	12/08/92	TPHg/BTEX

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212211
Date Received : 12/11/92
Project ID : 92C-0480-R
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for this sample.

Department Supervisor 12/23/92 Date

Chemist 12.23.92 Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9212211
Matrix : SOIL
Date Sampled : 12/08/92

Project Number : 92C-0480-R
Date Released : 12/21/92

COMPOUNDS	Reporting Limit (mg/Kg)	Sample I.D.# WCC-1A -01	Sample I.D.# BD1701E2 BLANK
Benzene	0.005	ND	ND
Toluene	0.005	ND	ND
Ethylbenzene	0.005	ND	ND
Total Xylenes	0.005	0.007	ND
TPH as Gasoline	0.5	ND	ND
% Surrogate Recovery		67%	85%
Instrument I.D.		HP8	HP8
Date Analyzed		12/17/92	12/17/92
RLMF		1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

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

Lucia Shor 12/28/92
Analyst Date

Cheryl Bateman 12/28/92
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS DIESEL
ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9212211
Matrix : SOIL
Date Sampled : 12/08/92
Date Extracted: 12/15/92

Project Number : 92C-0480-R
Date Released : 12/21/92
Instrument I.D.: HP23

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)
9212211-01	WCC-1A	12/16/92	10	ND
DSBL121592	METHOD BLANK	12/16/92	10	ND

Note : Reporting limit is obtained by multiplying the dilution factor times 10 mg/Kg.
ND - Not detected at or above the practical quantitation limit for the method.
TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following sample extraction by EPA Method 3550.

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

Christine Burch 12-22-92
Analyst Date

Cheryl Baenen 12/22/92
Supervisor Date

TOTAL VOLATILE HYDROCARBON MATRIX SPIKE REPORT
EPA METHOD 5030 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 92C-0480-R WCC-1A
Matrix : SOIL
Date Sampled : 12/08/92
Date Analyzed : 12/17/92

Anametrix I.D. : 9212211-01
Analyst : IS
Supervisor : CB
Date Released : 12/22/92
Instrument ID : HP8

COMPOUND	SPIKE AMT (mg/Kg)	SAMPLE CONC (mg/Kg)	REC MS (mg/Kg)	% REC MS	REC MD (mg/Kg)	% REC MD	RPD	% REC LIMITS
GASOLINE	1.25	0.00	1.20	96%	1.20	96%	0%	48-145
P-BFB				96%		83%		53-147

* Limits established by Anametrix, Inc.

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 5030 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
Matrix : SOIL
Date Sampled : N/A
Date Analyzed : 12/17/92

Anametrix I.D. : LCSS1217
Analyst : IS
Supervisor : CS
Date Released : 12/21/92
Instrument I.D.: HP8

COMPOUND	SPIKE AMT. (mg/Kg)	REC LCS (mg/Kg)	%REC LCS	% REC LIMITS
GASOLINE	0.25	0.26	104%	48-145
SURROGATE		98%		53-147

* Quality control established by Anametrix, Inc.

TOTAL EXTRACTABLE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 3550 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: LAB CONTROL SAMPLE	Anametrix I.D.	: LCSS1215
Matrix	: SOIL	Analyst	: IS
Date Sampled	: N/A	Supervisor	: CY
Date Extracted	: 12/15/92	Date Released	: 12/22/92
Date Analyzed	: 12/21/92	Instrument I.D.	: HP19

COMPOUND	SPIKE AMT (mg/Kg)	REC LCS (mg/Kg)	% REC LCS	% REC LIMITS
Diesel	125	128	102%	72-143

*Limits established by Anametrix, Inc.

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212211
Date Received : 12/11/92
Project ID : 92C-0480-R
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9212211- 1	WCC-1A	SOIL	12/08/92	5520EF

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212211
Date Received : 12/11/92
Project ID : 92C-0480-R
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

QA/QC SUMMARY :

- No QA/QC problems encountered for sample.

Department Supervisor 12/18/92 Date

Chemist 12-18-92 Date

ANALYSIS DATA SHEET - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
ANAMETRIX, INC. (408) 432-8192

Project # : 92C-0480-R
Matrix : SOIL
Date sampled : 12/08/92
Date extracted: 12/15/92
Date analyzed : 12/16/92

Anametrix I.D. : 9212211
Analyst : AP
Supervisor : CM
Date released : 12/18/92

Workorder #	Sample I.D.	Reporting Limit (mg/Kg)	Amount Found (mg/Kg)
9212211-01	WCC-1A	30	47
GSBL121592	METHOD BLANK	30	ND

ND - Not detected at or above the practical quantitation limit for the method.
TRPH - Total Recoverable Petroleum Hydrocarbons are determined by - Standard Method 5520EF.

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

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS MATRIX SPIKE REPORT
STANDARD METHOD 5520EF
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 92C-0480-R WCC-1A
Matrix : SOIL
Date sampled : 12/08/92
Date extracted : 12/15/92
Date analyzed : 12/16/92

Anametrix I.D. : 9212211-01
Analyst : PRP
Supervisor : CMW
Date Released : 12/18/92

COMPOUND	SPIKE AMT (mg/Kg)	SAMPLE CONC (mg/Kg)	MS AMT (mg/Kg)	%REC MS	MD AMT (mg/Kg)	%REC MD	%RPD	% REC LIMITS
Motor Oil	300	47	320	91%	310	88%	-4%	48-114%

* Quality control limits established by Anametrix, Inc.

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS LAB CONTROL SAMPLE REPORT
STANDARD METHOD 5520EF
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
Matrix : SOIL
Date sampled : N/A
Date extracted : 12/15/92
Date analyzed : 12/16/92

Anametrix I.D. : LCSS1215
Analyst : APP.
Supervisor : CM
Date Released : 12/18/92

COMPOUND	SPIKE AMT. (mg/Kg)	LCS (mg/Kg)	%REC LCS	%REC LIMITS
Motor Oil	300	270	90%	68-113%

Quality control established by Anametrix, Inc.

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212211
Date Received : 12/11/92
Project ID : 92C-0480-R
Purchase Order: N/A
Department : METALS
Sub-Department: METALS

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9212211- 1	WCC-1A	SOIL	12/08/92	RCRA

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212211
Date Received : 12/11/92
Project ID : 92C-0480-R
Purchase Order: N/A
Department : METALS
Sub-Department: METALS

QA/QC SUMMARY :

- Matrix and post digestion for sample WCC-1A for arsenic by EPA Method 7060 were outside of Anametrix control limits due to matrix effects.
- Spike recoveries for sample WCC-1A for selenium by EPA Method 7740 were outside of Anametrix control limits due to matrix effects.
- Sample WCC-1A was analyzed at 1:5 dilution by EPA Method 6010 due to spectral interferences.
- Reporting limits for arsenic and selenium were increased to compensate for matrix interferences.
- Spike recoveries for lead by EPA Method 7421 were outside of Anametrix control limits due to high levels present in the unspiked sample.

Department Supervisor 12/22/92 Date

Chemist 12/22/92 Date

ANALYSIS DATA SHEET - RCRA METALS
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9212211
Matrix : SOIL
Date Sampled : 12/08/92
Project Number: 92C-0480-R

Date Prepared : 12/16/92
Date Analyzed : 12/17/92
Date Released : 12/21/92
Instrument I.D.: HGA1/AA2/ICP1

ELEMENTS	EPA Method#	Reporting Limit (mg/Kg)	Sample I.D.# WCC-1A -01
Silver (Ag)	6010	2.5	ND
Arsenic (As)	7060	5.0	6.3
Barium (Ba)	6010	25.0	176
Cadmium (Cd)	6010	1.2	ND
Total Cr	6010	2.5	72.2
Mercury (Hg)	7471	0.10	0.14
Lead (Pb)	7421	0.75	6.3
Selenium (Se)	7740	2.5	ND

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

All Metals by EPA Method 6010/7000, Test Method for Evaluating Solid Waste, SW-846 3rd Edition November 1986, and California Code of Regulations Title 22, or Method for Chemical Analysis of Water and Wastes, EPA, 3rd edition, 1983.

Supervisor 12/21/92 Date

Chemist 12/22/92 Date

ANALYSIS DATA SHEET - RCRA METALS
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9212211
Matrix : SOIL
Date Sampled : N/A
Project Number: 92C-0480-R

Date Prepared : 12/16/92
Date Analyzed : 12/17/92
Date Released : 12/21/92
Instrument I.D.: HGA1/AA2/ICP1

ELEMENTS	EPA Method#	Reporting Limit (mg/Kg)	Sample I.D.# BLANK MB1216S
Silver (Ag)	6010	0.50	ND
Arsenic (As)	7060	0.50	ND
Barium (Ba)	6010	5.0	ND
Cadmium (Cd)	6010	0.25	ND
Total Cr	6010	0.50	ND
Mercury (Hg)	7471	0.10	ND
Lead (Pb)	7421	0.15	ND
Selenium (Se)	7740	0.25	ND

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

All Metals by EPA Method 6010/7000, Test Method for Evaluating Solid Waste, SW-846 3rd Edition November 1986, and California Code of Regulations Title 22, or Method for Chemical Analysis of Water and Wastes, EPA, 3rd edition, 1983.

Supervisor 12/21/92 Date

Chemist 12/22/92 Date

ANAMETRIX, INC.
1961 CONCOURSE DRIVE, SUITE E
SAN JOSE, CA 95131, (408) 432-8192

INORGANICS MATRIX SPIKE REPORT

Spike I.D. : 9212211-01MS,MD
Date Prepared: 12/16/92
Date Analyzed: 12/17/92
Assoc. WO # : 9212211

Inst. ID : HGA1/AA2/ICP1
Date : 12/21/92
Matrix : SOIL
Conc. Units: mg/Kg

ELEMENTS	METHOD	SPIKE AMOUNT	SAMPLE CONC.*	M.S. CONC.	% REC.	M.S.D. CONC.	% REC.	R P D
Ag	6010	2.5	0.0	2.9	116	2.9	116	0.0
As	7060	2.0	6.3	4.0	0.0	4.1	0.0	0.0
Ba	6010	100	176	282	106	286	110	3.7
Cd	6010	2.5	0.0	2.6	104	2.9	116	10.9
TTl Cr	6010	10.0	72.2	65.4	NR	65.5	NR	NR
Hg	7471	0.50	0.14	0.63	98.0	0.64	100	2.0
Pb	7421	1.0	6.3	7.9	NR	7.9	NR	NR
Se	7740	1.0	0.0	0.0	0.0	0.0	0.0	0.0

COMMENT: Quality control limits for percent recovery are 75-125% and 25% for RPD.

* : Sample concentration of 0.0 indicates that the analyte in the sample was below detection limit for the method. 0.0 is entered for calculations of the percent recovery and RPD only.

NR : Not reported due to interferences from relatively high background levels in the unspiked sample.

Mammy Nguyen 12/21/92
Supervisor Date

Mona Kamel 12/22/92
Chemist Date

ANAMETRIX, INC.
1961 CONCOURSE DRIVE, SUITE E
SAN JOSE, CA 95131, (408) 432-8192

POST DIGESTION SPIKE REPORT

Spike I.D. : 9212211-01PDS
Date Prepared: 12/17/92
Date Analyzed: 12/17/92
Assoc. WO # : 9212211

Inst. ID : AA2
Date : 12/21/92
Matrix : SOIL
Conc. Units: mg/Kg

ELEMENTS	METHOD	SPIKE AMOUNT	SAMPLE CONC.	P.D.S. CONC.	% REC.
As	7060	10.0	6.3	1.6	0.0
Se	7740	5.0	0.0	4.3	86.0

COMMENT: Quality control limits for percent recovery are 85-115%.

* : Sample was diluted 1:10 prior to post digestion spike addition for arsenic and selenium.

Supervisor 12/21/92 Date

Chemist 12/22/92 Date

ANAMETRIX, INC.
1961 CONCOURSE DRIVE, SUITE E
SAN JOSE, CA 95131, (408) 432-8192

INDIVIDUAL METALS METHOD SPIKE REPORT

Spike I.D.	: LCS1216S	Inst. ID	: HGA1/AA2/ICP1
Date Prepared:	12/16/92	Date	: 12/21/92
Date Analyzed:	12/17/92	Matrix	: SOIL
Assoc. WO #	: 9212211	Conc. Units:	mg/Kg

ELEMENTS	METHOD	SPIKE AMOUNT	METHOD SPIKE	% REC.
Ag	6010	2.5	2.2	88.0
As	7060	2.0	2.0	100
Ba	6010	100	98.2	98.2
Cd	6010	2.5	2.3	92.0
TTl Cr	6010	10.0	9.7	97.0
Hg	7471	0.50	0.43	86.0
Pb	7421	1.0	1.0	100
Se	7740	0.50	0.49	98.0

COMMENT: Quality control limits for percent recovery are 80-120%.

Supervisor 12/21/92 Date

Chemist 12/22/92 Date

ANAMETRIX INC
Environmental & Analytical Chemistry

Part of INCHCAPE ENVIRONMENTAL

REPORT

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212271
Date Received : 12/17/92
Project ID : 92C0480R/3000
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9212271- 1	WCC-1A

This report consists of 26 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Sarah Schoen, Ph.D.
Laboratory Director

01-04-93
Date

ANAMETRIX REPORT DESCRIPTION
GC

Organic Analysis Data Sheets (OADS)

OADS forms contain tabulated results for target compounds. The OADS are grouped by method and, within each method, organized sequentially in order of increasing Anametrix ID number.

Surrogate Recovery Summary (SRS)

SRS forms contain quality assurance data. An SRS form will be printed for each method, if the method requires surrogate compounds. They will list surrogate percent recoveries for all samples and any method blanks. Any surrogate recovery outside the established limits will be flagged with an "*", and the total number of surrogates outside the limits will be listed in the column labelled "Total Out".

Matrix Spike Recovery Form (MSR)

MSR forms contain quality assurance data. They summarize percent recovery and relative percent difference information for matrix spikes and matrix spike duplicates. This information is a statement of both accuracy and precision. Any percent recovery or relative percent difference outside established limits will be flagged with an "*", and the total number outside the limits will be listed at the bottom of the page. Not all reports will contain an MSR form.

Qualifiers

Anametrix uses several data qualifiers (Q) in it's report forms. These qualifiers give additional information on the compounds reported. They should help a data reviewer to verify the integrity of the analytical results. The following is a list of qualifiers and their meanings:

- U - Indicates that the compound was analyzed for, but was not detected at or above the specified reporting limit.
- B - Indicates that the compound was detected in the associated method blank.
- J - Indicates that the compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value. Tentatively identified compounds will always have a "J" qualifier because they are not included in the instrument calibration.
- E - Indicates that the amount reported exceeded the linear range of the instrument calibration.
- D - Indicates that the compound was detected in an analysis performed at a secondary dilution.

Absence of a qualifier indicates that the compound was detected at a concentration at or above the specified reporting limit.

REPORTING CONVENTIONS

- Due to a size limitation in our data processing step, only the first eight (8) characters of your project ID and sample ID will be printed on the report forms. However, the report cover letter and report summary pages display up to twenty (20) characters of your project and sample IDs.
- Amounts reported are gross values, i.e., not corrected for method blank contamination.

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212271
Date Received : 12/17/92
Project ID : 92C0480R/3000
Purchase Order: N/A
Department : GC
Sub-Department: VOA

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9212271- 1	WCC-1A	WATER	12/17/92	8010

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212271
Date Received : 12/17/92
Project ID : 92C0480R/3000
Purchase Order: N/A
Department : GC
Sub-Department: VOA

QA/QC SUMMARY :

- Sample S-1 was analyzed at a dilution due to foaminess.
- In the batch spike/batch spike duplicate, the percent recoveries of 1,4- DCB are outside of Anametrix control limits for EPA Method 8010.

Department Supervisor 12/30/92 Date

Chemist 12/30/92 Date

DESCRIPTIONS FOR SPECIFIC COMPOUNDS ANALYZED
EPA METHOD 601/8010

CAS #	COMPOUND NAME	ABBREVIATED NAME
74-87-3	Chloromethane	Chloromethane
74-83-9	Bromomethane	Bromoethane
75-71-8	Dichlorodifluoromethane	Freon 12
75-01-4	Vinyl Chloride	Vinyl Chloride
75-00-3	Chloroethane	Chloroethane
75-09-2	Methylene Chloride	Methylene Chlor
75-69-4	Trichlrofluoromethane	Freon 11
75-35-4	1,1-Dichloroethene	1,1-DCE
75-34-3	1,1-Dichloroethane	1,1-DCA
156-59-2	Cis-1,2-Dichloroethene	Cis-1,2-DCE
156-60-5	Trans-1,2-Dichloroethene	Trans-1,2-DCE
67-66-3	Chloroform	Chloroform
76-13-1	Trichlorotrifluoroethane	Freon 113
107-06-2	1,2-Dichloroethane	1,2-DCA
71-55-6	1,1,1-Trichloroethane	1,1,1-TCA
56-23-5	Carbon Tetrachloride	Carbon Tet
75-27-4	Bromodichloromethane	BromodichloroMe
78-87-5	1,2-Dichloropropane	1,2-DCPA
10061-02-6	Trans-1,3-Dichloropropene	Trans-1,3-DCPE
79-01-6	Trichloroethene	TCE
124-48-1	Dibromochloromethane	DibromochloroMe
79-00-5	1,1,2-Trichloroethane	1,1,2-TCA
10061-01-5	Cis-1,3-Dichloropropene	Cis-1,3-DCPE
110-75-8	2-Chloroethylvinylether	Chloroethylvinl
75-25-2	Bromoform	Bromoform
127-18-4	Tetrachloroethene	PCE
79-34-5	1,1,2,2-Tetrachloroethane	PCA
108-90-7	Chlorobenzene	Chlorobenzene
95-50-1	1,2-Dichlorobenzene	1,2-DCB
541-73-1	1,3-Dichlorobenzene	1,3-DCB
106-46-7	1,4-Dichlorobenzene	1,4-DCB
352-33-0	p-Chlorofluorobenzene	Chlorofluoroben

mh/3428 - 10MH

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 8010
ANAMETRIX, INC. (408)432-8192

Project ID : 92C0480R
Sample ID : WCC-1A
Matrix : WATER
Date Sampled :12/17/92
Date Analyzed :12/29/92
Instrument ID : HP15

Anametrix ID : 9212271-01
Analyst : MY
Supervisor : [illegible]

Dilution Factor : 50.0
Conc. Units : ug/L

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
75-71-8	Freon 12	50.	ND	U
74-87-3	Chloromethane	50.	ND	U
75-01-4	Vinyl Chloride	25.	ND	U
74-83-9	Bromomethane	25.	ND	U
75-00-3	Chloroethane	25.	ND	U
75-69-4	Freon 11	25.	ND	U
76-13-1	Freon 113	25.	ND	U
75-35-4	1,1-DCE	25.	ND	U
75-09-2	Methylene Chlor	50.	ND	U
156-60-5	Trans-1,2-DCE	25.	ND	U
75-34-3	1,1-DCA	25.	ND	U
156-59-2	Cis-1,2-DCE	25.	ND	U
67-66-3	Chloroform	25.	ND	U
71-55-6	1,1,1-TCA	25.	ND	U
56-23-5	Carbon Tet	25.	ND	U
107-06-2	1,2-DCA	25.	ND	U
79-01-6	Trichloroethene	25.	ND	U
78-87-5	1,2-DCPA	25.	ND	U
75-27-4	Bromodichlorome	25.	ND	U
110-75-8	Chloroethylvinl	50.	ND	U
10061-01-5	Cis-1,3-DCPE	25.	ND	U
10061-02-6	Trans-1,3-DCPE	25.	ND	U
79-00-5	1,1,2-TCA	25.	ND	U
127-18-4	PCE	25.	ND	U
124-48-1	Dibromochlorome	25.	ND	U
108-90-7	Chlorobenzene	25.	270.	
75-25-2	Bromoform	25.	ND	U
79-34-5	1,1,2,2-PCA	25.	ND	U
541-73-1	1,3-DCB	50.	1400.	
106-46-7	1,4-DCB	50.	1500.	
95-50-1	1,2-DCB	50.	290.	

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 8010
ANAMETRIX, INC. (408)432-8192

Project ID : 92C0480R
Sample ID : WCC-1A D
Matrix : WATER
Date Sampled :12/17/92
Date Analyzed :12/29/92
Instrument ID : HP15

Anametrix ID : 9212271-01
Analyst :
Supervisor :

Dilution Factor : 50.0
Conc. Units : ug/L

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
75-71-8	Freon 12	50.	ND	U
74-87-3	Chloromethane	50.	ND	U
75-01-4	Vinyl Chloride	25.	ND	U
74-83-9	Bromomethane	25.	ND	U
75-00-3	Chloroethane	25.	ND	U
75-69-4	Freon 11	25.	ND	U
76-13-1	Freon 113	25.	ND	U
75-35-4	1,1-DCE	25.	ND	U
75-09-2	Methylene Chlor	50.	ND	U
156-60-5	Trans-1,2-DCE	25.	ND	U
75-34-3	1,1-DCA	25.	ND	U
156-59-2	Cis-1,2-DCE	25.	ND	U
67-66-3	Chloroform	25.	ND	U
71-55-6	1,1,1-TCA	25.	ND	U
56-23-5	Carbon Tet	25.	ND	U
107-06-2	1,2-DCA	25.	ND	U
79-01-6	Trichloroethene	25.	ND	U
78-87-5	1,2-DCPA	25.	ND	U
75-27-4	Bromodichlorome	25.	ND	U
110-75-8	Chloroethylvinl	50.	ND	U
10061-01-5	Cis-1,3-DCPE	25.	ND	U
10061-02-6	Trans-1,3-DCPE	25.	ND	U
79-00-5	1,1,2-TCA	25.	ND	U
127-18-4	PCE	25.	ND	U
124-48-1	Dibromochlorome	25.	ND	U
108-90-7	Chlorobenzene	25.	260.	
75-25-2	Bromoform	25.	ND	U
79-34-5	1,1,2,2-PCA	25.	ND	U
541-73-1	1,3-DCB	50.	1300.	
106-46-7	1,4-DCB	50.	1400.	
95-50-1	1,2-DCB	50.	270.	

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 8010
ANAMETRIX, INC. (408)432-8192

Project ID	: 92C048	Anametrix ID	: 9212271-01
Sample ID	: VBLANK	Analyst	:
Matrix	: WATER	Supervisor	:
Date Sampled	: 0/ 0/ 0		
Date Analyzed	:12/29/92	Dilution Factor	: 1.0
Instrument ID	: HP15	Conc. Units	: ug/L

CAS No.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
75-71-8	Freon 12	1.0	ND	U
74-87-3	Chloromethane	1.0	ND	U
75-01-4	Vinyl Chloride	.50	ND	U
74-83-9	Bromomethane	.50	ND	U
75-00-3	Chloroethane	.50	ND	U
75-69-4	Freon 11	.50	ND	U
76-13-1	Freon 113	.50	ND	U
75-35-4	1,1-DCE	.50	ND	U
75-09-2	Methylene Chlor	1.0	ND	U
156-60-5	Trans-1,2-DCE	.50	ND	U
75-34-3	1,1-DCA	.50	ND	U
156-59-2	Cis-1,2-DCE	.50	ND	U
67-66-3	Chloroform	.50	ND	U
71-55-6	1,1,1-TCA	.50	ND	U
56-23-5	Carbon Tet	.50	ND	U
107-06-2	1,2-DCA	.50	ND	U
79-01-6	Trichloroethene	.50	ND	U
78-87-5	1,2-DCPA	.50	ND	U
75-27-4	Bromodichlorome	.50	ND	U
110-75-8	Chloroethylvinl	1.0	ND	U
10061-01-5	Cis-1,3-DCPE	.50	ND	U
10061-02-6	Trans-1,3-DCPE	.50	ND	U
79-00-5	1,1,2-TCA	.50	ND	U
127-18-4	PCE	.50	ND	U
124-48-1	Dibromochlorome	.50	ND	U
108-90-7	Chlorobenzene	.50	ND	U
75-25-2	Bromoform	.50	ND	U
79-34-5	1,1,2,2-PCA	.50	ND	U
541-73-1	1,3-DCB	1.0	ND	U
106-46-7	1,4-DCB	1.0	ND	U
95-50-1	1,2-DCB	1.0	ND	U

SURROGATE RECOVERY SUMMARY -- EPA METHOD 8010
ANAMETRIX, INC. (408)432-8192

Project ID : 92C0480R
Matrix : LIQUID

Anametrix ID : 9212271
Analyst : mf
Supervisor : CP

	SAMPLE ID	SU1	SU2	SU3
1	VBLANK	116		
2	WCC-1A	97		
3	WCC-1A D	95		
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
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25				
26				
27				
28				
29				
30				

	QC LIMITS
SU1 = CHLOROFLUOROBEN	(51-136)

* Values outside of Anametrix QC limits

HALOGENATED VOLATILE RECOVERY REPORT
EPA METHOD 601/8010
ANAMETRIX, INC. (408)432-8192

Sample I.D. : N/A
Matrix : WATER
Date sampled : 12/16/92
Date analyzed : 12/29/92

Anametrix I.D. : 9212250-01
Analyst :
Supervisor :
Date released : 12/30/92
Instrument I.D.: HP15

COMPOUND	SPIKE AMT. (ug/L)	MS (ug/L)	REC MS	MSD (ug/L)	REC MSD	RPD	%REC LIMITS
FREON 113	50	41.4	83%	38.0	76%	9%	50 - 150
1,1-DICHLOROETHENE	50	41.0	82%	37.7	75%	8%	41 - 110
trans-1,2-DICHLOROETHENE	50	42.0	84%	40.4	81%	4%	47 - 126
1,1-DICHLOROETHANE	50	43.8	88%	42.8	86%	2%	67 - 124
cis-1,2-DICHLOROETHENE	50	45.3	91%	44.0	88%	3%	50 - 150
1,1,1-TRICHLOROETHANE	50	61.0	122%	60.1	120%	1%	50 - 125
TRICHLOROETHENE	50	50.7	101%	49.1	98%	3%	51 - 131
TETRACHLOROETHENE	50	51.9	104%	48.5	97%	7%	70 - 136
CHLOROBENZENE	50	60.0	120%	56.8	114%	6%	72 - 128
1,3-DICHLOROBENZENE	50	52.7	105%	51.7	103%	2%	67 - 120
1,4-DICHLOROBENZENE	50	77.2	154%	66.3	133%	15%	61 - 109
1,2-DICHLOROBENZENE	50	56.9	114%	52.4	105%	8%	70 - 119

* Limits based on data generated by Anametrix, Inc., July 1990.

LABORATORY CONTROL SAMPLE
EPA METHOD 601/8010
ANAMETRIX, INC. (408)432-8192

Project/Case	: LABORATORY CONTROL SAMPLE	Anametrix I.D.	: WO122992
Matrix	: WATER	Analyst	:
SDG/Batch	: N/A	Supervisor	:
Date analyzed	: 12/29/92	Instrument I.D.	: HP15

COMPOUND	SPIKE AMOUNT (ug/L)	AMOUNT RECOVERED (ug/L)	PERCENT RECOVERY	%RECOVERY LIMITS
FREON 113	10	7.9	79%	34 - 128
1,1-DICHLOROETHENE	10	8.2	82%	63 - 133
trans-1,2-DICHLOROETHENE	10	9.1	91%	55 - 145
1,1-DICHLOROETHANE	10	9.2	92%	49 - 121
cis-1,2-DICHLOROETHENE	10	9.4	94%	66 - 168
1,1,1-TRICHLOROETHANE	10	9.4	94%	72 - 143
TRICHLOROETHENE	10	10.7	107%	63 - 147
TETRACHLOROETHENE	10	9.9	99%	60 - 133
CHLOROBENZENE	10	11.6	116%	70 - 148
1,3-DICHLOROBENZENE	10	9.9	99%	49 - 139
1,4-DICHLOROBENZENE	10	10.1	101%	70 - 133
1,2-DICHLOROBENZENE	10	10.1	101%	69 - 140

* Limits based on data generated by Anametrix, Inc., August, 1992.

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212271
Date Received : 12/17/92
Project ID : 92C0480R/3000
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9212271- 1	WCC-1A	WATER	12/17/92	TPHd
9212271- 1	WCC-1A	WATER	12/17/92	TPHg/BTEX

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212271
Date Received : 12/17/92
Project ID : 92C0480R/3000
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- The concentration reported as gasoline for sample WWC-1A is primarily due to the presence of discrete hydrocarbon peaks not indicative of gasoline.
- The concentration reported as diesel for sample WWC-1A is primarily due to the presence of a heavier petroleum product, possibly motor oil.

Cheryl Balsmeier 12/30/92
Department Supervisor Date

Peggie Dawson 12/30/92
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9212271
Matrix : WATER
Date Sampled : 12/17/92

Project Number : 92C0480R/3000
Date Released : 12/30/92

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# WWC-A1 -01	Sample I.D.# BD2201E3 BLANK
Benzene	0.5	ND	ND
Toluene	0.5	ND	ND
Ethylbenzene	0.5	ND	ND
Total Xylenes	0.5	11	ND
TPH as Gasoline	50	4000	ND
% Surrogate Recovery		105%	99%
Instrument I.D.		HP21	HP21
Date Analyzed		12/22/92	12/22/92
RLMF		10	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor.

Anametrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

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

Reggie Davison 12/30/92
Analyst Date

Cheryl Balmer 12/30/92
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS DIESEL
ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9212271
Matrix : WATER
Date Sampled : 12/17/92
Date Extracted: 12/21/92

Project Number : 92C0480R/3000
Date Released : 12/30/92
Instrument I.D.: HP23

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (ug/L)	Amount Found (ug/L)
9212271-01	WWC-1A	12/23/92	50	7300
DWBL122192	METHOD BLANK	12/22/92	50	ND

Note : Reporting limit is obtained by multiplying the dilution factor times 50 ug/L.
ND - Not detected at or above the practical quantitation limit for the method.
TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following sample extraction by EPA Method 3510.

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

Peggie Dawson 12/30/92
Analyst Date

Cheryl Brimer 12/30/92
Supervisor Date

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
EPA METHOD 5030 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
Matrix : WATER
Date Sampled : N/A
Date Analyzed : 12/22/92

Anametrix I.D. : MD2201E3
Analyst : RD
Supervisor : CB
Date Released : 12/30/92
Instrument I.D.: HP21

COMPOUND	SPIKE AMT. (ug/L)	REC LCS (ug/L)	%REC LCS	% REC LIMITS
GASOLINE	375	410	109%	56-116
SURROGATE			87%	53-147

* Quality control established by Anametrix, Inc.

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

Sample I.D. : LAB CONTROL SAMPLE
Matrix : WATER
Date Sampled : N/A
Date Extracted: 12/21/92
Date Analyzed : 12/22/92

Anametrix I.D. : MD2201F1
Analyst : RD
Supervisor : [illegible]
Date Released : 12/30/92
Instrument I.D.: HP23

COMPOUND	SPIKE AMT (ug/L)	LCS REC (ug/L)	% REC LCS	LCSD REC (ug/L)	% REC LCSD	RPD	% REC LIMITS
DIESEL	1250	860	69%	900	72%	5%	63-130

*Quality control established by Anametrix, Inc.

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212271
Date Received : 12/17/92
Project ID : 92C0480R/3000
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9212271- 1	WCC-1A	WATER	12/17/92	5520BF

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212271
Date Received : 12/17/92
Project ID : 92C0480R/3000
Purchase Order: N/A
Department : PREP
Sub-Department: PREP

QA/QC SUMMARY :

- No QA/QC problems encountered for sample.

Department Supervisor — Date 12/23/92

Chemist — Date 12-23-92

ANALYSIS DATA SHEET - TOTAL RECOVERABLE PETROLEUM HYDROCARBONS
ANAMETRIX, INC. (408) 432-8192

Project I.D. : 92C0480R/3000
Matrix : WATER
Date sampled : 12/17/92
Date extracted: 12/21/92
Date analyzed : 12/22/92

Anametrix I.D. : 9212271
Analyst :
Supervisor : AR CM
Date released : 12/23/92

Workorder #	Sample I.D.	Reporting Limit (mg/L)	Amount Found (mg/L)
9212271-01	WCC-1A	5	12
GWBL122192	METHOD BLANK	5	ND

ND - Not detected at or above the practical quantitation limit for the method.
TRPH - Total Recoverable Petroleum Hydrocarbons are determined by Standard Method 5520BF.

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

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS LAB CONTROL SAMPLE REPORT
STANDARD METHOD 5520BF
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
Matrix : WATER
Date sampled : N/A
Date extracted : 12/21/92
Date analyzed : 12/22/92

Anametrix I.D. : LCSW1221
Analyst : ARP
Supervisor : CW
Date Released : 12/23/92

COMPOUND	SPIKE AMT. (mg/L)	LCS (mg/L)	%REC LCS	LCSD (mg/L)	%REC LCSD	%RPD	%REC LIMITS
Motor Oil	50	38	76%	38	76%	0%	54-106%

* Quality control limits established by Anametrix, Inc.

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212271
Date Received : 12/17/92
Project ID : 92C0480R/3000
Purchase Order: N/A
Department : METALS
Sub-Department: METALS

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9212271- 1	WCC-1A	WATER	12/17/92	RCRA

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

MR. CHARLES CONWAY
WOODWARD-CLYDE CONSULTANTS - SAN JOSE
55 SOUTH MARKET STREET, SUITE 1650
SAN JOSE, CA 95113

Workorder # : 9212271
Date Received : 12/17/92
Project ID : 92C0480R/3000
Purchase Order: N/A
Department : METALS
Sub-Department: METALS

QA/QC SUMMARY :

- Matrix and post digestion spike recoveries for sample WCC-1A for selenium by EPA Method 7740 were outside of Anametrix control limits due to matrix effects.

Department Supervisor 12/23/92 Date

Chemist 12/23/92 Date

ANALYSIS DATA SHEET - RCRA METALS
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9212271
Matrix : WATER
Date Sampled : 12/17/92
Project Number: 92C0480R/3000

Date Prepared : 12/18/92
Date Analyzed : 12/21/92
Date Released : 12/22/92
Instrument I.D.: HGA1/AA2/ICP1 AA3

ELEMENTS	EPA Method#	Reporting Limit (ug/L)	Sample I.D.# WCC-1A -01	Sample I.D.# BLANK MB1218W
Silver (Ag)	6010	10.0	ND	ND
Arsenic (As)	7060	10.0	24.1	ND
Barium (Ba)	6010	100	226	ND
Cadmium (Cd)	6010	5.0	ND	ND
Total Cr	6010	10.0	ND	ND
Mercury (Hg)	7470	0.20	ND	ND
Lead (Pb)	7421	3.0	ND	ND
Selenium (Se)	7740	5.0	ND	ND

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

All Metals by EPA Method 6010/7000, Test Method for Evaluating Solid Waste, SW-846 3rd Edition November 1986, and California Administrative Code Title 22, Section 66699.

Manny Nguyen 12/23/92
Supervisor Date

Mona Kamel 12/23/92
Chemist Date

ANAMETRIX, INC.
1961 CONCOURSE DRIVE, SUITE E
SAN JOSE, CA 95131, (408) 432-8192

INORGANICS MATRIX SPIKE REPORT

Spike I.D. : 9212271-01MS,MD
Date Prepared: 12/18/92
Date Analyzed: 12/21/92
Assoc. WO # : 9212271

Inst. ID : HGA1/AA2/AA3/ICP1
Date : 12/22/92
Matrix : WATER
Conc. Units: ug/L

ELEMENTS	METHOD	SPIKE AMOUNT	SAMPLE CONC.*	M.S. CONC.	% REC.	M.S.D. CONC.	% REC.	R P D
Ag	6010	50.0	0.0	48.1	96.2	51.2	102	6.2
As	7060	40.0	24.1	59.9	89.5	60.7	91.5	2.2
Ba	6010	2000	226	2250	101	2290	103	2.0
Cd	6010	50.0	0.0	49.1	98.2	48.4	96.8	1.4
TTl Cr	6010	200	0.0	202	101	202	101	0.0
Hg	7471	1.0	0.0	1.0	100	1.0	100	0.0
Pb	7421	20.0	0.0	21.0	105	21.1	106	0.5
Se	7740	10.0	0.0	2.9	29.0	4.4	44.0	41.1

COMMENT: Quality control limits for percent recovery are 75-125% and 25% for RPD.

* : Sample concentration of 0.0 indicates that the analyte in the sample was below detection limit for the method. 0.0 is entered for calculations of the percent recovery and RPD only.

Supervisor 12/23/92 Date

Chemist 12/23/92 Date

ANAMETRIX, INC.
1961 CONCOURSE DRIVE, SUITE E
SAN JOSE, CA 95131, (408) 432-8192

POST DIGESTION SPIKE REPORT

Spike I.D.	: 9212271-01PDS	Inst. ID	: AA2
Date Prepared:	12/21/92	Date	: 12/22/92
Date Analyzed:	12/21/92	Matrix	: WATER
Assoc. WO #	: 9212271	Conc. Units:	ug/L

ELEMENTS	METHOD	SPIKE AMOUNT	SAMPLE CONC.	P.D.S. CONC.	% REC.
Se	7740	10.0	0.0	3.0	30.0

COMMENT: Quality control limits for percent recovery are 85-115%.

Supervisor Date

Chemist Date

ANAMETRIX, INC.
1961 CONCOURSE DRIVE, SUITE E
SAN JOSE, CA 95131, (408) 432-8192

INDIVIDUAL METALS METHOD SPIKE REPORT

Spike I.D.	: LCS1218W	Inst. ID	: HGA1/AA2/AA3/ICP1
Date Prepared	: 12/18/92	Date	: 12/22/92
Date Analyzed	: 12/21/92	Matrix	: WATER
Assoc. WO #	: 9212271	Conc. Units	: ug/L

ELEMENTS	METHOD	SPIKE AMOUNT	METHOD SPIKE	% REC.
Ag	6010	50.0	46.6	93.2
As	7060	40.0	38.6	96.5
Ba	6010	2000	2020	101
Cd	6010	50.0	49.6	99.2
TTl Cr	6010	200	204	102
Hg	7471	1.0	0.90	90.0
Pb	7421	20.0	21.8	109
Se	7740	10.0	9.5	95.0

COMMENT: Quality control limits for percent recovery are 80-120%.

Supervisor 12/23/92 Date

Chemist 12/23/92 Date

(16) 9212211

Woodward-Clyde Consultants

55 South Market Street, San Jose, California 95113 Phone: (408) 297-9585 FAX: (408) 297-6962

Chain of Custody

DATE SAMPLED: 12-8-92 PAGE 1 OF 1

PROJECT NAME: Superior Castings
PROJECT/TASK NO: 92C-0480-R
W-C PROJECT MANAGER: C. Conway
C. Conway for Wayne Dittman
SAMPLER'S NAME (PRINT AND SIGN)

	SAMPLE ID.	DATE	TIME	MATRIX	TURNAROUND TIME (DAYS)	NUMBER OF CONTAINERS	TPH - Gasoline (5030/8015) w/BTEX (EPA 602, 8020)	TPH - Diesel (EPA 3510, 3550/mod 8015)	Purgeable Aromatics (EPA 602, 8020)	Purgeable Halocarbons (EPA 601, 8010)	Volatile Organics (EPA 624, 8240)	Semivolatile Organics Base/Neutral, Acids (EPA 625, 8270)	Total Oil & Grease (EPA 5520 E&F, B&F)	Pesticides & PCBs (EPA 608, 8080)		RCRA metals	METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (18) w/Cr VI	EPA Priority Pollutant Metals (13)	REMARKS/COMMENTS
1	WCC-1A, 1D2	12-8-92		Soil	Normal	2	✓	✓		✓			✓			✓				

TOTAL NUMBER OF CONTAINERS: 1

SPECIAL INSTRUCTIONS/COMMENTS:
Send Results To.
Charles Conway

	1.	2.	3.
Relinquished by:	Wayne Dittman		
(signature)	C. Conway for Wayne Dittman	Erick Ortega	
(printed name)			
Date: / Time:		12-11-92 Time: 17:45	
Received by:			
(signature)	Erick Ortega	Maria Barajas	
(printed name)			
Date:	92-11-92 Time: 16:45	12/11/92 Time: 17:45	Date: Time:

9212172 (16) 1310 MA

Chain of Custody

Woodward-Clyde Consultants

55 South Market Street, San Jose, California 95113 Phone: (408) 297-9585 FAX: (408) 297-6962

DATE SAMPLED: 12-9-92 PAGE 1 OF 1

PROJECT NAME: Superior Castings
PROJECT/TASK NO: 92C0480R/2000
W-C PROJECT MANAGER: C. Conway
SAMPLER'S NAME (PRINT AND SIGN): Wayne Dittman / Wayne Dittman

	SAMPLE ID.	DATE	TIME	MATRIX	TURNAROUND TIME (DAYS)	NUMBER OF CONTAINERS	TPH - Gasoline (5030/8015) w/BTEX (EPA 602, 8020)	TPH - Diesel (EPA 3510, 3550/mod 8015)	Purgeable Aromatics (EPA 602, 8020)	Purgeable Halocarbons (EPA 601, 8010)	Volatile Organics (EPA 624, 8240)	Semivolatile Organics Base/Neutral, Acids (EPA 625, 8270)	Total Oil & Grease (EPA 5520 E&F, B&F)	Pesticides & PCBs (EPA 608, 8080)		RCRA metals (EPA 6010 Method Cd)	METALS: Cd, Cr, Pb, Zn, Ag, Ba, Hg, Se (7000 series)	CAM METALS (18) w/Cr VI	EPA Priority Pollutant Metals (13)	REMARKS/COMMENTS
1	WCC-1B	12-7	1:20	Soil	normal	1	✓			✓							✓			✓ additional analyses required by Charles's fax 12-11-92
2	WCC-2B-6	12-7	10:04	↓	↓	1											✓			
3	WCC-3B	12-7	10:01	↓	↓	1											✓			
4	WCC-1A-6	12-8	12:30	"	↓	1	✓	✓		✓			✓			✓				

TOTAL NUMBER OF CONTAINERS: 4

SPECIAL INSTRUCTIONS/COMMENTS:
Send Results To Charles Conway

Relinquished by: 1.	Relinquished by: 2.	Relinquished by: 3.
Wayne Dittman (signature)	Benny S. Carrizosa (signature)	(signature)
Wayne Dittman (printed name)	BENNY S. CARRIZOSA (printed name)	(printed name)
Date: 12/10/92 Time: 1000	Date: 12/10/92 Time: 1230	Date: Time:
Received by: 1.	**Received by: 2.**	**Received by: 3.**
Benny S. Carrizosa (signature)	Michele D. Aguilar (signature)	(signature)
BENNY S. CARRIZOSA (printed name)	Michele D Aguilar (printed name)	(printed name)
Date: 12/10/92 Time: 1000	Date: 12-10-92 Time: 1000	Date: Time:

9212271 10/39 (18) (16) 15: 4 MA

Chain of Custody

Woodward-Clyde Consultants

55 South Market Street, San Jose, California 95113 Phone: (408) 297-9585 FAX: (408) 297-6962

DATE SAMPLED: 12-17-92 PAGE 1 OF 1

PROJECT NAME: Superior Plaster Cast
PROJECT/TASK NO: 9209080R / 3000
W-C PROJECT MANAGER: Charles Conway
SAMPLER'S NAME (PRINT AND SIGN): Scott Zavack Scott Zavack

SAMPLE ID.	DATE	TIME	MATRIX	TURNAROUND TIME (DAYS)	NUMBER OF CONTAINERS	TPH - Gasoline (5030/8015) w/BTEX (EPA 602, 8020)	TPH - Diesel (EPA 3510, 3550/mod 8015)	Purgeable Aromatics (EPA 602, 8020)	Purgeable Halocarbons (EPA 601, 8010)	Volatile Organics (EPA 624, 8240)	Semivolatile Organics Base/Neutral, Acids (EPA 625, 8270)	Total Oil & Grease (EPA 5520 E&F, B&F)	Pesticides & PCBs (EPA 608, 8080)	RCRA Metals		METALS: Cd, Cr, Pb, Zn, Ni	CAM METALS (18) w/Cr VI	EPA Priority Pollutant Metals (13)	REMARKS/COMMENTS
WCC-1A	12/17	12:40	water	R	10	X	X		X			X		X					8010 on hold
									(Place on hold)										

TOTAL NUMBER OF CONTAINERS: 10

SPECIAL INSTRUCTIONS/COMMENTS:
Routine Turn-around

Send Results
To Charles Conway

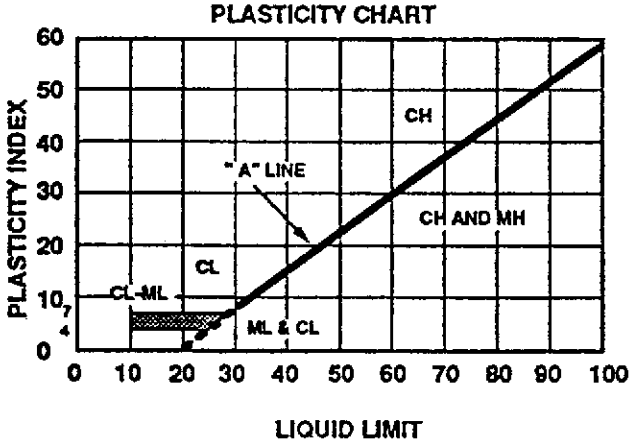
	1.	2.	3.
Relinquished by:	Scott Zavack		
(signature)	Scott Zavack		
(printed name)			
Date: 12-17-92 Time:	14:37	Date: Time:	Date: Time:
Received by:	Michele D. Aguilar		
(signature)	Michele D. AGUILAR		
(printed name)			
Date: 12-17-92 Time:	1437	Date: Time:	Date: Time:

APPENDIX B
LOGS OF BORINGS AND WELLS

SAMPLE CLASSIFICATION CHART

UNIFIED SOIL CLASSIFICATION SCHEME			
MAJOR DIVISIONS		**SYMBOLS**	**TYPICAL NAMES**
COARSE GAINED SOIL (More than 1/2 of soil >no. 200 sieve size)	GRAVELS (More than 1/2 of coarse fraction > no. 4 sieve size)	GW	Well-graded gravels and gravel and mixtures, little or no fines
		GP	Poorly-graded gravel or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	SAND (More than 1/2 of coarse fraction < no. 4 sieve size)	SW	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE GAINED SOIL (More than 1/2 of soil <no. 200 sieve size)	SILTS & CLAYS Liquid Limit < 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey, fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS Liquid Limit > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils

PLASTICITY CHART



GRAIN SIZE CLASSIFICATION		
CLASSIFICATION	**RANGE OF GRAIN SIZES**	
	U.S. Standard Sieve Size	**Grain Size in Millimeters**
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL coarse (c) fine (f)	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.76 76.2 to 19.1 19.1 to 4.76
SAND coarse (c) medium (m) fine (f)	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.76 to 0.074 4.76 to 2.00 2.00 to 0.420 0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

SOIL CONSISTENCY/RELATIVE DENSITY				
SILT, SAND AND GRAVEL	**BLOWS/FT**	**SILT OR CLAY**	**UNCONFINED COMPRESSIVE STRENGTH (psf)**	**THUMB PENETRATION**
Very loose	<4	Very Soft	< 500	Very easily - inches
Loose	5-10	Soft	500 - 1000	Easily - inches
Medium Dense	11-30	Medium (firm)	1000 - 2000	Moderate effort - inches
Dense	31-50	Stiff	2000 - 4000	Indented easily
Very Dense	>50	Very Stiff	4000 - 8000	Indented by nail
		Hard	> 8000	Difficult by nail

CLASSIFICATION MODIFIERS	
TRACE	0 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
AND	35 - 50%
± MODIFIERS	

Woodward-Clyde Consultants

FIGURE:

Project: SUPERIOR PLASTER CASTINGS Oakland, California	Boring Log Legend Sheet

Date Drilled:
Type of Boring:
Hammer:

Remarks:

Surface Elevation:

Depth Ft.	Samples	Blows/Ft	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density pcf	Unconfined Compress. Strength, psf	Other Tests
5			2-inch I. D. Modified California sampler				
			Fill/native soil boundary — FILL				
10							
15		8	Blow count with 140-pound hammer falling 30 inches per blow				
20							
25							
30							
35							
40							
45							

Flame Ionization Detector → FID=ND

Non-Detectable Reading → ND

Project: 92C-0480-R	Woodward-Clyde Consultants	Sheet 1 of 1	Figure

SUPERIOR PLASTER CASTINGS Oakland, California

BORING LOCATION		GROUND SURFACE ELEVATION	
DRILLING AGENCY	DRILLER	DATE STARTED / DATE FINISHED	
DRILLING EQUIPMENT		COMPLETION DEPTH	
DRILLING METHOD	DRILL BIT	HAMMER	
SIZE AND TYPE OF CASING		NO. OF SAMPLES: BULK / DRIVE	
TYPE OF PERFORATION	FROM / TO	WATER DEPTH: FIRST / COMPL. / 24 hrs.	
SIZE AND TYPE OF PACK	FROM / TO	LOGGED BY: / CHECKED BY:	

TYPE OF SEAL	TYPE	FR	TO	TYPE	FR	TO
	No. 1:			No. 3:		
	No. 2:			No. 4:		

LOG OF WELL LEGEND SHEET

DEPTH (feet) | LITHOLOGIC DESCRIPTION | Well Installation | Hnu ppm | OVA ppm | Water Level | DEPTH (feet) | SAMPLES: NUMBER, TYPE, Recov. (Feet), Blow/foot | INDEX PROPERTIES: Moisture Content (%), Dry Density (pcf), Unconfined Compressive Strength (psf) | OTHER TESTS

Protective Cristy Box and Locking Cap

Cement Bentonite (5%) Grout

PVC Casing

Fill — FILL

Bentonite Pellet Seal

Bottom of Fill — FILL

Sand Pack

Blow count with 140-pound hammer falling 30 inches per blow — 32

Groundwater level at completion of boring

Groundwater level first encountered during drilling

Organic Vapor Analyzer (OVA) reading in parts per million — <1

Not detected — ND

Slotted PVC Casing

Bentonite Pellet Seal

2 inch I.D. Modified California sampler

Flame Ionization Detector — FID=ND

0 5 10 15 20 25 30 35 40

Woodward-Clyde Consultants

Project No. 92C-0480-R | FIGURE:

3/15/93 JWLOGA 20480

Superior Plaster Castings Oakland, California

BORING LOCATION	East end of plant near railroad spur.		GROUND SURFACE ELEVATION: TOP OF WELL CASING ELEVATION: NA
DRILLING AGENCY	West Hazmat Drilling	DRILLER B. McCully	DATE STARTED: 12/8/92 DATE FINISHED: 12/8/92
DRILLING EQUIPMENT	Soilmaster		COMPLETION DEPTH (ft) 19.0
DRILLING METHOD	Hollow Stem Auger	DRILL BIT 8"	HAMMER
SIZE AND TYPE OF CASING	2" PVC		NUMBER OF SAMPLES BULK.: DRIVE.: 4
TYPE OF PERFORATION	0.010" Slotted	FROM 4 TO 19	WATER DEPTH FIRST: 7.1 COMPL.: 6.3 24 hrs.:
SIZE AND TYPE OF PACK	#2/12 Lonestar Sand	FROM 4 TO 19	LOGGED BY W. Dittman CHECKED BY C. Conway

TYPE OF SEAL	TYPE	FR	TO	TYPE	FR	TO
	No. 1: Neat Cement	0	3	No. 3:		
	No. 2: Bentonite Pellets	3	4	No. 4:		

LOG OF WELL WCC-1A

DEPTH (feet)	LITHOLOGIC DESCRIPTION	SOIL GRAPHIC	WELL GRAPHIC	Hnu, ppm	OVA, ppm	WATER LEVEL	DEPTH (feet)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES POCKET PEN, tsf	SAMPLES BLOWS/foot	INDEX PROPERTIES MOISTURE CONTENT (%)	INDEX PROPERTIES DRY DENSITY (pcf)	INDEX PROPERTIES UNCONFINED COMPRESSIVE STRENGTH (psf)	OTHER TESTS
0	1" AC over 4' of fill consisting of gravel, sand, and tar														No sample taken at 2' due to fill
5	SILTY CLAY (CL) Dark grayish brown (2.5Y 4/2), some fine to medium sand, low plasticity, stiff, damp						5	1			22				ND (FID)
10	CLAYEY SILT (ML) Yellowish brown (10YR 5/4), slight plasticity, very soft, moist						10	2			17				ND
	CLAYEY SAND (SW/GW) Yellowish brown (10YR 5/6), trace clays, medium dense, wet														
15	SILTY CLAY (CL) Yellowish brown (10YR 5/6), low plasticity, firm, moist						15	3			7				ND
	soft							4			3				ND
20	BOTTOM OF BORING AT 19 FEET						20								
25							25								
30							30								
35							35								
40															

Woodward-Clyde Consultants

PROJECT NO. 92C-0480-R FIGURE:

3/15/93 JGLOG 20480

Project: Superior Plaster Castings
Oakland, California

Log of Boring No. WCC-1B

Date Drilled: 12/7/92
Type of Boring:
Hammer: 140 lb.

Remarks:

Surface Elevation: feet

Depth, Feet	Samples	Blows/Ft	Graphic Log	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf	Other Tests
				2" AC over 10" base sand				
				SILTY CLAY (CL) Dark gray brown (10YR 4/2), trace fine to medium sand, low plasticity, very stiff, moist, iron-oxide staining				
	1	16						FID = 400ppm
5				CLAYEY SAND (SC) Very dark gray (10YR 3/1), little clay, fine to coarse sand, moist to wet in places, trace organics				
				BOTTOM OF BORING AT 5 FEET				
10								
15								
20								
25								

Project: 92C-0480-R | Woodward-Clyde Consultants | Sheet 1 of 1 | Figure

3/15/93 JGLOG 20480

Project: Superior Plaster Castings
Oakland, California

Log of Boring No. WCC-2B

Date Drilled: 12/7/92
Type of Boring:
Hammer: 140 lb.

Remarks:

Surface Elevation: feet

Depth, Feet	Samples	Blows/Ft	Graphic Log	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf	Other Tests
				2" AC over 2" gravelly sand base				
				SILTY CLAY (CL) Very dark brown (10YR 3/2), low plasticity, stiff, moist				
	1	10						
5	2	16		CLAYEY SAND (SC) Dark brown (10YR 3/3), fine to medium sand, little clay, loose, moist				FID = 5ppm
				SILTY CLAY (CL) Dark grayish brown (10YR 3/3), medium plasticity, very stiff, damp				
				BOTTOM OF BORING AT 6 1/2 FEET				
10								
15								
20								
25								

Project: 92C-0480-R	Woodward-Clyde Consultants	Sheet 1 of 1	Figure

3/15/93 JGLOG 20480

Project: Superior Plaster Castings
Oakland, California

Log of Boring No. WCC-3B

Date Drilled: 12/7/92
Type of Boring:
Hammer: 140 lb.

Remarks:

Surface Elevation: feet

Depth, Feet	Samples	Blows/Ft	Graphic Log	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf	Other Tests
				3" AC over 10" fine sand base				
				SILTY CLAY (CL) Grayish green (5Y 4/1), medium plasticity, stiff, moist				
5	1	10		dark yellowish brown (10YR 4/4), wet				FID = 1 ppm Deepened borehole to 8' to verify water level.
								Dry to 8' ATD.
				CLAYEY SAND (SC) Yellowish brown (10YR 5/6), fine to medium sand, little clay, saturated				Dry to 7' (caved) at approx. 11:00 am.
10	2	NA		BOTTOM OF BORING AT 12 FEET				Redrilled to 12' to find water level. At 12:55 pm water level at 6.3' At 1:05 pm water level at 5.2' Groundwater appears to be confined.
15								
20								
25								

Project: 92C-0480-R	Woodward-Clyde Consultants	Sheet 1 of 1	Figure

APPENDIX C
FIELD WELL DATA SHEETS

FIELD WELL DATA SHEET
WOODWARD-CLYDE CONSULTANTS

55 South Market Street, Suite 1650, San Jose, Ca 95113
(408) 297-9585

Project No: 92C0480R Task No: 3000 Project Name:

Location: 4800 Coliseum Way, Oakland Well ID: WCC-1A

Samplers: S. Zavack

Well Depth (2): 18.66 Ft. Water Level (1): 4.65 Ft. Date: 12-17-92 Time: 12:10

Free Product (Y/N): N Product Thickness: Ft. In. Depth to first liquid: 4.65 Ft.

CALCULATIONS

Length of water Colum = 18.66 (2) Ft - 4.65 (1) Ft = 14.01 (3) Ft

80% Recovery = 4.65 (1) Ft + (14.01 (3) Ft x 0.2) = 7.45 Ft

Estimated Purge Volume = 14.01 (3) Ft x .16 VCF x ~~4~~ Casing volumes = 8.96

EPV = 9 gallons

Volume Conversion Factor (VCF)

pi = 3.142 d= well diameter (inches)

Well Diameter (in)	VCF
2	0.16
3	0.37
4	0.65
4.5	0.83
6	1.47

Date: / Notes:	Time (24-Hr)	pH (units)	Temperature (C)	Elec. Cond (umhos/cm or mmhos/cm)	Turbidity (NTU)	Color	Odor	Volume (gals)
	12:18	5.98	17.3	.97	—	brown	Present	2.25
	12:22	6.36	17.1	.99	—	brown	↓	4.5
	12:26	6.52	16.7	.99	—	"		6.75
	12:30	6.57	17.2	.98	—	"		9.25

EQUIPMENT:
Purge: bailer
Sample: bailer

QA/QC:
Sample Date: 12-17-92 Sample Time: 12:40 QA/QC Samples:
Test Parameters: gas, diesel, TOG, Metals, 8010 No. of sample containers: 10

Well Recovery:
Well Dewatered (y/n): N Volume purged: 10 Gals Time: 12:4
Water Level (after recovery): 4.68 Ft. Time: 12:34

NOTES:
An odor was present but undistinguishable.

WELL DEVELOPMENT DATA SHEET
WOODWARD-CLYDE CONSULTANTS

55 South Market Street Suite 1650, San Jose, Ca 95113

(408) 297-9585

Project No: 92C0480R Task No: 3000 Project Name: Superior Plaster Casting Date: 12/11/92

Site: 7800 Colosseum Oakland CA Developer(s): Scott Zavack

Well ID: WCC-1 Well Diameter: 2" in Date Measured: 12/11/92

Free Product (Y/N): N Depth to First Liquid: 5.40 ft Product Thickness: ft in

Well Depth (feet): 17.85 ft (2) Water Level: 5.40 ft (1)

CALCULATIONS:

Length of water column = $\frac{17.85}{2}$ ft - $\frac{5.40}{1}$ ft = $\frac{12.45}{3}$ ft

80% of Water Level = $\frac{\quad}{1}$ ft + ($\frac{\quad}{3}$ ft x 0.2) = ____ ft

EPV = $\frac{12.45}{3}$ ft x $\frac{.16}{VCF}$ x $\frac{3.0 \times 10}{casing\ volumes}$

Estimated Purge Volume (EPV): 20 gals

~~Water Level (after recovery)~~: 18.72 ft Time: 16:45
Well Depth (after dev.)

Volume Conversion Factor (VCF)

$VCF = 0.052 \frac{gal}{ins^2\ ft} \times (\frac{d^2}{4})$

where: $\pi = 3.142$

d = well diameter (ins)

Well Dia.		VCF
2"	=	0.16
3"	=	0.37
4"	=	0.65
4.5"	=	0.83
6"	=	1.47

WATER QUALITY DATA

	Time (24-hr)	pH	Temperature (°C)	Elec. Cond. (mhmos/cm)	Turbidity (NTU)	Color	fuel odor	Volume (Gals)
Start	16:06	6.23	17.3	1.23	-	brown	Present	2
	16:11	6.43	17.4	1.15	-	"	"	4
	16:14	6.48	17.5	1.19	-	"	"	6
	16:18	6.57	17.5	1.17	-	"	"	8
	16:24	6.63	17.4	1.06	-	"	"	12
	16:28	6.57	17.4	1.09	-	"	"	14
	16:33	6.63	17.4	1.10	-	"	"	16
	16:36	6.68	17.8	1.10	-	"	"	18
	16:42	6.69	17.6	1.10	-	"	"	20

DEVELOPMENT EQUIPMENT:

Pump: Surge:

Bailer(s): Teflon Other:

Notes: