Touchstone Developments
Environmental Management

INITIAL SUBSURFACE INVESTIGATION
WASTE OIL UST
3430 CASTRO VALLEY BOULEVARD
CASTRO VALLEY, CALIFORNIA

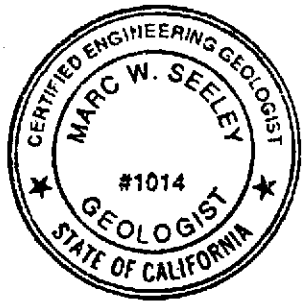
Project Number: 94-14

Prepared For:

THE GOODYEAR TIRE & RUBBER COMPANY

Prepared By:

TOUCHSTONE DEVELOPMENTS ENVIRONMENTAL MANAGEMENT



Marc W. Seeley, CEG 1014
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November 1, 1994

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I. INTRODUCTION

Touchstone Developments (TD) has prepared this report describing our initial subsurface investigation and monitoring well installation at the site of a former underground waste oil storage tank (UST) at 3430 Castro Valley Boulevard, Castro Valley, California. This work was conducted in conformance with our Work Plan and Health & Safety Plan for the referenced project dated August 10, 1994. The work was initiated at the request of the Alameda Health Care Services Agency, Department of Environmental Health, letter dated May 19, 1994; in which they requested that an initial investigation in the form of a preliminary site assessment (PSA) be conducted at the site to determine the extent of environmental impact resulting from the potential release of petroleum hydrocarbons and related materials from the previously removed underground storage tank. The local regulatory agency for this project is the Alameda County Department of Environmental Health.

Scope of Work

The scope of work for this project was to drill and log three soil borings to approximately 20 feet below first-encountered groundwater, and convert those borings into monitoring wells. After installation of the monitoring wells and after the wells had been allowed to stabilize, the wells were developed and sampled, and the well head elevations were surveyed relative to mean sea level. Following this, groundwater elevations in three wells were measured to determine the local groundwater gradient. Groundwater samples were collected from each well and analyzed for suspect constituents. The details of the work conducted under this scope are described in following report sections.

Site Location

The site is located in the central part of Castro Valley, California at 3430 Castro Valley Boulevard, on the north side of Castro Valley Boulevard and west of Redwood Road (Plate 1).

Background

The subject property is a commercial site presently owned by the Aimee L. West Trust, and was previously leased to Merritt Tire & Brake, which was owned by Richard A. Gorkoska, Ben Tsurumoto, and Yoko Tsurumoto. The commercial site was used for a tire and brake repair business and included an underground storage tank for the containment of waste oil and related products. In January of 1990 Goodyear issued a form letter to all of their lessors, who according to their records had underground storage tanks (USTs) on their leased facilities. The form letter was to obtain general information for permission to remove those USTs if that became necessary, and if Goodyear chose to remove those tanks. A review of records indicated that the tank was removed, but there was no indication Goodyear Tire & Rubber Company contracted for the removal of those tanks. It appears the tenant, Merritt Tire & Brake, had the tanks removed, although there is no record or permit on file. Our review of Alameda County files indicates that this removal was done without a permit. Therefore, the time, date and conditions of the removal are not recorded, nor is the disposition of the UST.

On September 22, 1993, SEMCO was retained by Goodyear to conduct an investigation of the former UST location using hand auger sampling methods. According to the chain-of-custody records, a soil sample south of the former UST location at the 8-foot depth was collected, as was an 8-foot deep sample from north of the former tank location. The soils were analyzed at Superior Analytical Laboratory in Martinez, California. The compounds for which the soils were analyzed and the results of that analysis is presented in their September 29, 1993 report and is summarized below in Table I.

TABLE 1

RESULTS OF ANALYSES
SUPERIOR ANALYTICAL REPORT, SEPTEMBER 29, 1993

Laboratory No.	No. 1 - South	No. 2 - North
Gasoline	230	22
Benzene	0.88	0.099
Toluene	7.6	0.88
Ethylbenzene	3.6	0.34
Total Xylenes	24	2.4
Diesel Range	2,400	388
Oil & Grease	6,100	1,600

Note: All concentrations are in mg/Kg (or ppm)

Based on the initial sampling conducted by SEMCO, the Alameda County Department of Environmental Health requested that a preliminary investigation be conducted to determine the extent of potential contamination. Since the time of SEMCO's report in late 1993, there have been efforts between Goodyear Tire & Rubber and the Department of Environmental Health to determine the responsible party or parties. Although it is our understanding that this matter has not been resolved, Goodyear Tire & Rubber is proceeding with the investigation in accordance with the County's letter dated July 7, 1994. The work described in this report has been conducted in accordance with that letter and with our previously stated Work Plan of August 1994.

Site History

Little direct information is known about the site history and operations because the operators of Merritt Tire & Brake have not been available to be interviewed. Records regarding their operations are not available to

us. However, based on the type of business it has been inferred that general automotive repair was conducted at the site. The presence of the waste oil tank would indicate that oil changing and related automotive work was performed on-site. The types of materials that typically are discharged into waste oil tanks in an automotive operation would include things such as used motor oil, as well as solvents and other liquid wastes resulting from automotive repair and servicing operations.

Based on records reviewed, it is believed that the tank was not registered and there has been no discovery of a record of its removal or disposition. Also, the capacity of the tank is not known. However, available information indicates that only one tank was present at the site and it was used as a waste oil disposal tank. For the same reasons (i.e. lack of historical information) we do not have available information regarding manifests or disposal of the tank, filing status, copies of unauthorized release forms (if they exist), previous tank testing results (if conducted), or an estimate of the total quantity of product that might have been lost.

With the exception of the apparent unauthorized discharge from the above referenced tank, we have no information relating to any other removed tanks or any other accidental discharges at the site. Previous subsurface work consisted of removal and disposal of the tank by unknown persons on an unknown date. Subsequently, as reported, SEMCO was retained to collect samples from the waste-oil tank excavation area using hand augers. Two samples were taken at an 8-foot depth; one from the north and one from the south end of the former UST area. The results from the analyses of those samples are presented in Table I in a preceding report section. During our site work, described in a following section, evidence of SEMCO's collection of samples was observed in the form of two borings which were backfilled and sealed with asphalt patch material.

II. SITE DESCRIPTION

The site is a commercial property located near the center of Castro Valley on a nearly flat to gently south-sloping parcel. It fronts on Castro Valley Boulevard and is slightly to the west of Redwood Boulevard. The site is underlain by alluvial fan deposits derived predominantly of materials from the hills to the north. These materials as identified in soil borings on the adjacent property to the west consist of clayey silts, silty clays, clayey sand, and sand. In those borings, groundwater was determined to be at depths of 10.5 feet below the ground surface. The nearest surface water sources are San Leandro Creek, which lies approximately 6,000

feet to the south. In addition, the U.S.G.S. topographic quadrangle (Hayward Quadrangle, scale 1" = 2,000') indicates there is a small drainage approximately 1,000 feet to the east that is a tributary to San Leandro Creek. There is also shown an intermittent tributary drainage approximately 3,000 feet to the west. The attached Site Location Map, Plate 1, shows the locations of these drainages as well as surface water bodies such as ponds and reservoirs in the general area. Plate 2 presents a Site Map showing the location of the buildings and the former tank location, as well as an underground storage tank location on the adjacent property to the west. That property is referred to as 20630 Redwood Road and is owned by the R.T. Nahas Company.

The tank on the R.T. Nahas property is a 4,000-gallon, fiberglass tank that was installed in 1975 and permitted by Alameda County in 1992. Precision test in 1989 and 1992 indicated a failure near the top portion of the tank. No repair was performed and during this period it was reported the tank was not filled. The tank was emptied of remaining gasoline in 1993 after the failed tests and has not been used since that time. BSK Associates performed an investigation and reported their results in a report dated May 26, 1994. Their investigation consisted of drilling two soil borings in the vicinity of the UST. Samples were collected from depths of 12 and 10 feet, and they were analyzed for TPH-gasoline, TPH-diesel, oil and grease, and BTXE, as well as total lead. In addition, a water sample was collected form each of the two borings. The analytical results of the water samples indicated no detection for any of the contaminants. However, the soil sample collected from the presumed down-gradient boring (SP-2 at 10 feet) indicated the presence of oil and grease at 22 ppm and possible TPH-diesel contamination at the concentration of 1.6 ppm. However, the laboratory indicated that the chromatograph for the TPH-diesel report was not consistent with the diesel standard. Our experience suggests that this is possibly related to motor oil, some other heavier petroleum hydrocarbon, or possibly biogenic hydrocarbon not related to petroleum hydrocarbon.

On the subject site, the report by SEMCO dated September 29, 1993 indicates there is petroleum hydrocarbon contamination in the soil at the 8-foot depth at the site of the previous waste oil UST. The results of that report are summarized in a previous section of this report.

Based on the borings on the adjacent property (R.T. Nahas), we assumed the depth to groundwater was in the range of 10 to 12 feet. As discussed in a following report section, we found groundwater at a similar depth (about 10 feet) below the ground surface. The soil types were likewise found to be similar to those

reported by BSK on the R.T. Nahas property. The site's subsurface conditions are described in a following section and on the boring logs (Plates 3 through 5).

The analytical results from the previous soil sampling by SEMCO is presented in a previous report section. The location of SEMCO's sampling points are shown on Plate 2, the Site Plan. A copy of the SEMCO report was attached to our August 1994 Work Plan for your reference.

III. SITE INVESTIGATION

On September 28, 1994 Marc W. Seeley, Certified Engineering Geologist for Touchstone Developments, arrived at the site with Greg Drilling & Testing, Inc. Three soils borings were drilled at the locations shown on the Site Plan, Plate 2. The borings extended to depths of approximately 20 feet, as shown on the boring logs MW-1 through MW-3 attached to this report (Plates 3, 4 and 5). The borings were logged using the Uniform Soil Classification System to describe the soils encountered. Precleaned, hollow-stem augers were used to drill the borings and soils samples were collected by using a modified California drive sampler equipped with clean, brass liners. Soils cuttings were logged on a continuous basis and relatively undisturbed soil samples were collected at a minimum of every 5 feet by driving the soil sampler into undisturbed soils ahead of the auger. The locations of the undisturbed soils sample points are shown on the attached boring logs.

The augers were precleaned prior to arrival on site and no steam cleaning was conducted on-site. A sufficient number of clean augers were available such that on-site decontamination of the augers was not required. However, to minimize the potential for cross-contamination between samples within a boring and between borings, the drive sampler was decontaminated by washing in a Alconox solution and triple-rinsing with potable water. The procedure was used between each drive sample. Precleaned, brass liners were inserted into the sampler prior to sample collection.

Upon retrieval of the sampler, the soils were observed visually and classified in accordance with the Uniform Soil Classification System and the descriptions were annotated on the field logs. Selected samples were retained for laboratory analysis by covering the ends of the sample tubes with aluminum foil and then capping with plastic end-caps. These samples were then labeled and logged onto a chain-of-custody form and placed

in an ice chest with frozen blue ice for transport to our subcontract analytical laboratory, Superior Precision Laboratory, in San Francisco, California.

The results of the analysis of the retained soil samples are summarized in Table 2 on the following page, and the complete laboratory reports are attached in Appendix A for reference.

As a part of our logging, we made observations of hydrocarbon odors throughout the drilling procedure and of the specific samples collected. Where hydrocarbon odors were noted, these are annotated on the boring logs. The borings drilled for Monitoring Wells #1 and #2 encountered no visible indications of petroleum hydrocarbon contamination and no such odors were noted. However, during the drilling of Monitoring Well #3, we did detect distinct hydrocarbon odors. Verification of the presence of petroleum hydrocarbons is dependent upon the laboratory analytical results discussed in a following report section.

Soil cuttings generated during the construction of the soil borings were placed in steel DOT drums, which were sealed and labeled as to the boring from which they came. These drums were stored on site at a location determined by the on-site facility manager. No decontamination water was retained on site. However, as described in the following section, well purge water was retained in drums labeled as to content.

TABLE 2
RESULTS OF SOIL SAMPLE ANALYSIS
SUPERIOR ANALYTICAL REPORT, OCTOBER 4, 1994

Sample # and depth	TPH-D ppm or mg/kg	TPH-G ppm or mg/kg	Benzene ppm or mg/kg	Toluenep pm or mg/kg	Xylene ppm or mg/kg	Ethyl-benzene ppm or mg/kg	Oil & Grease ppm or mg/kg	8010 Halogenated Volatile Organics	8270 Semivolatile Organics
1-1-3/6'	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-2-2/10'	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-1-1/6'	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-2-1/10'	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-3-3/16'	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-1-1/6'	210 [1]	4	0.022	0.072	0.28	0.067	550	ND	2-MN [2] @ 500 ppb
3-2-2/10'	560 [1]	14	0.047	0.016	0.28	0.068	1300	~~TCE~~ PCE @ 31 ppb	NAPH @ 600 ppb 2-MN @ 700 ppb
3-3-1/16'	NA	NA	NA	NA	NA	NA	NA	NA	NA

Sample # and depth	M	E	T	A	L
mg/Kg or ppm	Cd	Cr	Pb	Zn	Ni
1-1-3/6'	0.3	28	7	26	30
All others	ND	ND	ND	ND	ND

[1] Does not match diesel pattern, heavier hydrocarbon present

[2] See Laboratory report in Appendix A for key to chemical name abbreviations in this table

NA' = Soil sample collected but not analyzed.

Materials Encountered

General uniform soils materials were encountered in all three soil borings. The initial material encountered was pavement, either asphaltic or concrete, underlain by base rock sequence extending 16 to 18 inches below grade. Below this the upper most native materials consist of dark black-brown to dark grayish-brown silty clay. These clays were moist to damp and plastic. However, no hydrocarbon odors were noted in these clays. Underlying these dark plastic clays was a sequence of brown silty clays with weathered sand and rock fragments, and some orange mottling. This zone generally was found from 4.5 to approximately 6 feet deep. These materials were also damp and were in turn underlain by somewhat more sandy material extending to approximately 9 to 9.5 feet deep. From approximately 9 to 9.5 feet deep to approximately 20 feet was a zone of interfingering silty sands to sandy silty clays with some interbedded gravel to sandy gravel zones. First groundwater was generally encountered at approximately 10 feet below ground surface (bgs), and at approximately 20 feet a dark brown, very stiff, dry silty clay was encountered. In the boring for Monitoring Well #1 this material was penetrated for approximately 3 feet, and the depth to the base of it was not determined. The details of the materials encountered in each of the borings vary somewhat and these details are presented on Boring Logs #1 through #3 presented in Plates 3 through 5, respectively.

IV. MONITORING WELL CONSTRUCTION

The details of each monitoring well's construction is presented on the boring log associated with that monitoring well (Plates 3 through 5). As described in the Work Plan and shown on the logs, 8¼-inch nominal diameter, hollow stem augers were used for drilling. Once the boring penetrated to approximately 10 feet below first encountered water, the boring was terminated and an approximately 10-foot section of 2-inch diameter, Schedule 40 PVC well screen with 0.002 factory-installed slots was placed into the boring through the hollow stem auger. Blank casing was attached by threading, without solvents, to the top of the well screen. The annulus between the well screen and the outside of the auger was filled with clean, No. 2-12 Lone Star, washed sand. The sand pack extended from approximately 12 to 18 inches above the slotted well screen, as

shown on each of the individual boring logs. Above the sand pack an 18- to 24-inch bentonite pellet seal was placed, above which neat cement grout was placed to the ground surface. The wells were completed with traffic-rated Christy boxes, and caps with locks. The Christy boxes were set in a cement finish, raised slightly above grade to allow for surface runoff away from the well heads.

Well Development

The wells were allowed to stabilize for a minimum of 48 hours prior to development. On September 30, 1994, Tim Walker of Touchstone Developments developed each of the wells by surging and bailing until water produced was sediment free. Approximately 21 to 22 gallons of water were purged from each well while the pH, conductivity, temperature and turbidity were monitored and recorded. The water generated in developing the wells was placed in steel DOT drums stored on site adjacent to the soil cutting storage drums. These drums were labeled as to their content.

Well Sampling

After completion of well development the wells were allowed to recover and then the wells were sampled using a clean disposable Teflon bailer. A bottom-emptying device was used to decant the water into the VOA vials to minimize the degassing of volatile components. Other laboratory supplied containers were also used as appropriate.

Prior to purging of the wells, the static groundwater level was measured relative to the top of the well casing for purposes of determining the groundwater gradient.

On collection of the water samples, the sample containers were sealed, labeled, and placed in an ice chest with frozen blue ice for transport to our subcontractor analytical laboratory, Superior Precision Laboratory in San Francisco, California. The results of the groundwater analyses are summarized below in Table 3.

TABLE 3
RESULTS OF GROUNDWATER ANALYSIS
SUPERIOR ANALYTICAL REPORT, OCTOBER 11, 1994

Well #	TPH-D ppb or ug/L	TPH-G ppb or ug/L	Benzene ppb or ug/L	Toluene ppb or ug/L	Xylene ppb or ug/L	Ethyl-benzene ppb or ug/L	Oil & Grease ppb or ug/L	8010 Halogenated Volatile Organics	8270 Semivolatile Organics
MW-1	ND	ND	ND	ND	ND	ND	ND	ND[3]	ND[4]
MW-2	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	72	290	29	3.2	29	3.3	ND	ND[5]	ND

Well # in mg/L or ppm	M Cd	E Cr	T Pb	A Zn	L Ni
MW-1	ND	ND	ND	ND	0.03
MW-2	ND	ND	ND	ND	ND
MW-3	ND	0.01[6]	ND (< 0.01)	ND (< 0.02)	0.02

The details of the laboratory analyses are also presented in the laboratory reports attached to this report in Appendix A.

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[3] Chloroform was detected in MW-1 and MW-2 groundwater samples at concentrations of 1.0 ug/L and 1.7 ug/L respectively. See the attached laboratory report for complete results.

[4] bis(2-ethylhexd)phtha is reported at 10 ug/L (10 ppb) which is the method detection limit of 10 ug/L. It is unlikely that this compound is present above the MDL.

[5] The following compounds and their concentrations were detected in the groundwater sample from MW-3: Vinyl Chloride @ 8.3 ug/L, 1,1-Dichloroethene @ 1.6 ug/L, 1,1-Dichloroethane @ 17 ug/L, c-1,2-Dichloroethene @ 8.4 ug/L, 1,1,1-Trichloroethane @ 12 ug/L, 1,2-Dichloroethane @ 1.2 ug/L, Trichloroethene @ 1.9 ug/L, Tetrachloroethene @ 12 ug/L. For a complete report of the analytical results see Appendix A.

[6] Cr and Ni are reported at the reporting limit of 0.01 ppb and 0.02 ppb, respectively.

Groundwater Gradient Determination

As noted in the preceding subsection, the depth to groundwater was measured prior to purging the wells. These data were used along with the surveyed well head elevation data to determine the following depths to groundwater relative to mean sea level. These data are summarized below in Table 4. The data were then plotted on Plate 2, which shows the groundwater gradient across the site at the time of the initial sampling. The gradient is south 10° west at approximately 0.0068 feet per feet.

TABLE 4

DEPTH TO GROUNDWATER AND GROUNDWATER ELEVATIONS

SEPTEMBER 30, 1994

Well #	WELL DEPTH	DEPTH TO WATER	WELLHEAD ELEVATION [7]	GW ELEVATION
MW-1	18.91	6.77	177.17 ft	170.40 ft
MW-2	18.70	6.38	176.55 ft	170.17 ft
MW-3	17.30	6.90	176.97 ft	170.07 ft

[7] Reference point is from top of casing.

V. RESULTS OF INITIAL SITE ASSESSMENT

Subsurface Conditions

There is a local water bearing zone in the interval from approximately 10 to 20 feet below the ground surface. The soils in this zone consist of silty sandy clays and clayey sands with some gravels. This zone is underlain by a dry, very stiff, silty clayey aquitard at least three feet thick. Groundwater was encountered at approximately 10 feet deep in each boring.

Impacts

Through our exploration and analysis we have discovered contamination to the soil in boring MW-3 in the depth interval from approximately 6 to 10 feet below the ground surface. We have also discovered impacts to the uppermost groundwater zone. These impacts are summarized in the following sections.

Impacts to Soils - The soil in the area of the boring for MW-3 (the down gradient well placed approximately 10 feet from the tank excavation) is impacted by petroleum hydrocarbon compounds including diesel or a similar hydrocarbon (possibly motor oil or aged diesel), gasoline, benzene, toluene, ethylbenzene, xylene and oil & grease.

In addition the soil is impacted by halogenated volatile and semivolatile organic solvents (Tetrachloroethene or PCE @ 31 ppb, 2-methyl-naphthalene @ 700 ppb and naphthalene @ 600 ppb). Some heavy metals were detected, but they appear to be at or near back ground concentrations. The extent of impacted soil is not known.

Impacts to Groundwater - The groundwater has been locally impacted in the area of MW-3. The impacts include petroleum hydrocarbon compounds (gasoline, benzene, toluene and ethylbenzene). In addition the following compounds and their concentrations were detected in the groundwater sample from MW-3: Vinyl Chloride @ 8.3 ug/L, 1,1-Dichloroethene @ 1.6 ug/L, 1,1-Dichloroethane @ 17 ug/L, c-1,2-Dichloroethene @ 8.4 ug/L, 1,1,1-Trichloroethane @ 12 ug/L, 1,2-Dichloroethane @ 1.2 ug/L, Trichloroethene @ 1.9 ug/L, Tetrachloroethene @ 12 ug/L. Appendix A presents a complete report of the analytical results. The extent of impacted groundwater is not known, but groundwater in the area of MW-2 does not appear to be impacted. Groundwater in the area of MW-1 appears to be impacted to a lesser extent than groundwater in the area of MW-3, but to a much lesser extent, and possibly from an off-site up gradient source. The presence of an apparent aquitard below 20 feet indicates that deeper groundwater zones are probably not impacted by discharges that might have occurred from the previous UST in this site.

VI. CONCLUSIONS & RECOMMENDATIONS

We conclude from the results of our investigation that the previous waste oil tank has leaked and has impacted the adjacent soils and the local, upper groundwater zone. The contaminants in soils include benzene and halogenated and semivolatile organic solvents. The solvents have not yet been detected in the groundwater, although benzene is present. Because of the presence of these carcinogenic compounds, further investigative and remedial action at this site is recommended.

Touchstone Developments recommends that the soil adjacent to the previous UST be over excavated in an attempt to remove the remaining source of contaminants that can impact the groundwater. Over-excavation will likely entail destruction of MW-3. After removal of as much contaminated soil as possible, MW-3 should be replaced farther down gradient, and the groundwater should be monitored for at least four quarters. If groundwater in the down gradient direction has diminished concentrations of contaminants over time, a continuation of this passive groundwater remediation would be recommended. Because of the detection of contaminants in the up-gradient well, we recommend that research of know contaminated sites in the immediate area be conducted. There may be other responsible parties contributing to the groundwater contamination beneath this property.

Touchstone Developments recommends that the soil remediation phase of work proceed as soon as possible to mitigate future impacts on the groundwater and the possible need for an expensive (active) groundwater remediation program at this site.

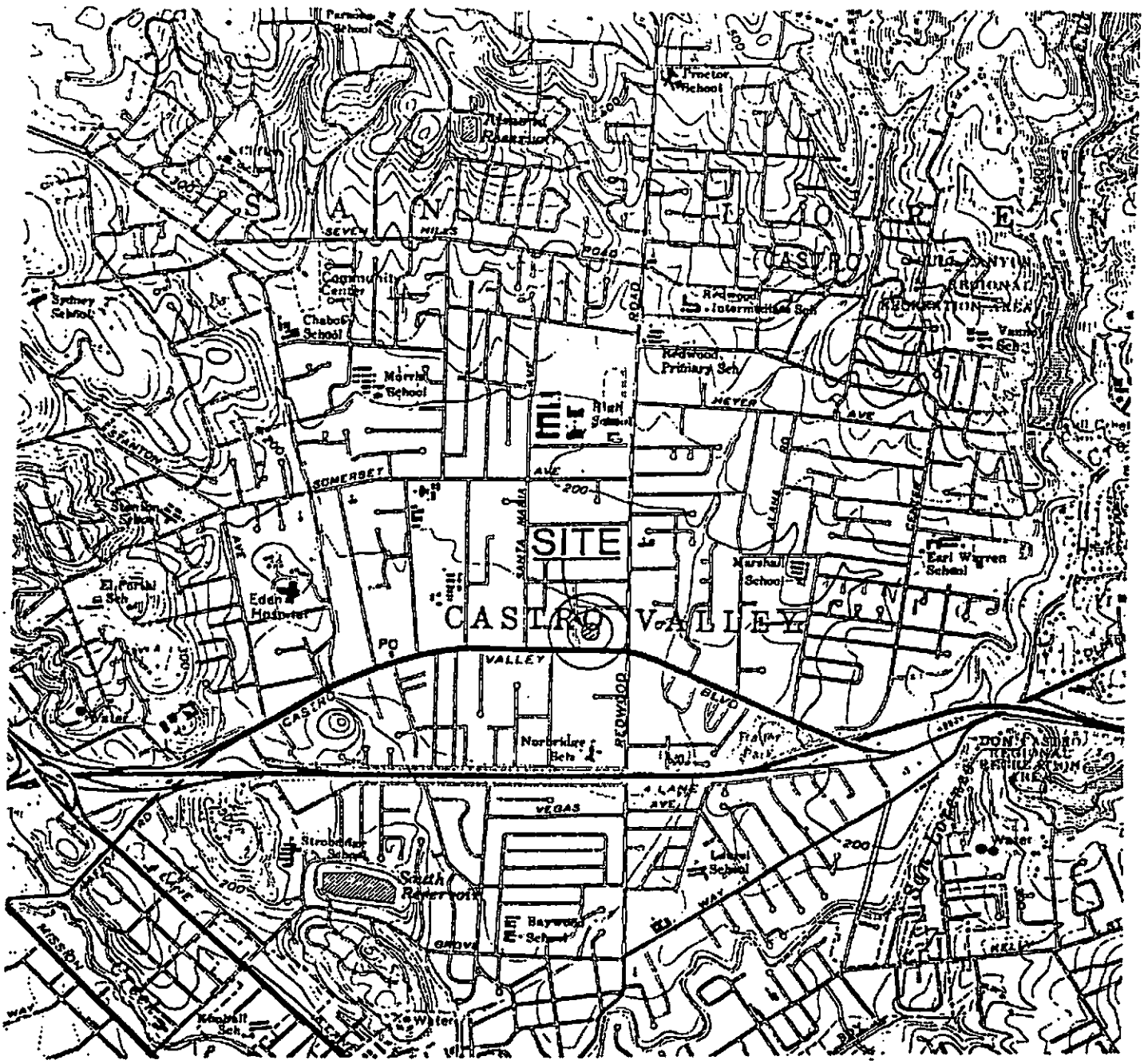
FIGURES AND PLATES

Figure 1:	**SITE LOCATION MAP**
Figure 2:	**MONITORING WELL LOCATION AND GROUNDWATER GRADIENT MAP**
Plate 3:	**Log of Boring MW-1 and Well Construction Details**
Plate 4:	**Log of Boring MW-2 and Well Construction Details**
Plate 5:	**Log of Boring MW-3 and Well Construction Details**

APPENDIX A

SUPERIOR PRECISION ANALYTICAL LABORATORY REPORTS

FIGURES AND PLATES



Base Map: USGS Topographic Survey, Hayward Quadrangle Scale: 1"=2000'

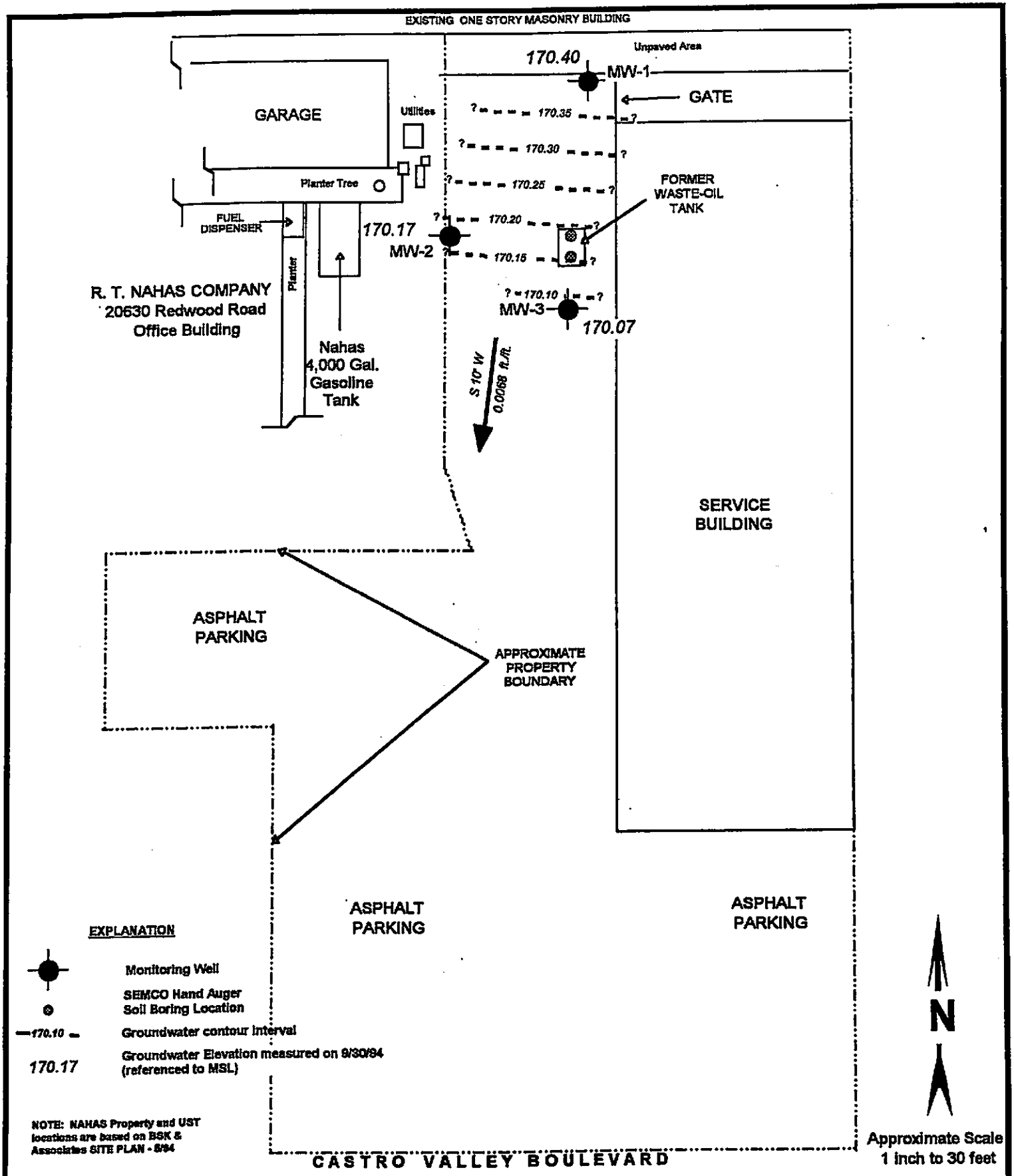
Touchstone Developments
Environmental Management

SITE LOCATION MAP

GOODYEAR TIRE & RUBBER COMPANY
3430 Castro Valley Boulevard
Castro Valley, California

FIGURE
1

PROJECT NO.	DATE	DRAWN BY:	BASE MAP:
94-14	8/94	WTJ	USGS TOPO MAP



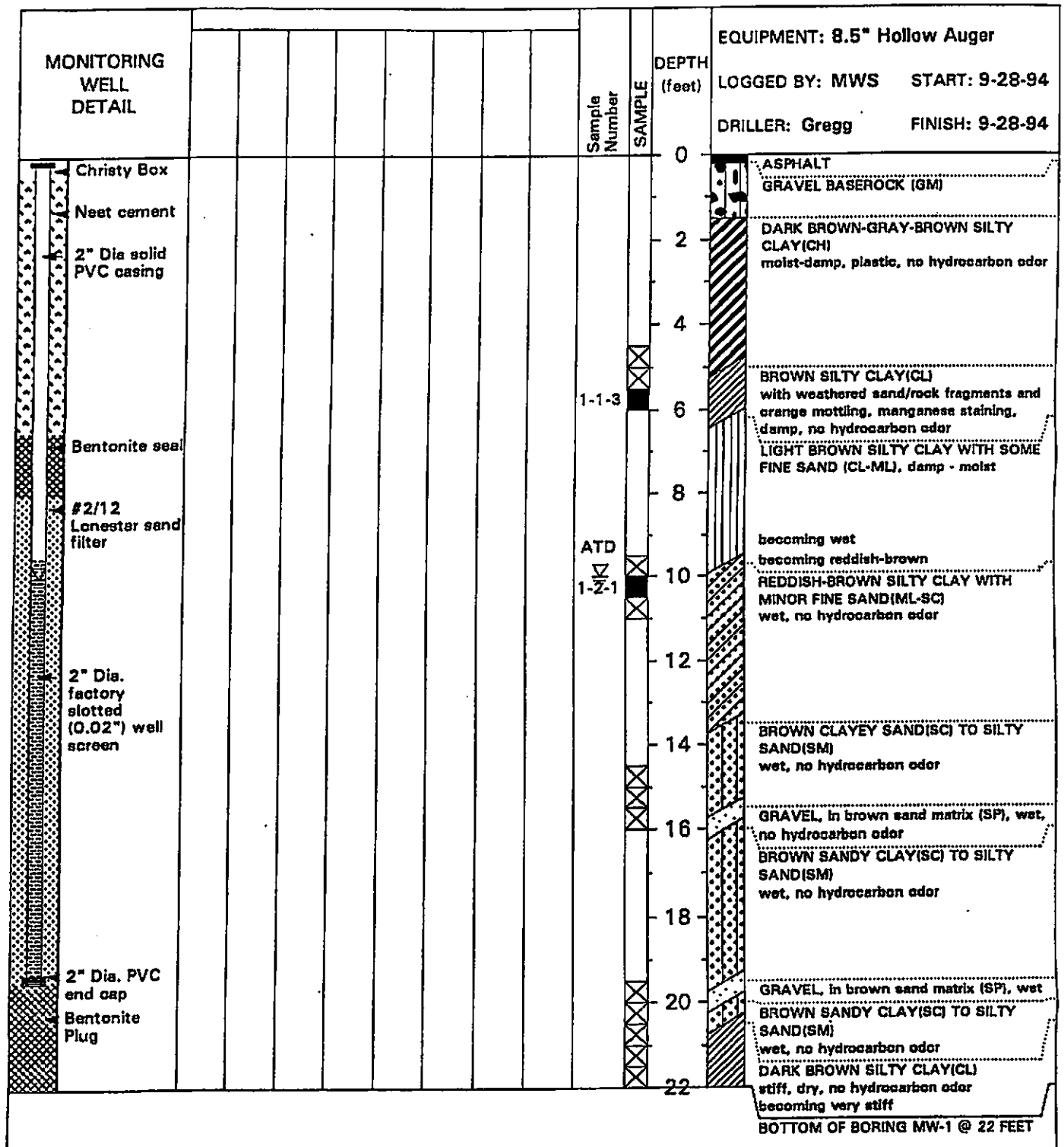
Touchstone Developments
Environmental Management

MONITORING WELL LOCATION AND GROUNDWATER GRADIENT MAP

GOODYEAR SERVICE CENTER
3430 Castro Valley Boulevard
Castro Valley, California

FIGURE
2

PROJECT NO.	DATE	DRAWN BY:	BASE MAP:
94-14	11/94	WTJ	GOODYEAR BLUEPRINT 10/73



LEGEND

■ Retained Samples

⊠ Record Samples

ND = Not Detected

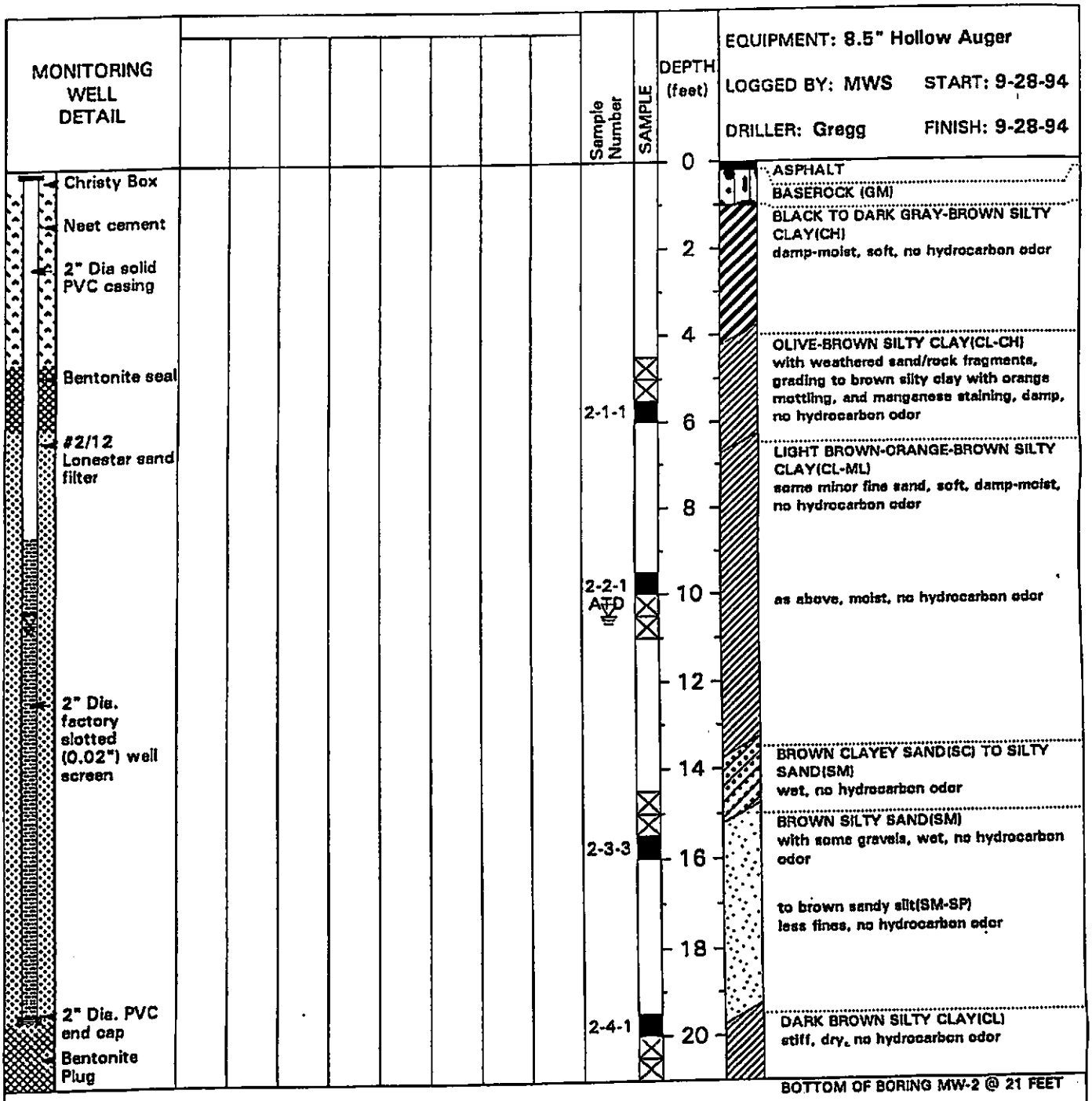
NA = Not Analyzed

Touchstone Developments
Environmental Management

Job No: 94-14
CEG:
Lic No: 1014
Drwn: CD
Date: OCT 1994

Log of Boring MW-1 and Well Construction Details
3420 CASTRO VALLEY BLVD.

PLATE 3



LEGEND

■ Retained Samples

☒ Record Samples

ND = Not Detected

NA = Not Analyzed

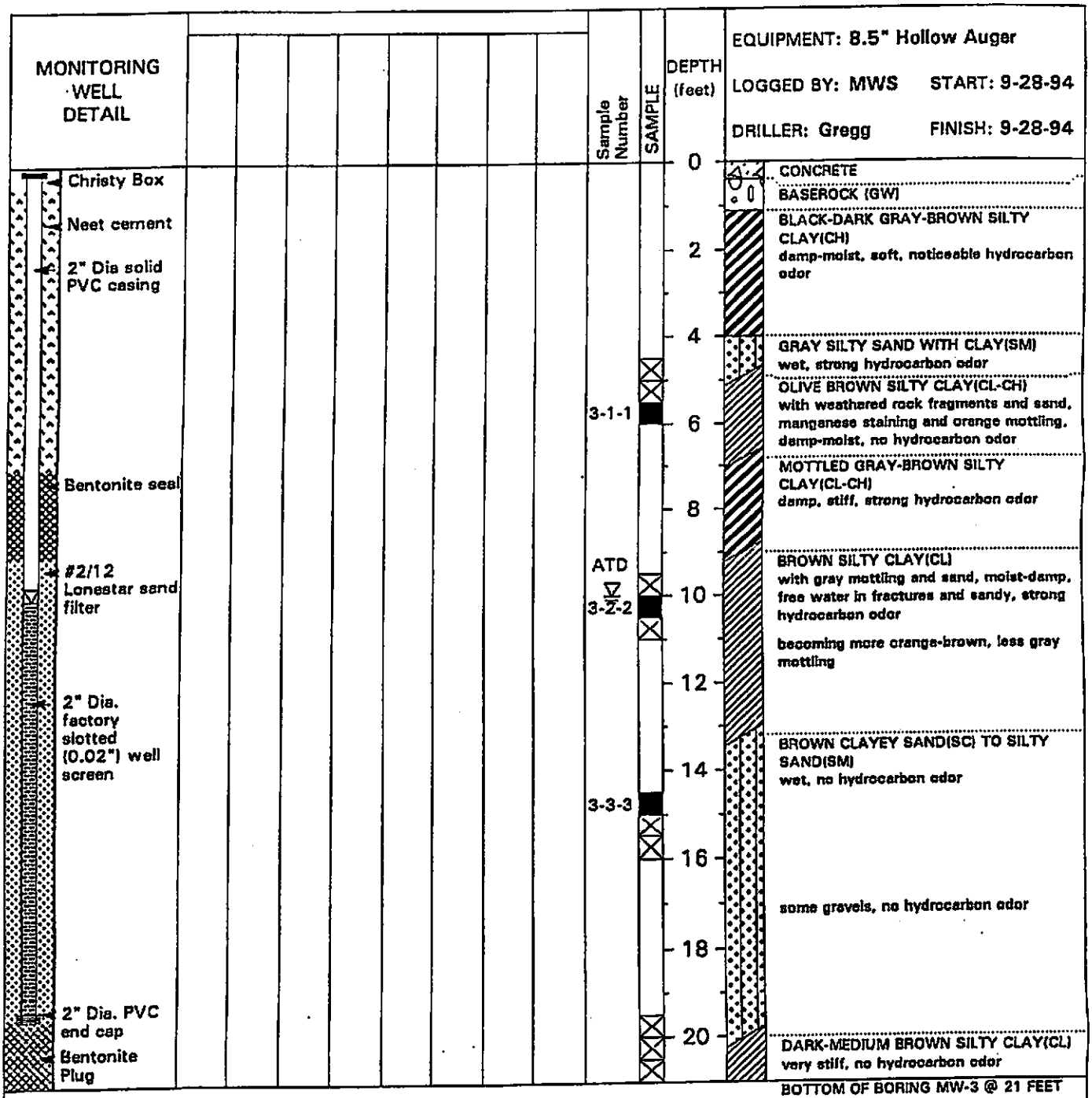
Touchstone Developments
Environmental Management

Job No: 94-14
CEG:
Lic No: 1014
Drwn: CD
Date: OCT 1994

Log of Boring MW-2 and Well Construction Details

3420 CASTRO VALLEY BLVD.

PLATE 4



LEGEND

■ Retained Samples

⊠ Record Samples

ND = Not Detected

NA = Not Analyzed

Touchstone Developments
Environmental Management

Job No: 94-14
CEG:
Lic No: 1014
Drwn: CD
Date: OCT 1994

Log of Boring MW-3 and Well Construction Details
3420 CASTRO VALLEY BLVD.

PLATE 5

APPENDIX A

Chemical Analytical Reports and Chain-of-Custody Forms

Superior Precision Analytical, Inc.
A member of ESSCON Environmental Support Service Consortium

TOUCHSTONE
Attn: MICHAEL TAMBRONI

Project 94-14
Reported 04-October-1994

ANALYSIS FOR CADMIUM, CHROMIUM, LEAD, NICKEL, & ZINC
by EPA Method SW-846 6010

Chronology

Laboratory Number 58759

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
1-1-3	09/28/94	09/29/94	10/03/94	10/03/94		1

825 Arnold Dr., Suite 114
Martinez, California 94553
(510) 229-1512 / fax (510) 229-1526

1555 Burke St., Unit I
San Francisco, California 94124
(415) 647-2081 / fax (415) 821-7123

309 S. Cloverdale St., Suite B-24
Seattle, Washington 98108
(206) 763-2992 / fax (206) 763-8429

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Attn: MICHAEL TAMBRONI

Project 94-14
Reported 04-October-1994

ANALYSIS FOR CADMIUM, CHROMIUM, LEAD, NICKEL, & ZINC

Laboratory Number	Sample Identification	Matrix
58759- 1	1-1-3	Soil

RESULTS OF ANALYSIS

Laboratory Number: 58759- 1

Cadmium	(Cd):	0.3
Chromium	(Cr):	28
Lead	(Pb):	7
Nickel	(Ni):	26
Zinc	(Zn):	30

Concentration: mg/Kg

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A member of ESSCON Environmental Support Service Consortium

ANALYSIS FOR CADMIUM, CHROMIUM, LEAD, NICKEL, & ZINC
Quality Assurance and Control Data - Soil

Laboratory Number 58759

Compound		Method Blank (mg/Kg)	RL (mg/Kg)	Spike Recovery (%)	Limits (%)	RPD (%)
Cadmium	(Cd):	ND<0.1	0.1	100/96	75-125	4%
Chromium	(Cr):	ND<0.2	0.2	103/90	75-125	13%
Lead	(Pb):	ND<2	2	105/94	75-125	11%
Nickel	(Ni):	ND<1	1	101/90	75-125	12%
Zinc	(Zn):	ND<0.5	0.5	115/95	75-125	19%

Definitions:
ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
mg/Kg = Parts per million (ppm)
SPC File No. 58759

10/6/94
Senior Chemist
Account Manager

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TOUCHSTONE
Attn: MICHAEL TAMBRONI

Project 94-14
Reported 06-October-1994

HALOGENATED VOLATILE ORGANICS by EPA SW-846 Methods 5030/8010.

Chronology

Laboratory Number 58759

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
1-1-3	09/28/94	09/29/94	10/05/94	10/05/94		1
1-2-2	09/28/94	09/29/94	10/05/94	10/05/94		2
2-1-1	09/28/94	09/29/94	10/05/94	10/05/94		3
2-2-1	09/28/94	09/29/94	10/05/94	10/05/94		4
3-1-1	09/28/94	09/29/94	10/05/94	10/05/94		6
3-2-8	09/28/94	09/29/94	10/05/94	10/05/94		7

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Project 94-14
Reported 06-October-1994

HALOGENATED VOLATILE ORGANICS by EPA SW-846 Methods 5030/8010.

Laboratory Number	Sample Identification	Matrix
58759- 1	1-1-3	Soil
58759- 2	1-2-2	Soil
58759- 3	2-1-1	Soil
58759- 4	2-2-1	Soil
58759- 6	3-1-1	Soil

RESULTS OF ANALYSIS

Laboratory Number:	58759- 1	58759- 2	58759- 3	58759- 4	58759- 6
Chloromethane:	ND<5	ND<5	ND<5	ND<5	ND<5
Vinyl Chloride:	ND<5	ND<5	ND<5	ND<5	ND<5
Bromomethane:	ND<5	ND<5	ND<5	ND<5	ND<5
Chloroethane:	ND<5	ND<5	ND<5	ND<5	ND<5
Trichlorofluoromethane:	ND<5	ND<5	ND<5	ND<5	ND<5
1,1-Dichloroethene:	ND<5	ND<5	ND<5	ND<5	ND<5
Dichloromethane:	ND<10	ND<10	ND<10	ND<10	ND<10
t-1,2-Dichloroethene:	ND<5	ND<5	ND<5	ND<5	ND<5
1,1-Dichloroethane:	ND<5	ND<5	ND<5	ND<5	ND<5
c-1,2-Dichloroethene:	ND<5	ND<5	ND<5	ND<5	ND<5
Chloroform:	ND<5	ND<5	ND<5	ND<5	ND<5
1,1,1-Trichloroethane:	ND<5	ND<5	ND<5	ND<5	ND<5
Carbon tetrachloride:	ND<5	ND<5	ND<5	ND<5	ND<5
1,2-Dichloroethane:	ND<5	ND<5	ND<5	ND<5	ND<5
Trichloroethene:	ND<5	ND<5	ND<5	ND<5	ND<5
c-1,3-Dichloropropene:	ND<5	ND<5	ND<5	ND<5	ND<5
1,2-Dichloropropane:	ND<5	ND<5	ND<5	ND<5	ND<5
t-1,3-Dichloropropene:	ND<5	ND<5	ND<5	ND<5	ND<5
Bromodichloromethane:	ND<5	ND<5	ND<5	ND<5	ND<5
1,1,2-Trichloroethane:	ND<5	ND<5	ND<5	ND<5	ND<5
Tetrachloroethene:	ND<5	ND<5	ND<5	ND<5	ND<5
Dibromochloromethane:	ND<5	ND<5	ND<5	ND<5	ND<5
Chlorobenzene:	ND<5	ND<5	ND<5	ND<5	ND<5
Bromoform:	ND<5	ND<5	ND<5	ND<5	ND<5
1,1,2,2-Tetrachloroeth:	ND<5	ND<5	ND<5	ND<5	ND<5
1,3-Dichlorobenzene:	ND<5	ND<5	ND<5	ND<5	ND<5
1,2-Dichlorobenzene:	ND<5	ND<5	ND<5	ND<5	ND<5
1,4-Dichlorobenzene:	ND<5	ND<5	ND<5	ND<5	ND<5
Concentration:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg

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Project 94-14
Reported 06-October-1994

HALOGENATED VOLATILE ORGANICS by EPA SW-846 Methods 5030/8010.

Laboratory Number	Sample Identification	Matrix
58759- 7	3-2-2	Soil

RESULTS OF ANALYSIS

Laboratory Number: 58759- 7

Chloromethane:	ND<5
Vinyl Chloride:	ND<5
Bromomethane:	ND<5
Chloroethane:	ND<5
Trichlorofluoromethane:	ND<5
1,1-Dichloroethene:	ND<5
Dichloromethane:	ND<10
t-1,2-Dichloroethene:	ND<5
1,1-Dichloroethane:	ND<5
c-1,2-Dichloroethene:	ND<5
Chloroform:	ND<5
1,1,1-Trichloroethane:	ND<5
Carbon tetrachloride:	ND<5
1,2-Dichloroethane:	ND<5
Trichloroethene:	ND<5
c-1,3-Dichloropropene:	ND<5
1,2-Dichloropropane:	ND<5
t-1,3-Dichloropropene:	ND<5
Bromodichloromethane:	ND<5
1,1,2-Trichloroethane:	ND<5
Tetrachloroethene:	31
Dibromochloromethane:	ND<5
Chlorobenzene:	ND<5
Bromoform:	ND<5
1,1,2,2-Tetrachloroeth:	ND<5
1,3-Dichlorobenzene:	ND<5
1,2-Dichlorobenzene:	ND<5
1,4-Dichlorobenzene:	ND<5

Concentration: ug/Kg

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HALOGENATED VOLATILE ORGANICS by EPA SW-846 Methods 5030/8010.
Quality Assurance and Control Data - Soil

Laboratory Number 58759

Compound	Method Blank (ug/Kg)	RL (ug/Kg)	Spike Recovery (%)	Limits (%)	RPD (%)
Chloromethane:	ND<5	5			
Vinyl Chloride:	ND<5	5			
Bromomethane:	ND<5	5			
Chloroethane:	ND<5	5			
Trichlorofluoromethane:	ND<5	5			
1,1-Dichloroethene:	ND<5	5	64/62	44-184	3%
Dichloromethane:	ND<10	10			
t-1,2-Dichloroethene:	ND<5	5			
1,1-Dichloroethane:	ND<5	5			
c-1,2-Dichloroethene:	ND<5	5			
Chloroform:	ND<5	5			
1,1,1-Trichloroethane:	ND<5	5			
Carbon tetrachloride:	ND<5	5			
1,2-Dichloroethane:	ND<5	5			
Trichloroethene:	ND<5	5	84/84	55-141	0%
c-1,3-Dichloropropene:	ND<5	5			
1,2-Dichloropropane:	ND<5	5			
t-1,3-Dichloropropene:	ND<5	5			
Bromodichloromethane:	ND<5	5			
1,1,2-Trichloroethane:	ND<5	5			
Tetrachloroethene:	ND<5	5			
Dibromochloromethane:	ND<5	5			
Chlorobenzene:	ND<5	5	109/105	63-158	4%
Bromoform:	ND<5	5			
1,1,2,2-Tetrachloroeth:	ND<5	5			
1,3-Dichlorobenzene:	ND<5	5			
1,2-Dichlorobenzene:	ND<5	5			
1,4-Dichlorobenzene:	ND<5	5			

Definitions:
ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
ug/Kg = Parts per billion (ppb)
QC File No. 58759

Asael Sabag 10/6/94
Senior Chemist
Account Manager

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TOUCHSTONE
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Project 94-14
Reported 07-October-1994

OIL AND GREASE BY STANDARD METHODS 5520F

Chronology

Laboratory Number 58759

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
1-1-3	09/28/94	09/29/94	10/06/94	10/06/94		1
1-2-2	09/28/94	09/29/94	10/06/94	10/06/94		2
2-1-1	09/28/94	09/29/94	10/06/94	10/06/94		3
2-2-1	09/28/94	09/29/94	10/06/94	10/06/94		4
3-1-1	09/28/94	09/29/94	10/06/94	10/06/94		6
3-2-2	09/28/94	09/29/94	10/06/94	10/06/94		7

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Project 94-14
Reported 07-October-1994

OIL AND GREASE BY STANDARD METHODS 5520F

Laboratory Number	Sample Identification	Matrix
58759- 1	1-1-3	Soil
58759- 2	1-2-2	Soil
58759- 3	2-1-1	Soil
58759- 4	2-2-1	Soil
58759- 6	3-1-1	Soil
58759- 7	3-2-2	Soil

RESULTS OF ANALYSIS

Laboratory Number:	58759- 1	58759- 2	58759- 3	58759- 4	58759- 6
Oil and Grease:	ND<50	ND<50	ND<50	ND<50	550
Concentration:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg

Laboratory Number:	58759- 7
Oil and Grease:	1300
Concentration:	mg/kg

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OIL AND GREASE BY STANDARD METHODS 5520F
Quality Assurance and Control Data - Soil

Laboratory Number 58759

Compound	Method Blank (mg/kg)	RL (mg/kg)	Spike Recovery (%)	Limits (%)	RPD (%)
Oil and Grease:	ND<50	50	84/79	52-120	6%

Definitions:
ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
mg/kg = Parts per million (ppm)
QC File No. 58759

Cecilia G. Joaquin 10/7/94
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Attn: MICHAEL TAMBRONI

Project 94-14
Reported 06-October-1994

EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS

Chronology

Laboratory Number 58759

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
1-1-3	09/28/94	09/29/94	10/01/94	10/02/94		1
1-2-2	09/28/94	09/29/94	10/01/94	10/02/94		2
2-1-1	09/28/94	09/29/94	10/01/94	10/02/94		3
2-2-1	09/28/94	09/29/94	10/01/94	10/02/94		4
3-1-1	09/28/94	09/29/94	10/01/94	10/02/94		6
3-2-2	09/28/94	09/29/94	10/01/94	10/02/94		7

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Project 94-14
Reported 06-October-1994

EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS

Laboratory Number	Sample Identification	Matrix
58759- 1	1-1-3	Soil
58759- 2	1-2-2	Soil
58759- 3	2-1-1	Soil
58759- 4	2-2-1	Soil
58759- 6	3-1-1	Soil

RESULTS OF ANALYSIS

Laboratory Number:	58759- 1	58759- 2	58759- 3	58759- 4	58759- 6
bis(2-chloroethyl)ethe:	ND<300	ND<300	ND<300	ND<300	ND<300
aniline:	ND<300	ND<300	ND<300	ND<300	ND<300
phenol:	ND<300	ND<300	ND<300	ND<300	ND<300
2-chlorophenol:	ND<300	ND<300	ND<300	ND<300	ND<300
1,3-dichlorobenzene:	ND<300	ND<300	ND<300	ND<300	ND<300
1,4-dichlorobenzene:	ND<300	ND<300	ND<300	ND<300	ND<300
1,2-dichlorobenzene:	ND<300	ND<300	ND<300	ND<300	ND<300
benzyl alcohol:	ND<300	ND<300	ND<300	ND<300	ND<300
bis-(2-chloroisopropyl:	ND<300	ND<300	ND<300	ND<300	ND<300
2-methylphenol:	ND<300	ND<300	ND<300	ND<300	ND<300
hexachloroethane:	ND<300	ND<300	ND<300	ND<300	ND<300
n-nitroso-di-n-propyla:	ND<300	ND<300	ND<300	ND<300	ND<300
4-methylphenol:	ND<300	ND<300	ND<300	ND<300	ND<300
nitrobenzene:	ND<300	ND<300	ND<300	ND<300	ND<300
isophorone:	ND<300	ND<300	ND<300	ND<300	ND<300
2-nitrophenol:	ND<300	ND<300	ND<300	ND<300	ND<300
2,4-dimethylphenol:	ND<300	ND<300	ND<300	ND<300	ND<300
bis(2-chloroethoxy)met:	ND<300	ND<300	ND<300	ND<300	ND<300
2,4-dichlorophenol:	ND<300	ND<300	ND<300	ND<300	ND<300
1,2,4-trichlorobenzene:	ND<300	ND<300	ND<300	ND<300	ND<300
naphthalene:	ND<300	ND<300	ND<300	ND<300	ND<300
benzoic acid:	ND<300	ND<300	ND<300	ND<300	ND<300
4-chloroaniline:	ND<300	ND<300	ND<300	ND<300	ND<300
hexachlorobutadiene:	ND<300	ND<300	ND<300	ND<300	ND<300
4-chloro-3-methylpheno:	ND<300	ND<300	ND<300	ND<300	ND<300
2-methyl-naphthalene:	ND<300	ND<300	ND<300	ND<300	500
hexaclorocyclopentadie:	ND<300	ND<300	ND<300	ND<300	ND<300
2,4,6-trichlorophenol:	ND<300	ND<300	ND<300	ND<300	ND<300
2,4,5-trichlorophenol:	ND<300	ND<300	ND<300	ND<300	ND<300
Concentration:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg

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Project 94-14
Reported 06-October-1994

EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS

Laboratory Number	Sample Identification	Matrix
58759- 1	1-1-3	Soil
58759- 2	1-2-2	Soil
58759- 3	2-1-1	Soil
58759- 4	2-2-1	Soil
58759- 6	3-1-1	Soil

RESULTS OF ANALYSIS

Laboratory Number:	58759- 1	58759- 2	58759- 3	58759- 4	58759- 6
2-chloronaphthalene:	ND<300	ND<300	ND<300	ND<300	ND<300
2-nitroaniline:	ND<300	ND<300	ND<300	ND<300	ND<300
acenaphthylene:	ND<300	ND<300	ND<300	ND<300	ND<300
dimethylphthlate:	ND<300	ND<300	ND<300	ND<300	ND<300
2,6-dinitrotoluene:	ND<300	ND<300	ND<300	ND<300	ND<300
acenaphthene:	ND<300	ND<300	ND<300	ND<300	ND<300
3-nitroaniline:	ND<300	ND<300	ND<300	ND<300	ND<300
2,4-dinitrophenol:	ND<300	ND<300	ND<300	ND<300	ND<300
dibenzofuran:	ND<300	ND<300	ND<300	ND<300	ND<300
2,4-dinitrotoluene:	ND<300	ND<300	ND<300	ND<300	ND<300
4-nitrophenol:	ND<300	ND<300	ND<300	ND<300	ND<300
fluorene:	ND<300	ND<300	ND<300	ND<300	ND<300
4-chlorophenyl-phenyle:	ND<300	ND<300	ND<300	ND<300	ND<300
diethylphthlate:	ND<300	ND<300	ND<300	ND<300	ND<300
4-nitroaniline:	ND<300	ND<300	ND<300	ND<300	ND<300
4,6-dinitro-2-methylph:	ND<300	ND<300	ND<300	ND<300	ND<300
n-nitrosodiphenylamine:	ND<300	ND<300	ND<300	ND<300	ND<300
1,2-diphenylhydrazine:	ND<300	ND<300	ND<300	ND<300	ND<300
4-bromo-phenyl-phenyle:	ND<300	ND<300	ND<300	ND<300	ND<300
hexachlorobenzene:	ND<300	ND<300	ND<300	ND<300	ND<300
pentachlorophenol:	ND<300	ND<300	ND<300	ND<300	ND<300
phenanthrene:	ND<300	ND<300	ND<300	ND<300	ND<300
anthracene:	ND<300	ND<300	ND<300	ND<300	ND<300
di-n-butylphthlate:	ND<300	ND<300	ND<300	ND<300	ND<300
fluoranthene:	ND<300	ND<300	ND<300	ND<300	ND<300
benzidine:	ND<300	ND<300	ND<300	ND<300	ND<300
pyrene:	ND<300	ND<300	ND<300	ND<300	ND<300
butylbenzylphthlate:	ND<300	ND<300	ND<300	ND<300	ND<300
3.3'-dichlorobenzidine:	ND<300	ND<300	ND<300	ND<300	ND<300
Concentration:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg

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Project 94-14
Reported 06-October-1994

EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS

Laboratory Number	Sample Identification	Matrix
58759- 1	1-1-3	Soil
58759- 2	1-2-2	Soil
58759- 3	2-1-1	Soil
58759- 4	2-2-1	Soil
58759- 6	3-1-1	Soil

RESULTS OF ANALYSIS

Laboratory Number:	58759- 1	58759- 2	58759- 3	58759- 4	58759- 6
benzo[a]anthracene:	ND<300	ND<300	ND<300	ND<300	ND<300
chrysene:	ND<300	ND<300	ND<300	ND<300	ND<300
bis(2-ethylhexyl)phtha:	ND<300	ND<300	ND<300	ND<300	ND<300
di-n-octylphthalate:	ND<300	ND<300	ND<300	ND<300	ND<300
benzo(b,k)fluoranthene:	ND<300	ND<300	ND<300	ND<300	ND<300
benzo[a]pyrene:	ND<300	ND<300	ND<300	ND<300	ND<300
indeno[1,2,3-cd]pyrene:	ND<300	ND<300	ND<300	ND<300	ND<300
dibenzo[a,h]anthracene:	ND<300	ND<300	ND<300	ND<300	ND<300
benzo[g,h,i]perylene:	ND<300	ND<300	ND<300	ND<300	ND<300
Concentration:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
-- Surrogate % Recoveries --					
2-fluorophenol:	78	83	76	82	80
phenol-d5:	83	88	80	88	84
nitrobenzene-d5:	89	91	85	100	93
2-fluorobiphenyl:	90	92	88	95	97
2,4,6-tribromophenol:	93	98	90	100	93
terphenyl-d14:	89	94	87	100	96

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Project 94-14
Reported 06-October-1994

EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS

Laboratory Number	Sample Identification	Matrix
58759- 7	3-2-2	Soil

RESULTS OF ANALYSIS

Laboratory Number: 58759- 7

bis(2-chloroethyl)ethe:	ND<300
aniline:	ND<300
phenol:	ND<300
2-chlorophenol:	ND<300
1,3-dichlorobenzene:	ND<300
1,4-dichlorobenzene:	ND<300
1,2-dichlorobenzene:	ND<300
benzyl alcohol:	ND<300
bis-(2-chloroisopropyl:	ND<300
2-methylphenol:	ND<300
hexachloroethane:	ND<300
n-nitroso-di-n-propyla:	ND<300
4-methylphenol:	ND<300
nitrobenzene:	ND<300
isophorone:	ND<300
2-nitrophenol:	ND<300
2,4-dimethylphenol:	ND<300
bis(2-chloroethoxy)met:	ND<300
2,4-dichlorophenol:	ND<300
1,2,4-trichlorobenzene:	ND<300
naphthalene:	600
benzoic acid:	ND<300
4-chloroaniline:	ND<300
hexachlorobutadiene:	ND<300
4-chloro-3-methylpheno:	ND<300
2-methyl-naphthalene:	700
hexaclorocyclopentadie:	ND<300
2,4,6-trichlorophenol:	ND<300
2,4,5-trichlorophenol:	ND<300

Concentration: ug/kg

Certified Laboratories

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Attn: MICHAEL TAMBRONI

Project 94-14
Reported 06-October-1994

EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS

Laboratory Number	Sample Identification	Matrix
58759- 7	3-2-2	Soil

RESULTS OF ANALYSIS

Laboratory Number: 58759- 7

2-chloronaphthalene:	ND<300
2-nitroaniline:	ND<300
acenaphthylene:	ND<300
dimethylphthlate:	ND<300
2,6-dinitrotoluene:	ND<300
acenaphthene:	ND<300
3-nitroaniline:	ND<300
2,4-dinitrophenol:	ND<300
dibenzofuran:	ND<300
2,4-dinitrotoluene:	ND<300
4-nitrophenol:	ND<300
fluorene:	ND<300
4-chlorophenyl-phenyle:	ND<300
diethylphthlate:	ND<300
4-nitroaniline:	ND<300
4,6-dinitro-2-methylph:	ND<300
n-nitrosodiphenylamine:	ND<300
1,2-diphenylhydrazine:	ND<300
4-bromo-phenyl-phenyle:	ND<300
hexachlorobenzene:	ND<300
pentachlorophenol:	ND<300
phenanthrene:	ND<300
anthracene:	ND<300
di-n-butylphthlate:	ND<300
fluoranthene:	ND<300
benzidine:	ND<300
pyrene:	ND<300
butylbenzylphthlate:	ND<300
3.3'-dichlorobenzidine:	ND<300
Concentration:	ug/kg

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EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS
Quality Assurance and Control Data - Soil

Laboratory Number 58759

Compound	Method Blank (ug/kg)	RL (ug/kg)	Spike Recovery (%)	Limits (%)	RPD (%)
2-chloronaphthalene:	ND<300	300			
2-nitroaniline:	ND<300	300			
acenaphthylene:	ND<300	300			
dimethylphthlate:	ND<300	300			
2,6-dinitrotoluene:	ND<300	300			
acenaphthene:	ND<300	300	91/89	35-137	2%
3-nitroaniline:	ND<300	300			
2,4-dinitrophenol:	ND<300	300			
dibenzofuran:	ND<300	300			
2,4-dinitrotoluene:	ND<300	300	88/87	28-118	1%
4-nitrophenol:	ND<300	300	63/62	1-111	2%
fluorene:	ND<300	300			
4-chlorophenyl-phenyle:	ND<300	300			
diethylphthlate:	ND<300	300			
4-nitroaniline:	ND<300	300			
4,6-dinitro-2-methylph:	ND<300	300			
n-nitrosodiphenylamine:	ND<300	300			
1,2-diphenylhydrazine:	ND<300	300			
4-bromo-phenyl-phenyle:	ND<300	300			
hexachlorobenzene:	ND<300	300			
pentachlorophenol:	ND<300	300	77/75	14-123	3%
phenanthrene:	ND<300	300			
anthracene:	ND<300	300			
di-n-butylphthlate:	ND<300	300			
fluoranthene:	ND<300	300			
benzidine:	ND<300	300			
pyrene:	ND<300	300	101/104	41-131	3%
butylbenzylphthlate:	ND<300	300			
3,3'-dichlorobenzidine:	ND<300	300			

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Project 94-14
Reported 06-October-1994

EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS

Laboratory Number	Sample Identification	Matrix
58759- 7	3-2-2	Soil

RESULTS OF ANALYSIS

Laboratory Number: 58759- 7

benzo[a]anthracene:	ND<300
chrysene:	ND<300
bis(2-ethylhexyl)phtha:	ND<300
di-n-octylphthalate:	ND<300
benzo(b,k)fluoranthene:	ND<300
benzo[a]pyrene:	ND<300
indeno[1,2,3-cd]pyrene:	ND<300
dibenzo[a,h]anthracene:	ND<300
benzo[g,h,i]perylene:	ND<300
Concentration:	ug/kg

-- Surrogate % Recoveries --

2-fluorophenol:	73
phenol-d5:	77
nitrobenzene-d5:	88
2-fluorobiphenyl:	89
2,4,6-tribromophenol:	90
terphenyl-d14:	91

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EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS
Quality Assurance and Control Data - Soil

Laboratory Number 58759

Compound	Method Blank (ug/kg)	RL (ug/kg)	Spike Recovery (%)	Limits (%)	RPD (%)
2-chloronaphthalene:	ND<300	300			
2-nitroaniline:	ND<300	300			
acenaphthylene:	ND<300	300			
dimethylphthlate:	ND<300	300			
2,6-dinitrotoluene:	ND<300	300			
acenaphthene:	ND<300	300	91/89	35-137	2%
3-nitroaniline:	ND<300	300			
2,4-dinitrophenol:	ND<300	300			
dibenzofuran:	ND<300	300			
2,4-dinitrotoluene:	ND<300	300	88/87	28-118	1%
4-nitrophenol:	ND<300	300	63/62	1-111	2%
fluorene:	ND<300	300			
4-chlorophenyl-phenyle:	ND<300	300			
diethylphthlate:	ND<300	300			
4-nitroaniline:	ND<300	300			
4,6-dinitro-2-methylph:	ND<300	300			
n-nitrosodiphenylamine:	ND<300	300			
1,2-diphenylhydrazine:	ND<300	300			
4-bromo-phenyl-phenyle:	ND<300	300			
hexachlorobenzene:	ND<300	300			
pentachlorophenol:	ND<300	300	77/75	14-123	3%
phenanthrene:	ND<300	300			
anthracene:	ND<300	300			
di-n-butylphthlate:	ND<300	300			
fluoranthene:	ND<300	300			
benzidine:	ND<300	300			
pyrene:	ND<300	300	101/104	41-131	3%
butylbenzylphthlate:	ND<300	300			
3.3'-dichlorobenzidine:	ND<300	300			

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EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS
Quality Assurance and Control Data - Soil

Laboratory Number 58759

Compound	Method Blank (ug/kg)	RL (ug/kg)	Spike Recovery (%)	Limits (%)	RPD (%)
benzo[a]anthracene:	ND<300	300			
chrysene:	ND<300	300			
bis(2-ethylhexyl)phtha:	ND<300	300			
di-n-octylphthalate:	ND<300	300			
benzo(b,k)fluoranthene:	ND<300	300			
benzo[a]pyrene:	ND<300	300			
indeno[1,2,3-cd]pyrene:	ND<300	300			
dibenzo[a,h]anthracene:	ND<300	300			
benzo[g,h,i]perylene:	ND<300	300			
2-fluorophenol:	90			25-121	
phenol-d5:	95			24-113	
nitrobenzene-d5:	98			23-120	
2-fluorobiphenyl:	95			30-115	
2,4,6-tribromophenol:	101			19-122	
terphenyl-d14:	98			18-137	

Definitions:
ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
ug/kg = Parts per billion (ppb)
QC File No. 58759

Cecilia Y. Joaquin 10/7/94
Senior Chemist
Account Manager

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TOUCHSTONE
Attn: MICHAEL TAMBRONI

Project 94-14
Reported 04-October-1994

TOTAL PETROLEUM HYDROCARBONS AS DIESEL BY EPA METHOD 8015M

Chronology

Laboratory Number 58759

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
1-1-3	09/28/94	09/29/94	10/03/94	10/04/94		1
1-2-2	09/28/94	09/29/94	10/03/94	10/04/94		2
2-1-1	09/28/94	09/29/94	10/03/94	10/04/94		3
2-2-1	09/28/94	09/29/94	10/03/94	10/04/94		4
3-1-1	09/28/94	09/29/94	10/03/94	10/04/94		6
3-2-2	09/28/94	09/29/94	10/03/94	10/04/94		7

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TOUCHSTONE
Attn: MICHAEL TAMBRONI

Project 94-14
Reported 04-October-1994

TOTAL PETROLEUM HYDROCARBONS AS DIESEL

Laboratory Number	Sample Identification	Matrix
58759- 1	1-1-3	Soil
58759- 2	1-2-2	Soil
58759- 3	2-1-1	Soil
58759- 4	2-2-1	Soil
58759- 6	3-1-1	Soil
58759- 7	3-2-2	Soil

RESULTS OF ANALYSIS

Laboratory Number:	58759- 1	58759- 2	58759- 3	58759- 4	58759- 6
Diesel Range:	ND<10	ND<10	ND<10	ND<10	210*
Concentration:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg

Laboratory Number:	58759- 7
Diesel Range:	560*
Concentration:	mg/kg

* DOES NOT MATCH TYPICAL DIESEL PATTERN--HEAVIER HYDROCARBONS PRESENT

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TOTAL PETROLEUM HYDROCARBONS AS DIESEL
Quality Assurance and Control Data - Soil

Laboratory Number 58759

Compound	Method Blank (mg/kg)	RL (mg/kg)	Spike Recovery (%)	Limits (%)	RPD (%)
Diesel Range:	ND<10	10	150/139	50-150	8%

Definitions:
ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
mg/kg = Parts per million (ppm)
QC File No. 58759

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TOUCHSTONE
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Project 94-14
Reported 06-October-1994

ANALYSIS FOR GASOLINE, BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES
by EPA SW-846 Methods 5030/8015M/8020.

Chronology

Laboratory Number 58759

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
1-1-3	09/28/94	09/29/94	10/02/94	10/02/94		1
1-2-2	09/28/94	09/29/94	10/02/94	10/02/94		2
2-1-1	09/28/94	09/29/94	10/02/94	10/02/94		3
2-2-1	09/28/94	09/29/94	10/02/94	10/02/94		4
3-1-1	09/28/94	09/29/94	10/02/94	10/02/94		6
3-2-2	09/28/94	09/29/94	10/02/94	10/02/94		7

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TOUCHSTONE
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Project 94-14
Reported 06-October-1994

ANALYSIS FOR GASOLINE, BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES

Laboratory Number	Sample Identification	Matrix
58759- 1	1-1-3	Soil
58759- 2	1-2-2	Soil
58759- 3	2-1-1	Soil
58759- 4	2-2-1	Soil
58759- 6	3-1-1	Soil
58759- 7	3-2-2	Soil

RESULTS OF ANALYSIS

Laboratory Number:	58759- 1	58759- 2	58759- 3	58759- 4	58759- 6
Gasoline_Range:	ND<1	ND<1	ND<1	ND<1	4
Benzene:	ND<.005	ND<.005	ND<.005	ND<.005	0.022
Toluene:	ND<.005	ND<.005	ND<.005	ND<.005	0.072
Ethyl Benzene:	ND<.005	ND<.005	ND<.005	ND<.005	0.067
Total Xylenes:	ND<.005	ND<.005	ND<.005	ND<.005	0.28
Concentration:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
-- Surrogate % Recoveries --					
Trifluorotoluene (SS):	87	92	84	95	111

Laboratory Number:	58759- 7
Gasoline_Range:	14
Benzene:	0.047
Toluene:	0.016
Ethyl Benzene:	0.068
Total Xylenes:	0.58
Concentration:	mg/kg
-- Surrogate % Recoveries --	
Trifluorotoluene (SS):	111

Certified Laboratories

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Superior Precision Analytical, Inc.
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ANALYSIS FOR GASOLINE, BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES
Quality Assurance and Control Data - Soil

Laboratory Number 58759

Compound	Method Blank (mg/kg)	RL (mg/kg)	Spike Recovery (%)	Limits (%)	RPD (%)
Gasoline_Range:	ND<1	1	78/87	50-123	11%
Benzene:	ND<.005	.005	70/70	59-153	0%
Toluene:	ND<.005	.005	83/82	59-153	1%
Ethyl Benzene:	ND<.005	.005	85/85	59-153	0%
Total Xylenes:	ND<.005	.005	99/96	59-153	3%

Definitions:
ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
mg/kg = Parts per million (ppm)
QC File No. 58759

Cecilia G. Joaquin 10/7/94
Senior Chemist
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5954

CHAIN-OF-CUSTODY-RECORD

Touchstone Developments
Environmental Management
684 30th Avenue
San Francisco, CA 94121
415-386-8791

Project Number 94-14
Project Address 3430 CASTRO Valley BLVD "Goodyear"

Project Manager Michael Tambroni
Phone (415) 386-8791 Fax (415) 386-8791

Laboratory Superior Precision Analytical Inc.
Samples Collected By ~~Michael Tambroni~~ MARC SEELEY
Collection Date 4-28-94
Signature

Sample ID	Lab Sample #	# of Containers	S=soil W=water	C=composite D=discrete G=grab	Time	Iced(yes or no)	• TPH Gas + BTXE 8015 +8020	• TPH Diesel 8015	• Oil & Grease 5520	• 8010	• 8270	• Metals Cd,Cr,Pb,Zn,Ni	Organic Lead				Remarks
1-1-3	1	1	S	D	0830	Y	✓	✓	✓	✓	✓	✓					
1-2-2	2	1	S	D	0840	Y	✓	✓	✓	✓	✓						
2-1-1	3	1	S	D	1000	Y	✓	✓	✓	✓	✓						
2-2-1	4	1	S	D	1020	Y	✓	✓	✓	✓	✓						
2-3-3	5	1	S	D	1044	Y	~~✓~~	~~✓~~									HOLD
3-1-4	6	1	S	D	1255	Y	✓	✓	✓	✓	✓						
3-2-2	7	1	S	D	1310	Y	✓	✓	✓	✓	✓						
3-3-1	8	1	S	D	1330	Y	~~✓~~										HOLD

Please initial: SS
Samples Stored in ice 4 °C
Appropriate containers
Samples preserved ✓ OK
VOA's without headspace
Comments:

Relinquished By	Organization	Date/Time	Relinquished By	Organization	Date/Time
	TD	9/29/94 20:00			
	TD	9/29/94 20:00			
	TB	9-29-94 1315	Received for Laboratory By		Date/Time 9/29/94 1:15

Turn Around Time
24 hour
48 hour
72 hour
5 day

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TOUCHSTONE
Attn: MICHAEL TAMBRONI

Project 94-14
Reported 11-October-1994

EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS

Chronology

Laboratory Number 92709

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
MW-1	09/30/94	10/03/94	10/06/94	10/10/94		1
MW-2	09/30/94	10/03/94	10/06/94	10/10/94		2
MW-3	09/30/94	10/03/94	10/06/94	10/10/94		3

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Project 94-14
Reported 11-October-1994

EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS

Laboratory Number	Sample Identification	Matrix
		Water
92709- 1	MW-1	Water
92709- 2	MW-2	Water
92709- 3	MW-3	

RESULTS OF ANALYSIS

Laboratory Number:	92709- 1	92709- 2	92709- 3
bis(2-chloroethyl)ethe:	ND<10	ND<10	ND<10
aniline:	ND<10	ND<10	ND<10
phenol:	ND<10	ND<10	ND<10
2-chlorophenol:	ND<10	ND<10	ND<10
1,3-dichlorobenzene:	ND<10	ND<10	ND<10
1,4-dichlorobenzene:	ND<10	ND<10	ND<10
1,2-dichlorobenzene:	ND<10	ND<10	ND<10
benzyl alcohol:	ND<10	ND<10	ND<10
bis-(2-chloroisopropyl:	ND<10	ND<10	ND<10
2-methylphenol:	ND<10	ND<10	ND<10
hexachloroethane:	ND<10	ND<10	ND<10
n-nitroso-di-n-propyla:	ND<10	ND<10	ND<10
4-methylphenol:	ND<10	ND<10	ND<10
nitrobenzene:	ND<10	ND<10	ND<10
isophorone:	ND<10	ND<10	ND<10
2-nitrophenol:	ND<10	ND<10	ND<10
2,4-dimethylphenol:	ND<10	ND<10	ND<10
bis(2-chloroethoxy)met:	ND<10	ND<10	ND<10
2,4-dichlorophenol:	ND<10	ND<10	ND<10
1,2,4-trichlorobenzene:	ND<10	ND<10	ND<10
naphthalene:	ND<10	ND<10	ND<10
benzoic acid:	ND<10	ND<10	ND<10
4-chloroaniline:	ND<10	ND<10	ND<10
hexachlorobutadiene:	ND<10	ND<10	ND<10
4-chloro-3-methylpheno:	ND<10	ND<10	ND<10
2-methyl-naphthalene:	ND<10	ND<10	ND<10
hexaclorocyclopentadie:	ND<10	ND<10	ND<10
2,4,6-trichlorophenol:	ND<10	ND<10	ND<10
2,4,5-trichlorophenol:	ND<10	ND<10	ND<10
Concentration:	ug/L	ug/L	ug/L

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Project 94-14
Reported 11-October-1994

EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS

Laboratory Number	Sample Identification	Matrix
92709- 1	MW-1	Water
92709- 2	MW-2	Water
92709- 3	MW-3	Water

RESULTS OF ANALYSIS

Laboratory Number:	92709- 1	92709- 2	92709- 3
2-chloronaphthalene:	ND<10	ND<10	ND<10
2-nitroaniline:	ND<10	ND<10	ND<10
acenaphthylene:	ND<10	ND<10	ND<10
dimethylphthlate:	ND<10	ND<10	ND<10
2,6-dinitrotoluene:	ND<10	ND<10	ND<10
acenaphthene:	ND<10	ND<10	ND<10
3-nitroaniline:	ND<10	ND<10	ND<10
2,4-dinitrophenol:	ND<10	ND<10	ND<10
dibenzofuran:	ND<10	ND<10	ND<10
2,4-dinitrotoluene:	ND<10	ND<10	ND<10
4-nitrophenol:	ND<10	ND<10	ND<10
fluorene:	ND<10	ND<10	ND<10
4-chlorophenyl-phenyle:	ND<10	ND<10	ND<10
diethylphthlate:	ND<10	ND<10	ND<10
4-nitroaniline:	ND<10	ND<10	ND<10
4,6-dinitro-2-methylph:	ND<10	ND<10	ND<10
n-nitrosodiphenylamine:	ND<10	ND<10	ND<10
1,2-diphenylhydrazine:	ND<10	ND<10	ND<10
4-bromo-phenyl-phenyle:	ND<10	ND<10	ND<10
hexachlorobenzene:	ND<10	ND<10	ND<10
pentachlorophenol:	ND<10	ND<10	ND<10
phenanthrene:	ND<10	ND<10	ND<10
anthracene:	ND<10	ND<10	ND<10
di-n-butylphthlate:	ND<10	ND<10	ND<10
fluoranthene:	ND<10	ND<10	ND<10
benzidine:	ND<10	ND<10	ND<10
pyrene:	ND<10	ND<10	ND<10
butylbenzylphthlate:	ND<10	ND<10	ND<10
3.3'-dichlorobenzidine:	ND<10	ND<10	ND<10
Concentration:	ug/L	ug/L	ug/L

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TOUCHSTONE
Attn: MICHAEL TAMBRONI

Project 94-14
Reported 11-October-1994

EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS

Laboratory Number	Sample Identification	Matrix
92709- 1	MW-1	Water
92709- 2	MW-2	Water
92709- 3	MW-3	Water

RESULTS OF ANALYSIS

Laboratory Number:	92709- 1	92709- 2	92709- 3
benzo[a]anthracene:	ND<10	ND<10	ND<10
chrysene:	ND<10	ND<10	ND<10
bis(2-ethylhexyl)phtha:	10	ND<10	ND<10
di-n-octylphthalate:	ND<10	ND<10	ND<10
benzo(b,k)fluoranthene:	ND<10	ND<10	ND<10
benzo[a]pyrene:	ND<10	ND<10	ND<10
indeno[1,2,3-cd]pyrene:	ND<10	ND<10	ND<10
dibenzo[a,h]anthracene:	ND<10	ND<10	ND<10
benzo[g,h,i]perylene:	ND<10	ND<10	ND<10
Concentration:	ug/L	ug/L	ug/L
-- Surrogate % Recoveries --			
2-fluorophenol:	32	40	15*
phenol-d5:	24	31	12
nitrobenzene-d5:	83	89	88
2-fluorobiphenyl:	82	89	87
2,4,6-tribromophenol:	71	109	84
terphenyl-d14:	80	88	81

* Surrogate low due to matrix interference.

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EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS
Quality Assurance and Control Data - Water

Laboratory Number 92709

ompound	Method Blank (ug/L)	RL (ug/L)	Spike Recovery (%)	Limits (%)	RPD (%)
is(2-chloroethyl)ethe:	ND<10	10			
niline:	ND<10	10			
henol:	ND<10	10	54/54	9-61	0%
-chlorophenol:	ND<10	10	90/90	30-113	0%
,3-dichlorobenzene:	ND<10	10			
,4-dichlorobenzene:	ND<10	10	81/81	42-111	0%
,2-dichlorobenzene:	ND<10	10			
enzyl alcohol:	ND<10	10			
is-(2-chloroisopropyl:	ND<10	10			
-methylphenol:	ND<10	10			
exachloroethane:	ND<10	10			
-nitroso-di-n-propyla:	ND<10	10	72/74	43-119	3%
-methylphenol:	ND<10	10			
itrobenzene:	ND<10	10			
sophorone:	ND<10	10			
-nitrophenol:	ND<10	10			
,4-dimethylphenol:	ND<10	10			
is(2-chloroethoxy)met:	ND<10	10			
,4-dichlorophenol:	ND<10	10			
,2,4-trichlorobenzene:	ND<10	10	98/98	44-118	0%
aphthalene:	ND<10	10			
enzoic acid:	ND<10	10			
-chloroaniline:	ND<10	10			
exachlorobutadiene:	ND<10	10			
-chloro-3-methylpheno:	ND<10	10	90/88	28-117	2%
-methyl-naphthalene:	ND<10	10			
exaclorocyclopentadie:	ND<10	10			
,4,6-trichlorophenol:	ND<10	10			
,4,5-trichlorophenol:	ND<10	10			

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EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS
Quality Assurance and Control Data - Water

Laboratory Number 92709

›mpound	Method Blank (ug/L)	RL (ug/L)	Spike Recovery (%)	Limits (%)	RPD (%)
-chloronaphthalene:	ND<10	10			
-nitroaniline:	ND<10	10			
ɔenaphthylene:	ND<10	10			
imethylphthlate:	ND<10	10			
,6-dinitrotoluene:	ND<10	10			
ɔenaphthene:	ND<10	10	92/93	51-125	1%
-nitroaniline:	ND<10	10			
,4-dinitrophenol:	ND<10	10			
ibenzofuran:	ND<10	10			
,4-dinitrotoluene:	ND<10	10	92/93	38-104	1%
-nitrophenol:	ND<10	10	32/33	10-80	3%
luorene:	ND<10	10			
-chlorophenyl-phenyle:	ND<10	10			
iethylphthlate:	ND<10	10			
-nitroaniline:	ND<10	10			
,6-dinitro-2-methylph:	ND<10	10			
-nitrosodiphenylamine:	ND<10	10			
,2-diphenylhydrazine:	ND<10	10			
-bromo-phenyl-phenyle:	ND<10	10			
exachlorobenzene:	ND<10	10			
entachlorophenol:	ND<10	10	79/81	16-118	3%
henanthrene:	ND<10	10			
nthracene:	ND<10	10			
i-n-butylphthlate:	ND<10	10			
luoranthene:	ND<10	10			
enzidine:	ND<10	10			
yrene:	ND<10	10	110/109	16-116	1%
utylbenzylphthlate:	ND<10	10			
.3'-dichlorobenzidine:	ND<10	10			

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EPA SW-846 METHOD 8270 SEMIVOLATILE ORGANICS BY GC/MS
Quality Assurance and Control Data - Water

Laboratory Number 92709

ompound	Method Blank (ug/L)	RL (ug/L)	Spike Recovery (%)	Limits (%)	RPD (%)
enzo[a]anthracene:	ND<10	10			
rysene:	ND<10	10			
.s(2-ethylhexyl)phtha:	ND<10	10			
.-n-octylphthalate:	ND<10	10			
enzo(b,k)fluoranthene:	ND<10	10			
enzo[a]pyrene:	ND<10	10			
deno[1,2,3-cd]pyrene:	ND<10	10			
.benzo[a,h]anthracene:	ND<10	10			
enzo[g,h,i]perylene:	ND<10	10			
-fluorophenol:	38			21-110	
enol-d5:	27			10-110	
.trobenzene-d5:	82			35-114	
-fluorobiphenyl:	83			43-116	
4,6-tribromophenol:	85			10-123	
rphenyl-d14:	82			33-141	

finitions:
) = Not Detected
D = Relative Percent Difference
. = Reporting Limit
/L = Parts per billion (ppb)
: File No. 92709

Cecilia G. Joaquin 10/11/94
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TOUCHSTONE
Attn: MICHAEL TAMBRONI

Project 94-14
Reported 10-October-1994

VOLATILE PETROLEUM HYDROCARBONS

Sample preparation by Purge and Trap (EPA SW-846 method 5030). Gasoline analysis by SW-846 method 8015 modified. Gasoline range quantified as all compounds between C6 and C10. Benzene, Toluene, Ethyl Benzene, and Xylenes analyses by EPA SW-846 method 8020.

Chronology

Laboratory Number 92709

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
MW-1	09/30/94	10/03/94	10/07/94	10/07/94		1
MW-2	09/30/94	10/03/94	10/07/94	10/07/94		2
MW-3	09/30/94	10/03/94	10/07/94	10/07/94		3

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TOUCHSTONE
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Project 94-14
Reported 10-October-1994

VOLATILE PETROLEUM HYDROCARBONS

Laboratory Number	Sample Identification	Matrix
92709- 1	MW 1	Water
92709- 2	MW-2	Water
92709- 3	MW-3	Water

RESULTS OF ANALYSIS

Laboratory Number:	92709- 1	92709- 2	92709- 3
Gasoline:	ND<50	ND<50	290
Benzene:	ND<0.5	ND<0.5	29
Toluene:	ND<0.5	ND<0.5	3.2
Ethyl Benzene:	ND<0.5	ND<0.5	3.3
Total Xylenes:	ND<0.5	ND<0.5	29
Concentration:	ug/L	ug/L	ug/L
-- Surrogate % Recoveries --			
Trifluorotoluene (SS):	129	127	129

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VOLATILE PETROLEUM HYDROCARBONS
Quality Assurance and Control Data - Water

Laboratory Number 92709

Compound	Method Blank (ug/L)	RL (ug/L)	Spike Recovery (%)	Limits (%)	RPD (%)
Gasoline:	ND<50	50	102/99	56-117	3%
Benzene:	ND<0.5	0.5	94/86	59-149	9%
Toluene:	ND<0.5	0.5	98/92	59-149	6%
Ethyl Benzene:	ND<0.5	0.5	99/94	59-149	5%
Total Xylenes:	ND<0.5	0.5	102/98	59-149	4%

Definitions:
ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
ug/L = Parts per billion (ppb)
SPC File No. 92709

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TOUCHSTONE
Attn: MICHAEL TAMBRONI

Project 94-14
Reported 08-October-1994

OIL & GREASE BY METHOD 5520

Laboratory Number 92709

Chronology Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
MW-1	09/30/94	10/03/94	10/07/94	10/07/94		1
MW-2	09/30/94	10/03/94	10/07/94	10/07/94		2
MW-3	09/30/94	10/03/94	10/07/94	10/07/94		3

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TOUCHSTONE
Attn: MICHAEL TAMBRONI

Project 94-14
Reported 08-October-1994

Laboratory Number	Sample Identification	Matrix
92709- 1	MW-1	Water
92709- 2	MW-2	Water
92709- 3	MW-3	Water

RESULTS OF ANALYSIS

Laboratory Number:	92709- 1	92709- 2	92709- 3
Oil and Grease:	ND<5000	ND<5000	ND<5000
Concentration:	ug/L	ug/L	ug/L

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Quality Assurance and Control Data - Water

Laboratory Number 92709

ompound	Method Blank (ug/L)	RL (ug/L)	Spike Recovery (%)	Limits (%)	RPD (%)
il and Grease:	ND<5000	5000	73/77	50-135	5%

efinitions:
ID = Not Detected
PD = Relative Percent Difference
L = Reporting Limit
g/L = Parts per billion (ppb)
C File No. 92709

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Project 94-14
Reported 06-October-1994

TOTAL PETROLEUM HYDROCARBONS AS DIESEL
by EPA METHOD 8015 MODIFIED

Chronology

Laboratory Number 92709

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
MW-1	09/30/94	10/03/94	10/05/94	10/05/94		1
MW-2	09/30/94	10/03/94	10/05/94	10/05/94		2
MW-3	09/30/94	10/03/94	10/05/94	10/05/94		3

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TOUCHSTONE
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Project 94-14
Reported 06-October-1994

TOTAL PETROLEUM HYDROCARBONS AS DIESEL

Laboratory Number	Sample Identification	Matrix
92709- 1	MW-1	Water
92709- 2	MW-2	Water
92709- 3	MW-3	Water

RESULTS OF ANALYSIS

Laboratory Number:	92709- 1	92709- 2	92709- 3
Diesel:	ND<50	ND<50	72
Concentration:	ug/L	ug/L	ug/L
-- Surrogate % Recoveries --			
Tetracosane Recovery:	108	106	117

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TOTAL PETROLEUM HYDROCARBONS AS DIESEL
Quality Assurance and Control Data - Water

Laboratory Number 92709

Compound	Method Blank (ug/L)	RL (ug/L)	Spike Recovery (%)	Limits (%)	RPD (%)
Diesel:	ND<50	50	106/112	50-146	6%

Definitions:
ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
ug/L - Parts per billion (ppb)
QC File No. 92709

Richard Sadler 10/10/94
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TOUCHSTONE
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Project 94-14
Reported 06-October-1994

ANALYSIS FOR CADMIUM, CHROMIUM, LEAD, NICKEL, & ZINC
by EPA Method SW-846 6010

Chronology

Laboratory Number 92709

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
MW-1	09/30/94	10/03/94	10/05/94	10/05/94		1
MW-2	09/30/94	10/03/94	10/05/94	10/05/94		2
MW-3	09/30/94	10/03/94	10/05/94	10/05/94		3

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Attn: MICHAEL TAMBRONI

Project 94-14
Reported 06-October-1994

ANALYSIS FOR CADMIUM, CHROMIUM, LEAD, NICKEL, & ZINC

Laboratory Number	Sample Identification	Matrix
92709- 1	MW-1	Water
92709- 2	MW-2	Water
92709- 3	MW-3	Water

RESULTS OF ANALYSIS

Laboratory Number:		92709- 1	92709- 2	92709- 3
Cadmium	(Cd):	ND<.005	ND<.005	ND<.005
Chromium	(Cr):	ND<0.01	ND<0.01	0.01
Lead	(Pb):	ND<0.05	ND<0.05	ND<0.05
Nickel	(Ni):	ND<0.02	ND<0.02	0.02
Zinc	(Zn):	0.03	ND<0.02	ND<0.02
Concentration:		mg/L	mg/L	mg/L

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ANALYSIS FOR CADMIUM, CHROMIUM, LEAD, NICKEL, & ZINC
Quality Assurance and Control Data - Water

Laboratory Number 92709

mpound		Method Blank (mg/L)	RL (mg/L)	Spike Recovery (%)	Limits (%)	RPD (%)
dmium	(Cd):	ND<.005	.005	93/96	75-125	3%
romium	(Cr):	ND<0.01	0.01	101/102	75-125	1%
ad	(Pb):	ND<0.05	0.05	103/107	75-125	4%
ckel	(Ni):	ND<0.02	0.02	105/106	75-125	1%
nc	(Zn):	ND<0.02	0.02	109/111	75-125	2%

finitions:
= Not Detected
) = Relative Percent Difference
= Reporting Limit
/L = Parts per million (ppm)
File No. 92709

10/10/91
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Project 94-14
Reported 08-October-1994

HALOGENATED VOLATILE ORGANICS by EPA SW-846 Methods 5030/8010.

Chronology

Laboratory Number 92709

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
MW-1	09/30/94	10/03/94	10/06/94	10/06/94		1
MW-2	09/30/94	10/03/94	10/06/94	10/06/94		2
MW-3	09/30/94	10/03/94	10/06/94	10/06/94		3

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Project 94-14
Reported 08-October-1994

HALOGENATED VOLATILE ORGANICS by EPA SW-846 Methods 5030/8010.

Laboratory Number	Sample Identification	Matrix
92709- 1	MW 1	Water
92709- 2	MW-2	Water
92709- 3	MW-3	Water

RESULTS OF ANALYSIS

Laboratory Number:	92709- 1	92709- 2	92709- 3
Chloromethane:	ND<0.5	ND<0.5	ND<0.5
Vinyl Chloride:	ND<0.5	ND<0.5	8.3
Bromomethane:	ND<0.5	ND<0.5	ND<0.5
Chloroethane:	ND<0.5	ND<0.5	ND<0.5
Trichlorofluoromethane:	ND<0.5	ND<0.5	ND<0.5
1,1-Dichloroethene:	ND<0.5	ND<0.5	1.6
Dichloromethane:	ND<1.0	ND<1.0	ND<1.0
t-1,2-Dichloroethene:	ND<0.5	ND<0.5	ND<0.5
1,1-Dichloroethane:	ND<0.5	ND<0.5	17
c-1,2-Dichloroethene:	ND<0.5	ND<0.5	8.4
Chloroform:	1.0	1.7	ND<0.5
1,1,1-Trichloroethane:	ND<0.5	ND<0.5	12
Carbon Tetrachloride:	ND<0.5	ND<0.5	ND<0.5
1,2-Dichloroethane:	ND<0.5	ND<0.5	1.2
Trichloroethene:	ND<0.5	ND<0.5	1.9
c-1,3-Dichloropropene:	ND<0.5	ND<0.5	ND<0.5
1,2-Dichloropropane:	ND<0.5	ND<0.5	ND<0.5
t-1,3-Dichloropropene:	ND<0.5	ND<0.5	ND<0.5
Bromodichloromethane:	ND<0.5	ND<0.5	ND<0.5
1,1,2-Trichloroethane:	ND<0.5	ND<0.5	ND<0.5
Tetrachloroethene:	ND<0.5	ND<0.5	12
Dibromochloromethane:	ND<0.5	ND<0.5	ND<0.5
Chlorobenzene:	ND<0.5	ND<0.5	ND<0.5
Bromoform:	ND<0.5	ND<0.5	ND<0.5
1,1,2,2-Tetrachloroeth:	ND<0.5	ND<0.5	ND<0.5
1,3-Dichlorobenzene:	ND<0.5	ND<0.5	ND<0.5
1,2-Dichlorobenzene:	ND<0.5	ND<0.5	ND<0.5
1,4-Dichlorobenzene:	ND<0.5	ND<0.5	ND<0.5
Concentration:	ug/L	ug/L	ug/L

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Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

HALOGENATED VOLATILE ORGANICS by EPA SW-846 Methods 5030/8010.
Quality Assurance and Control Data - Water

Laboratory Number 92709

ompound	Method Blank (ug/L)	RL (ug/L)	Spike Recovery (%)	Limits (%)	RPD (%)
hloromethane:	ND<0.5	0.5			
inyl Chloride:	ND<0.5	0.5			
romomethane:	ND<0.5	0.5			
hloroethane:	ND<0.5	0.5			
richlorofluoromethane:	ND<0.5	0.5			
,1-Dichloroethene:	ND<0.5	0.5	76/77	48-189	1%
ichloromethane:	ND<1.0	1.0			
-1,2-Dichloroethene:	ND<0.5	0.5			
,1-Dichloroethane:	ND<0.5	0.5			
-1,2-Dichloroethene:	ND<0.5	0.5			
hloroform:	ND<0.5	0.5			
,1,1-Trichloroethane:	ND<0.5	0.5			
arbon tetrachloride:	ND<0.5	0.5			
,2-Dichloroethane:	ND<0.5	0.5			
richloroethene:	ND<0.5	0.5	95/95	63-150	0%
-1,3-Dichloropropene:	ND<0.5	0.5			
,2-Dichloropropane:	ND<0.5	0.5			
-1,3-Dichloropropene:	ND<0.5	0.5			
romodichloromethane:	ND<0.5	0.5			
,1,2-Trichloroethane:	ND<0.5	0.5			
etrachloroethene:	ND<0.5	0.5			
ibromochloromethane:	ND<0.5	0.5			
hlorobenzene:	ND<0.5	0.5	112/109	70-158	3%
romoform:	ND<0.5	0.5			
,1,2,2-Tetrachloroeth:	ND<0.5	0.5			
,3-Dichlorobenzene:	ND<0.5	0.5			
,2-Dichlorobenzene:	ND<0.5	0.5			
,4-Dichlorobenzene:	ND<0.5	0.5			

efinitions:
D = Not Detected
PD = Relative Percent Difference
L = Reporting Limit
g/L = Parts per billion (ppb)
C File No. 92709

10/10/94
Senior Chemist
Account Manager

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