



**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

  
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Technical Review

November 1, 1994

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Attachments: Plates 1 through 5

Appendix A - Superior Precision Analytical Laboratory Reports

## **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       |               | 22            |
| Benzene        | 0.88          | 0.099         |
| Toluene        | 7.6           | 0.88          |
| Ethylbenzene   | 3.6           | 0.34          |
| Total Xylenes  | 24            | 2.4           |
| Diesel Range   |               |               |
| Oil & Grease   |               |               |

*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 from 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 | Toluene ppm 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 <sup>1</sup>   | 4                  | 0.022                | 0.072                | 0.28                | 0.067                      | 550                       | ND                                 | 2-MN <sup>2</sup> @ 500 ppb  |
| 3-2-2/10'          | 560 <sup>1</sup>   | 14                 | 0.047                | 0.016                | 0.28                | 0.068                      | 1300                      | PCE @ 31 ppb                       | <del>CHLOROBENZENE @ 600 ppb</del><br><del>STYRENE @ 700 ppb</del> |
| 3-3-1/16'          | NA                 | NA                 | NA                   | NA                   | NA                  | NA                         | NA                        | NA                                 | NA   |

NW #1 }  
 #2 }  
 #3 }

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

2-MN = 2-methyl naphthalene  
 PCE = perchloroethylene

<sup>1</sup> Does not match diesel pattern, heavier hydrocarbon present

<sup>2</sup> 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<br>ppb or<br>ug/L | TPH-G<br>ppb or<br>ug/L | Benzene<br>ppb or<br>ug/L | Toluene<br>ppb or<br>ug/L | Xylene<br>ppb or<br>ug/L | Ethyl-<br>benzene<br>ppb or<br>ug/L | Oil &<br>Grease<br>ppb or<br>ug/L | 8010<br>Halogenated<br>Volatile<br>Organics | 8270<br>Semivolatile<br>Organics |
|--------|-------------------------|-------------------------|---------------------------|---------------------------|--------------------------|-------------------------------------|-----------------------------------|---|----------------------------------|
| MW-1   | ND                      | ND                      | ND                        | ND                        | ND                       | ND                                  | ND                                | ND  | ND <sup>4</sup>                  |
| MW-2   | ND                      | ND                      | ND                        | ND                        | ND                       | ND                                  | ND                                | ND  | ND                               |
| MW-3   |                         |                         |                           | 3.2                       |                          |                                     | ND                                | ND <sup>5</sup>                             | ND                               |

| Well #<br>in<br>mg/L or ppm | M E T A L |                   |    |    |                   | CONC | COMPOUND       | MCL      |
|-----------------------------|-----------|-------------------|----|----|-------------------|------|----------------|----------|
|                             | Cd        | Cr                | Pb | Zn | Ni                |      |                |          |
| MW-1                        | ND        | ND                | ND | ND | 0.03              | 1.6  | Vinyl Chloride | 0.5      |
| MW-2                        | ND        | ND                | ND | ND | ND                | 8.4  | 1,1-DCE        | 5.0 MW-3 |
| MW-3                        | ND        | 0.01 <sup>6</sup> | ND | ND | 0.02 <sup>4</sup> | 8.4  | c-1,2-DCE      | 6.0      |
|                             |           |                   |    |    |                   | 1.2  | 1,1,1-TCA      | 200      |
|                             |           |                   |    |    |                   | 1.9  | 1,2-DCA        | 0.5      |
|                             |           |                   |    |    |                   |      | TCE            | 5.0      |
|                             |           |                   |    |    |                   |      |                | 5.0      |

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

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

<sup>4</sup> [redacted] 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. *synonym = di (2-ethylhexyl) sebacate*

<sup>5</sup> The following compounds and their concentrations were detected in the groundwater sample: [redacted] @ 8.3 ug/L, Dichloroethane @ 1.6 ug/L, 1,1-Dichloroethane @ 17 ug/L, c-1,2-Dichloroethane @ 8.4 ug/L, 1,1,1-Trichloroethane @ 12 ug/L, 1,2-Dichloroethane @ 1.2 ug/L, Trichloroethane @ 1.9 ug/L, Tetrachloroethane @ 12 ug/L. For a complete report of the analytical results see Appendix A.

<sup>6</sup> 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.

*= flat!*

**TABLE 4**

**DEPTH TO GROUNDWATER AND GROUNDWATER ELEVATIONS**

**SEPTEMBER 30, 1994**

| Well # |            |                |                                 |              |
|--------|------------|----------------|---------------------------------|--------------|
|        | WELL DEPTH | DEPTH TO WATER | WELLHEAD ELEVATION <sup>7</sup> | 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    |

<sup>7</sup> 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 TCE @ 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 semivolatle 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.

?  
yes they  
have



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.

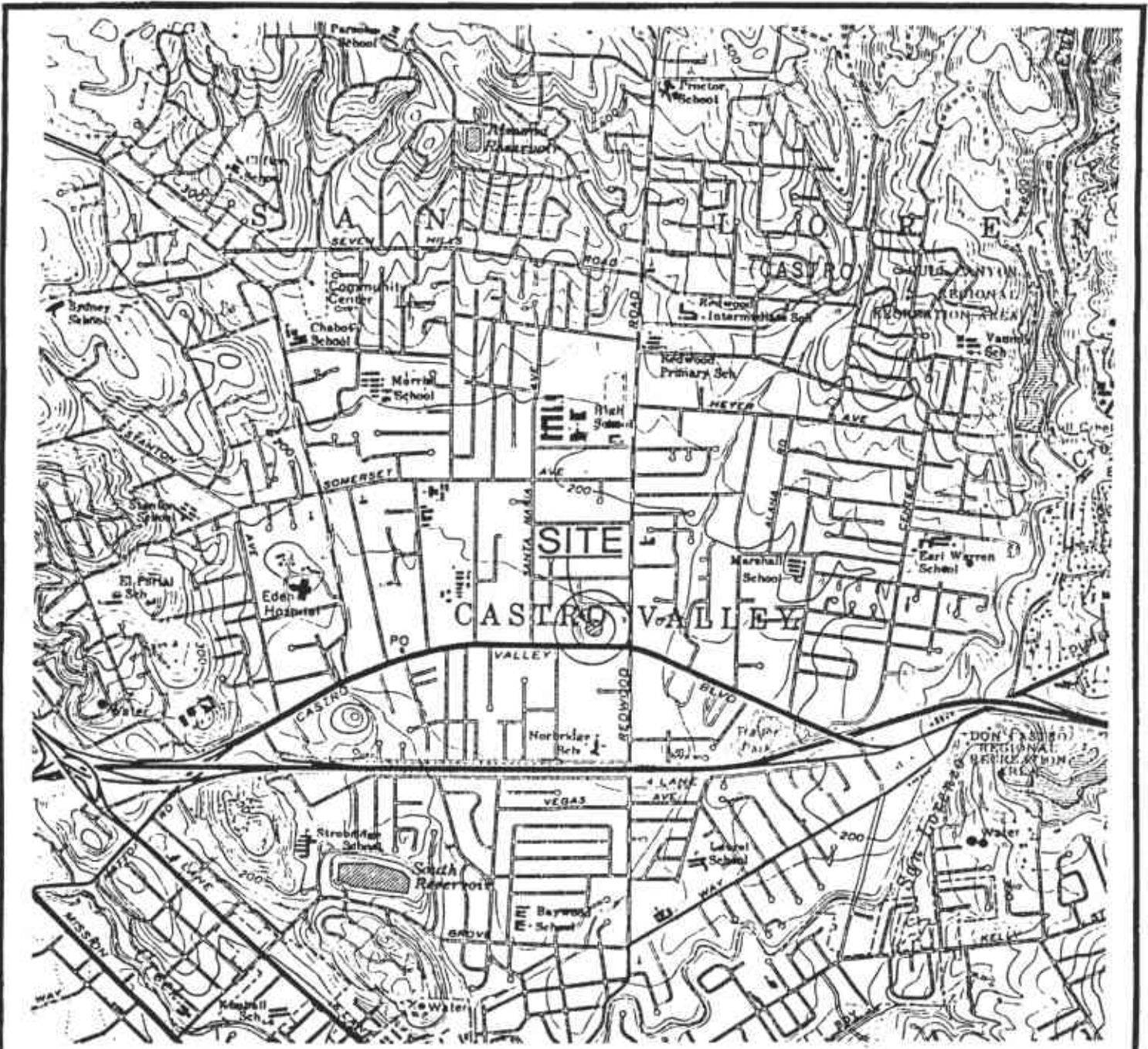
### **FIGURES AND PLATES**

- 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**



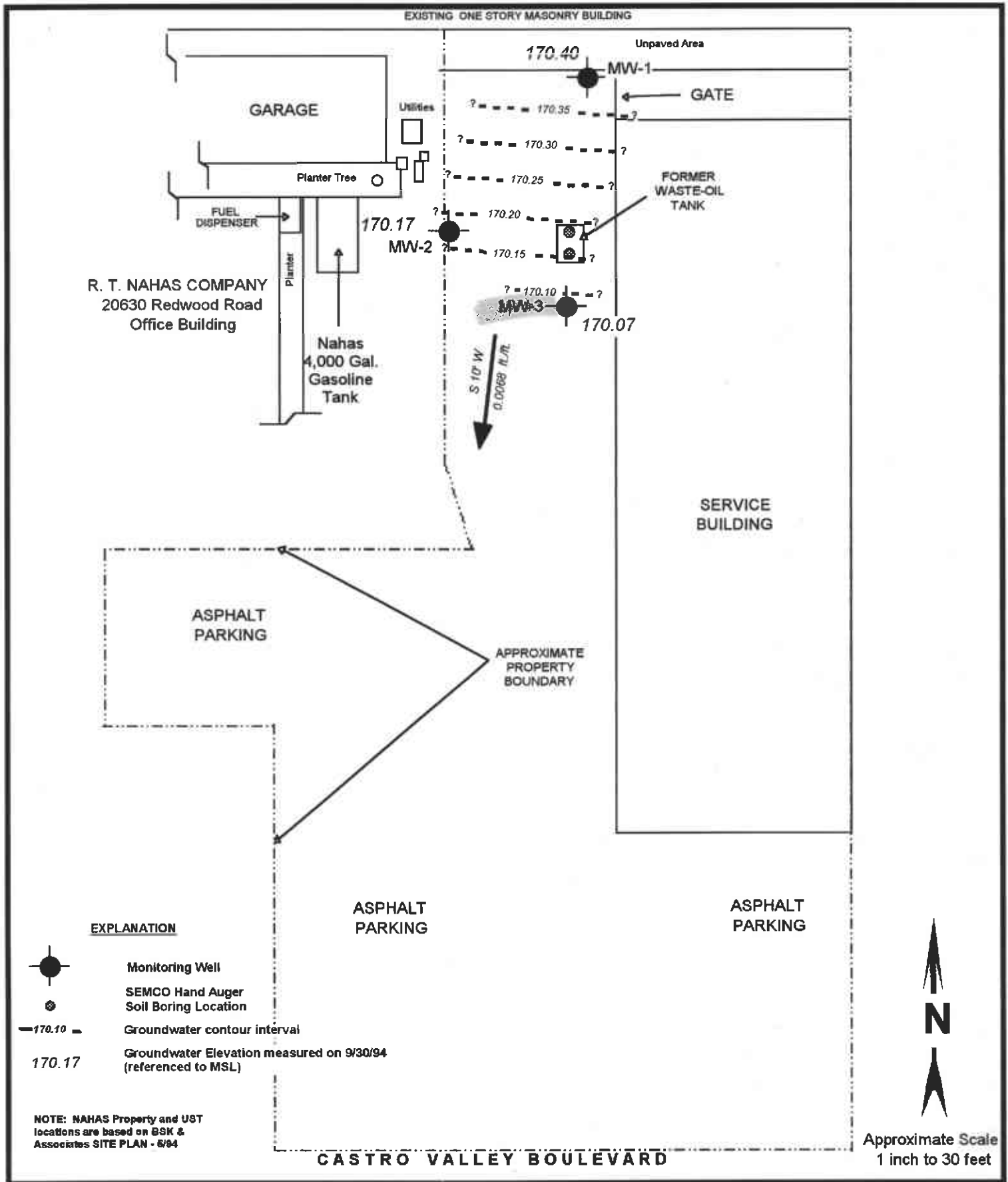
Base Map: USGS Topographic Survey, Hayward Quadrangle Scale: 1"=2000'







**SITE LOCATION MAP**  
 GOODYEAR TIRE & RUBBER COMPANY  
 3430 Castro Valley Boulevard  
 Castro Valley, California

**FIGURE**  
**1**


|                             |                     |                         |                                   |
|-----------------------------|---------------------|-------------------------|-----------------------------------|
| <b>PROJECT NO.</b><br>84-14 | <b>DATE</b><br>8/94 | <b>DRAWN BY:</b><br>WTJ | <b>BASE MAP:</b><br>USGS TOPO MAP |
|-----------------------------|---------------------|-------------------------|-----------------------------------|



**EXPLANATION**

-  Monitoring Well
-  SEMCO Hand Auger Soil Boring Location
-  170.10 Groundwater contour interval
-  170.17 Groundwater Elevation measured on 9/30/94 (referenced to MSL)

NOTE: NAHAS Property and UST locations are based on BSK & Associates SITE PLAN - 8/94

  
 N  
 Approximate Scale  
 1 inch to 30 feet



**MONITORING WELL LOCATION AND GROUNDWATER GRADIENT MAP**

GOODYEAR SERVICE CENTER  
 3430 Castro Valley Boulevard  
 Castro Valley, California

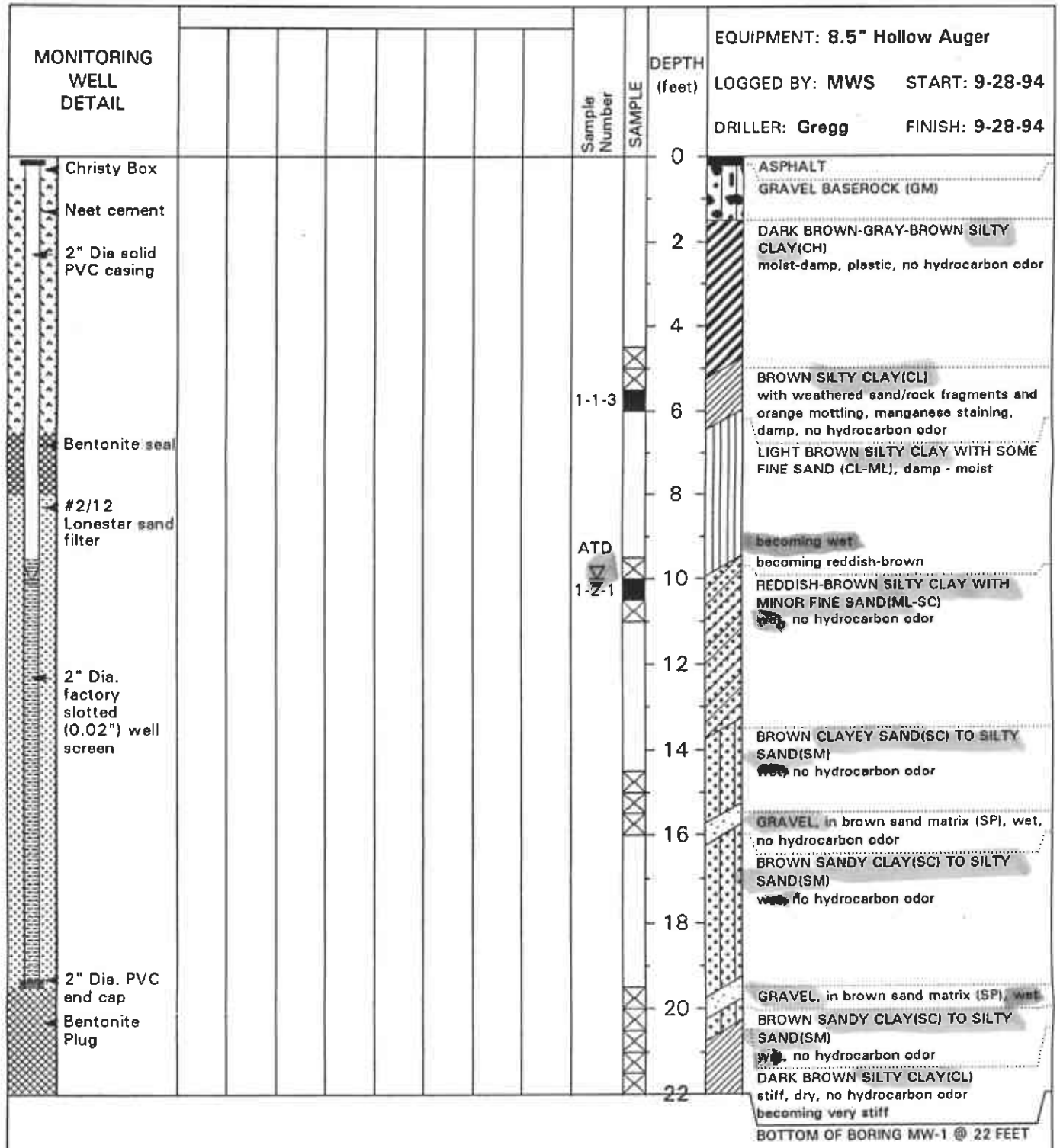
**FIGURE 2**

PROJECT NO.  
94-14

DATE  
11/94

DRAWN BY:  
WTJ

BASE MAP:  
GOODYEAR BLUEPRINT 10/73



**LEGEND**

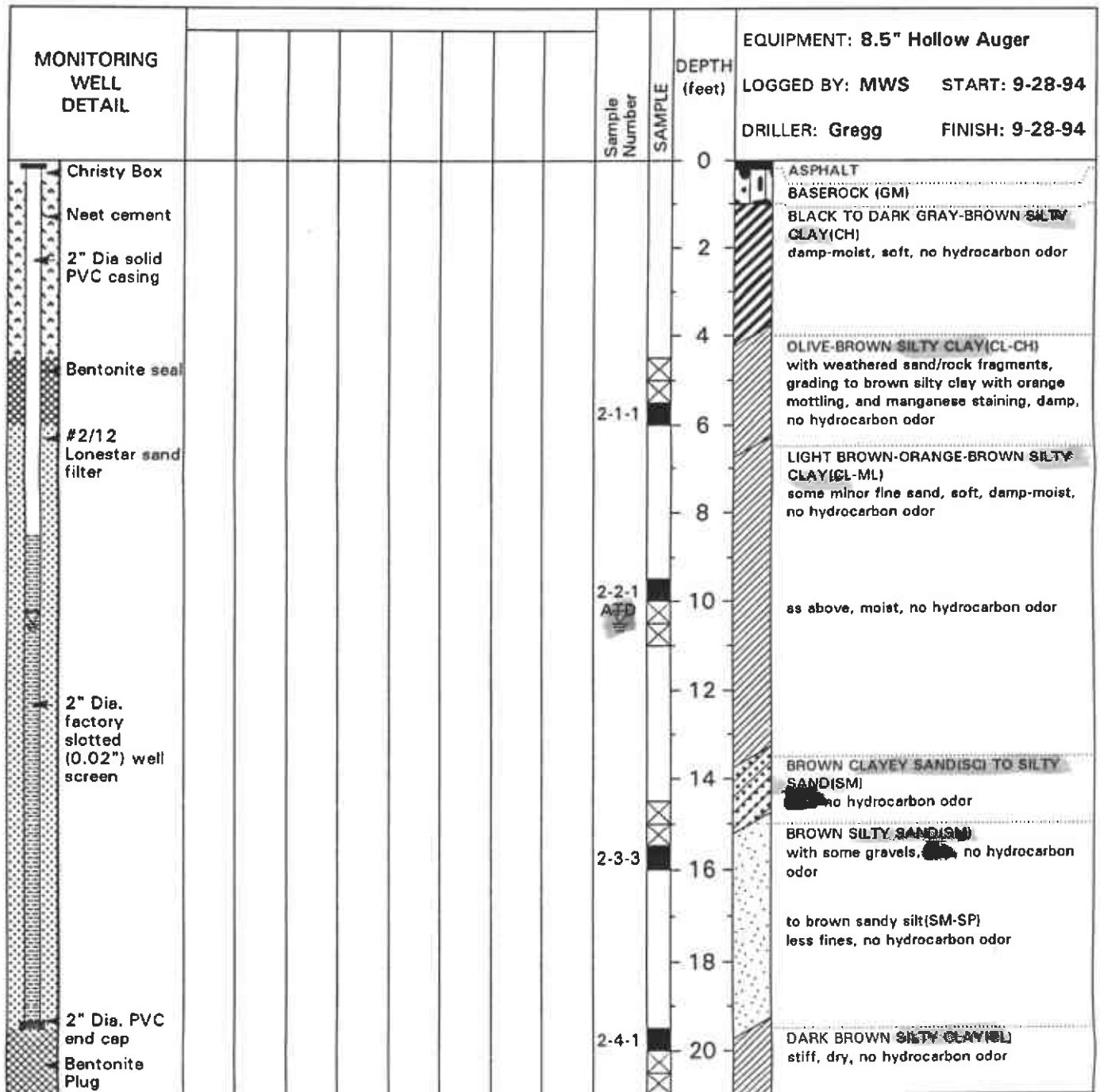
- Retained Samples
- ⊗ Record Samples
- ND = Not Detected
- NA = Not Analyzed



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**



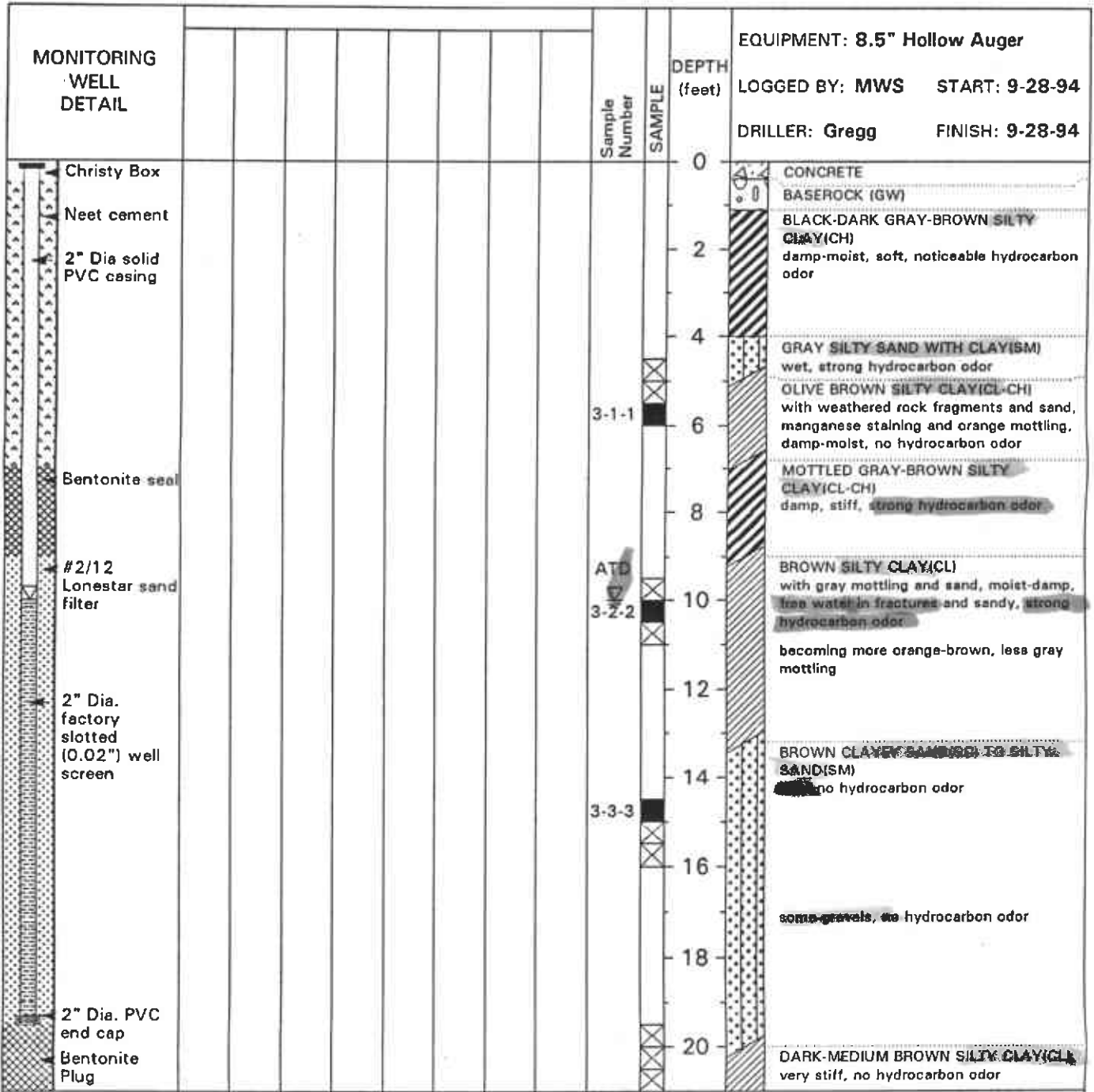
BOTTOM OF BORING MW-2 @ 21 FEET

**LEGEND**

- Retained Samples
- ⊠ Record Samples
- ND = Not Detected
- NA = Not Analyzed

|  |  |  |                              |
|--|--|--|------------------------------|
|  <p><b>Touchstone Developments</b><br/>Environmental Management</p> | <p>Job No: 94-14</p> <p>CEG:</p> <p>Lic No: 1014</p> <p>Drwn: CD</p> <p>Date: OCT 1994</p> | <p><b>Log of Boring MW-2 and Well Construction Details</b></p> <p>3420 CASTRO VALLEY BLVD.</p> | <p>PLATE</p> <p><b>4</b></p> |
|--|--|--|------------------------------|





**LEGEND**

■ Retained Samples

☒ Record Samples

ND = Not Detected

NA = Not Analyzed



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     |

Certified Laboratories

Page 1 of 3

1555 Burke St., Unit I

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(510) 229-1512 / fax (510) 229-1526



# 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

| 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

Certified Laboratories

Page 2 of 3

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# Superior Precision Analytical, Inc.

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<br>Blank<br>(mg/Kg) | RL<br>(mg/Kg) | Spike<br>Recovery<br>(%) | Limits<br>(%) | RPD<br>(%) |
|----------|-------|----------------------------|---------------|--------------------------|---------------|------------|
| 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)

QC File No. 58759

*Alexander Salazar* 10/6/94

Senior Chemist  
Account Manager

Page 3 of 3

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# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

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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TOUCHSTONE  
Attn: MICHAEL TAMBRONI

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 |



# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

TOUCHSTONE  
Attn: MICHAEL TAMBRONI

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: ND<5  
 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  
Page 3 of 4

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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 - Soil

Laboratory Number 58759

| Compound                | Method        |            | Spike Recovery (%) | Limits (%) | RPD (%) |
|-------------------------|---------------|------------|--------------------|------------|---------|
|                         | Blank (ug/Kg) | RL (ug/Kg) |                    |            |         |
| 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

*Abigail Sabag* 10/6/94  
 Senior Chemist  
 Account Manager

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# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

TOUCHSTONE  
Attn: MICHAEL TAMBRONI

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     |





# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

TOUCHSTONE  
Attn: MICHAEL TAMBRONI

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 |



# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

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

Laboratory Number 58759

| Compound        | Method<br>Blank<br>(mg/kg) | RL<br>(mg/kg) | Spike<br>Recovery<br>(%) | Limits<br>(%) | RPD<br>(%) |
|-----------------|----------------------------|---------------|--------------------------|---------------|------------|
| 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. Jonquier* 10/17/94  
Senior Chemist  
Account Manager



# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

TOUCHSTONE  
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     |



# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

TOUCHSTONE  
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- 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)ethane:     | 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)amine: | 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-propylamine:   | 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)methane:   | 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-methylphenol:      | ND<300 | ND<300 | ND<300 | ND<300 | ND<300 |
| 2-methyl-naphthalene:         | ND<300 | ND<300 | ND<300 | ND<300 | 500    |
| hexachlorocyclopentadiene:    | 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 |
|----------------|-------|-------|-------|-------|-------|

Page 2 of 10

Certified Laboratories

825 Arnold Dr., Suite 114  
Martinez, California 94553  
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# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

TOUCHSTONE  
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- 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

Certified Laboratories

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# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

TOUCHSTONE  
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- 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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TOUCHSTONE  
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

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



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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

|                         |        |
|-------------------------|--------|
| 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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TOUCHSTONE  
Attn: MICHAEL TAMBRONI

Project 94-14  
Reported 06-October-1994

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

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

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### RESULTS OF ANALYSIS

Laboratory Number: 58759- 7

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|                         |        |
|-------------------------|--------|
| 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 |



# Superior Precision Analytical, Inc.

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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<br>Blank<br>(ug/kg) | RL<br>(ug/kg) | Spike<br>Recovery<br>(%) | Limits<br>(%) | RPD<br>(%) |
|---------------------------|----------------------------|---------------|--------------------------|---------------|------------|
| bis(2-chloroethyl) ethe:  | ND<300                     | 300           |                          |               |            |
| aniline:                  | ND<300                     | 300           |                          |               |            |
| phenol:                   | ND<300                     | 300           | 84/86                    | 48-106        | 2%         |
| 2-chlorophenol:           | ND<300                     | 300           | 85/87                    | 40-113        | 2%         |
| 1,3-dichlorobenzene:      | ND<300                     | 300           |                          |               |            |
| 1,4-dichlorobenzene:      | ND<300                     | 300           | 84/85                    | 43-111        | 1%         |
| 1,2-dichlorobenzene:      | ND<300                     | 300           |                          |               |            |
| benzyl alcohol:           | ND<300                     | 300           |                          |               |            |
| bis-(2-chloroisopropyl):  | ND<300                     | 300           |                          |               |            |
| 2-methylphenol:           | ND<300                     | 300           |                          |               |            |
| hexachloroethane:         | ND<300                     | 300           |                          |               |            |
| n-nitroso-di-n-propyla:   | ND<300                     | 300           | 86/88                    | 43-115        | 2%         |
| 4-methylphenol:           | ND<300                     | 300           |                          |               |            |
| nitrobenzene:             | ND<300                     | 300           |                          |               |            |
| isophorone:               | ND<300                     | 300           |                          |               |            |
| 2-nitrophenol:            | ND<300                     | 300           |                          |               |            |
| 2,4-dimethylphenol:       | ND<300                     | 300           |                          |               |            |
| bis(2-chloroethoxy)met:   | ND<300                     | 300           |                          |               |            |
| 2,4-dichlorophenol:       | ND<300                     | 300           |                          |               |            |
| 1,2,4-trichlorobenzene:   | ND<300                     | 300           | 101/101                  | 39-124        | 0%         |
| naphthalene:              | ND<300                     | 300           |                          |               |            |
| benzoic acid:             | ND<300                     | 300           |                          |               |            |
| 4-chloroaniline:          | ND<300                     | 300           |                          |               |            |
| hexachlorobutadiene:      | ND<300                     | 300           |                          |               |            |
| 4-chloro-3-methylpheno:   | ND<300                     | 300           | 93/95                    | 43-115        | 2%         |
| 2-methyl-naphthalene:     | ND<300                     | 300           |                          |               |            |
| hexaachlorocyclopentadie: | ND<300                     | 300           |                          |               |            |
| 2,4,6-trichlorophenol:    | ND<300                     | 300           |                          |               |            |
| 2,4,5-trichlorophenol:    | ND<300                     | 300           |                          |               |            |



# Superior Precision Analytical, Inc.

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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<br>(ug/kg) | RL<br>(ug/kg) | Spike Recovery<br>(%) | Limits<br>(%) | RPD<br>(%) |
|-------------------------|-------------------------|---------------|-----------------------|---------------|------------|
| 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           |                       |               |            |



# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

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

Laboratory Number 58759

| Compound                | Method<br>Blank<br>(ug/kg) | RL<br>(ug/kg) | Spike<br>Recovery<br>(%) | Limits<br>(%) | RPD<br>(%) |
|-------------------------|----------------------------|---------------|--------------------------|---------------|------------|
| 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 J. Joagun* 10/7/94  
 Senior Chemist  
 Account Manager



# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

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



# Superior Precision Analytical, Inc.

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

Laboratory Number 58759

| Compound      | Method<br>Blank<br>(mg/kg) | RL<br>(mg/kg) | Spike<br>Recovery<br>(%) | Limits<br>(%) | RPD<br>(%) |
|---------------|----------------------------|---------------|--------------------------|---------------|------------|
| 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

*Cecilia G. Joagum* 10/7/94  
 Senior Chemist  
 Account Manager



# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

TOUCHSTONE  
Attn: MICHAEL TAMBRONI

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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Attn: MICHAEL TAMBRONI

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



# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

## ANALYSIS FOR GASOLINE, BENZENE, TOLUENE, ETHYLBENZENE, AND XYLENES Quality Assurance and Control Data - Soil

Laboratory Number 58759

| Compound        | Method<br>Blank<br>(mg/kg) | RL<br>(mg/kg) | Spike<br>Recovery<br>(%) | Limits<br>(%) | RPD<br>(%) |
|-----------------|----------------------------|---------------|--------------------------|---------------|------------|
| 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  
 Account Manager

58759

# CHAIN-OF-CUSTODY-RECORD



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

Project Number 94-14  
 Project Address 3430 ASTRO Valley BLVD  
"Good year"  
 Project Manager Michael Tambroni  
 Phone (415) 386-8791 Fax (415) 386-8791

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

| Sample ID | Lab Sample # | # of Containers | S=soil W=water | C=composite<br>D=discrete<br>G=grab | Time | Iced (yes or no) | TPH Gas + BTXE<br>8015 +8020 | TPH Diesel<br>8015 | Oil & Grease<br>5520 | 8010 | 8270 | Metals<br>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    |
| 3-1-1     | 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    |

Case initial: SS  
 Samples stored in ice 4°C  
 Appropriate containers OK  
 Samples preserved OK  
 VOA's without hoodspace OK  
 Comments: \_\_\_\_\_

|                                    |                        |                                |   |                    |                               |  |
|------------------------------------|------------------------|--------------------------------|---|--------------------|-------------------------------|--|
| Relinquished By <u>[Signature]</u> | Organization <u>TD</u> | Date/Time <u>9/24/94 10:00</u> | Relinquished By _____                         | Organization _____ | Date/Time _____               | Turn Around Time<br>24 hour<br>48 hour<br>72 hour<br>5 day |
| Relinquished By <u>[Signature]</u> | Organization <u>TD</u> | Date/Time <u>9/24/94 10:00</u> | Relinquished By _____                         | Organization _____ | Date/Time _____               |  |
| Relinquished By <u>[Signature]</u> | Organization <u>TD</u> | Date/Time <u>4-29-94/1318</u>  | Received for Laboratory By <u>[Signature]</u> | Organization _____ | Date/Time <u>9/29/94 1:15</u> |  |



# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

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     |

Page 1 of 7

Certified Laboratories

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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

|                           |       |       |       |
|---------------------------|-------|-------|-------|
| 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 |
| hexaachlorocyclopentadie: | 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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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 | 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

| Compound                   | Method Blank (ug/L) | RL (ug/L) | Spike Recovery (%) | Limits (%) | RPD (%) |
|----------------------------|---------------------|-----------|--------------------|------------|---------|
| is(2-chloroethyl)ethane:   | ND<10               | 10        |                    |            |         |
| niline:                    | ND<10               | 10        |                    |            |         |
| phenol:                    | 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        |                    |            |         |
| benzyl alcohol:            | ND<10               | 10        |                    |            |         |
| is-(2-chloroisopropyl):    | ND<10               | 10        |                    |            |         |
| -methylphenol:             | ND<10               | 10        |                    |            |         |
| hexachloroethane:          | ND<10               | 10        |                    |            |         |
| -nitroso-di-n-propylamine: | ND<10               | 10        | 72/74              | 43-119     | 3%      |
| -methylphenol:             | ND<10               | 10        |                    |            |         |
| nitrobenzene:              | ND<10               | 10        |                    |            |         |
| sophorone:                 | ND<10               | 10        |                    |            |         |
| -nitrophenol:              | ND<10               | 10        |                    |            |         |
| ,4-dimethylphenol:         | ND<10               | 10        |                    |            |         |
| is(2-chloroethoxy)methane: | ND<10               | 10        |                    |            |         |
| ,4-dichlorophenol:         | ND<10               | 10        |                    |            |         |
| ,2,4-trichlorobenzene:     | ND<10               | 10        | 98/98              | 44-118     | 0%      |
| naphthalene:               | ND<10               | 10        |                    |            |         |
| benzoic acid:              | ND<10               | 10        |                    |            |         |
| -chloroaniline:            | ND<10               | 10        |                    |            |         |
| hexachlorobutadiene:       | ND<10               | 10        |                    |            |         |
| -chloro-3-methylphenol:    | ND<10               | 10        | 90/88              | 28-117     | 2%      |
| -methyl-naphthalene:       | ND<10               | 10        |                    |            |         |
| hexachlorocyclopentadiene: | ND<10               | 10        |                    |            |         |
| ,4,6-trichlorophenol:      | ND<10               | 10        |                    |            |         |
| ,4,5-trichlorophenol:      | ND<10               | 10        |                    |            |         |





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

Laboratory Number 92709

| Compound               | Method Blank (ug/L) | RL (ug/L) | Spike Recovery (%) | Limits (%) | RPD (%) |
|------------------------|---------------------|-----------|--------------------|------------|---------|
| -chloronaphthalene:    | ND<10               | 10        |                    |            |         |
| -nitroaniline:         | ND<10               | 10        |                    |            |         |
| benaphthylene:         | ND<10               | 10        |                    |            |         |
| dimethylphthlate:      | ND<10               | 10        |                    |            |         |
| ,6-dinitrotoluene:     | ND<10               | 10        |                    |            |         |
| benaphthene:           | 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        |                    |            |         |
| dimethylphthlate:      | 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        |                    |            |         |
| hexachlorobenzene:     | ND<10               | 10        |                    |            |         |
| pentachlorophenol:     | ND<10               | 10        | 79/81              | 16-118     | 3%      |
| benanthrene:           | ND<10               | 10        |                    |            |         |
| anthracene:            | ND<10               | 10        |                    |            |         |
| di-n-butylphthlate:    | ND<10               | 10        |                    |            |         |
| fluoranthene:          | ND<10               | 10        |                    |            |         |
| benzidine:             | ND<10               | 10        |                    |            |         |
| pyrene:                | ND<10               | 10        | 110/109            | 16-116     | 1%      |
| butylbenzylphthlate:   | ND<10               | 10        |                    |            |         |
| ,3'-dichlorobenzidine: | ND<10               | 10        |                    |            |         |



# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

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

Laboratory Number 92709

| Compound                | Method       |           | Spike Recovery (%) | Limits (%) | RPD (%) |
|-------------------------|--------------|-----------|--------------------|------------|---------|
|                         | Blank (ug/L) | RL (ug/L) |                    |            |         |
| benzo[a]anthracene:     | ND<10        | 10        |                    |            |         |
| benz[a]pyrene:          | ND<10        | 10        |                    |            |         |
| diethylhexyl phthalate: | ND<10        | 10        |                    |            |         |
| di-n-octylphthalate:    | ND<10        | 10        |                    |            |         |
| benzo(b,k)fluoranthene: | ND<10        | 10        |                    |            |         |
| benzo[a]pyrene:         | ND<10        | 10        |                    |            |         |
| benzo(1,2,3-cd)pyrene:  | ND<10        | 10        |                    |            |         |
| benzo[a,h]anthracene:   | ND<10        | 10        |                    |            |         |
| benzo[g,h,i]perylene:   | ND<10        | 10        |                    |            |         |
| 2-fluorophenol:         | 38           |           |                    | 21-110     |         |
| 2-nitrophenol-d5:       | 27           |           |                    | 10-110     |         |
| 1,4-dibromobenzene-d5:  | 82           |           |                    | 35-114     |         |
| 2-fluorobiphenyl:       | 83           |           |                    | 43-116     |         |
| 2,4,6-tribromophenol:   | 85           |           |                    | 10-123     |         |
| 2-nitrophenyl-d14:      | 82           |           |                    | 33-141     |         |

### Definitions:

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

*Cecilia G. Joaquin* 10/11/94  
 Senior Chemist  
 Account Manager



# Superior Precision Analytical, Inc.

A member of ESSCON Environmental Support Service Consortium

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     |

### Regional Laboratories

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A member of ESSCON Environmental Support Service Consortium

TOUCHSTONE  
Attn: MICHAEL TAMBRONI

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  |

### Regional Laboratories

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## VOLATILE PETROLEUM HYDROCARBONS Quality Assurance and Control Data - Water

Laboratory Number 92709

| Compound       | Method<br>Blank<br>(ug/L) | RL<br>(ug/l.) | Spike<br>Recovery<br>(%) | Limits<br>(%) | RPD<br>(%) |
|----------------|---------------------------|---------------|--------------------------|---------------|------------|
| 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)
- QC File No. 92709

*Alfred Sabo* 10/10/94

Senior Chemist  
Account Manager

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TOUCHSTONE  
Attn: MICHAEL TAMBRONI

Project 94-14  
Reported 08-October-1994

## OIL & GREASE BY METHOD 5520

### 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  
ALLN: 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

| Compound        | Method Blank<br>(ug/L) | RL<br>(ug/L) | Spike Recovery<br>(%) | Limits<br>(%) | RPD<br>(%) |
|-----------------|------------------------|--------------|-----------------------|---------------|------------|
| Oil and Grease: | ND<5000                | 5000         | 73/77                 | 50-135        | 5%         |

### Definitions:

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

*Alvan L. Sel...* 10/10/94  
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TOUCHSTONE  
Attn: MICHAEL TAMBRONI

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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# Superior Precision Analytical, Inc.

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TOUCHSTONE  
Attn: MICHAEL TAMBRONI

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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# Superior Precision Analytical, Inc.

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

Laboratory Number 92709

| Compound | Method Blank<br>(ug/L) | RL<br>(ug/L) | Spike Recovery<br>(%) | Limits<br>(%) | RPD<br>(%) |
|----------|------------------------|--------------|-----------------------|---------------|------------|
| 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

*Abigail Sal...* 10/10/94  
 Senior Chemist  
 Account Manager



TOUCHSTONE  
Attn: MICHAEL TAMBRONI

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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Page 1 of 3  
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TOUCHSTONE  
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    |

Certified Laboratories

Page 2 of 3

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# Superior Precision Analytical, Inc.

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

Laboratory Number 92709

| Compound |       | Method<br>Blank<br>(mg/L) | RL<br>(mg/L) | Spike<br>Recovery<br>(%) | Limits<br>(%) | RPD<br>(%) |
|----------|-------|---------------------------|--------------|--------------------------|---------------|------------|
| Cadmium  | (Cd): | ND<.005                   | .005         | 93/96                    | 75-125        | 3%         |
| Chromium | (Cr): | ND<0.01                   | 0.01         | 101/102                  | 75-125        | 1%         |
| Lead     | (Pb): | ND<0.05                   | 0.05         | 103/107                  | 75-125        | 4%         |
| Nickel   | (Ni): | ND<0.02                   | 0.02         | 105/106                  | 75-125        | 1%         |
| Zinc     | (Zn): | ND<0.02                   | 0.02         | 109/111                  | 75-125        | 2%         |

### Definitions:

- ND = Not Detected
  - RPD = Relative Percent Difference
  - RL = Reporting Limit
  - mg/L = Parts per million (ppm)
- File No. 92709

*Abraham Sat* 10/10/91  
 Senior Chemist  
 Account Manager



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TOUCHSTONE  
Attn: MICHAEL TAMBRONI

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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Attn: MICHAEL TAMBRONI

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 | 0.3    |
| 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-Dichloroethane:     | 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 | 1.7    |
| c-1,2-Dichloroethene:   | ND<0.5 | ND<0.5 | 0.4    |
| Chloroform:             | 1.0    | 1.7    | ND<0.5 |
| 1,1,1-Trichloroethane:  | ND<0.5 | ND<0.5 | 1.2    |
| 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 | 1.2    |
| 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

Page 2 of 3

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# Superior Precision Analytical, Inc.

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

Laboratory Number 92709

| Compound                   | Method Blank (ug/L) | RL (ug/L) | Spike Recovery (%) | Limits (%) | RPD (%) |
|----------------------------|---------------------|-----------|--------------------|------------|---------|
| Chloromethane:             | ND<0.5              | 0.5       |                    |            |         |
| Vinyl Chloride:            | ND<0.5              | 0.5       |                    |            |         |
| Bromomethane:              | ND<0.5              | 0.5       |                    |            |         |
| Chloroethane:              | ND<0.5              | 0.5       |                    |            |         |
| Trichlorofluoromethane:    | ND<0.5              | 0.5       |                    |            |         |
| 1,1-Dichloroethene:        | ND<0.5              | 0.5       | 76/77              | 48-189     | 1%      |
| Dichloromethane:           | ND<1.0              | 1.0       |                    |            |         |
| 1,2-Dichloroethene:        | ND<0.5              | 0.5       |                    |            |         |
| 1,1-Dichloroethane:        | ND<0.5              | 0.5       |                    |            |         |
| 1,2-Dichloroethene:        | ND<0.5              | 0.5       |                    |            |         |
| Chloroform:                | ND<0.5              | 0.5       |                    |            |         |
| 1,1,1-Trichloroethane:     | ND<0.5              | 0.5       |                    |            |         |
| Carbon tetrachloride:      | ND<0.5              | 0.5       |                    |            |         |
| 1,2-Dichloroethane:        | ND<0.5              | 0.5       |                    |            |         |
| Trichloroethene:           | ND<0.5              | 0.5       | 95/95              | 63-150     | 0%      |
| 1,3-Dichloropropene:       | ND<0.5              | 0.5       |                    |            |         |
| 1,2-Dichloropropane:       | ND<0.5              | 0.5       |                    |            |         |
| 1,3-Dichloropropene:       | ND<0.5              | 0.5       |                    |            |         |
| Bromodichloromethane:      | ND<0.5              | 0.5       |                    |            |         |
| 1,1,2-Trichloroethane:     | ND<0.5              | 0.5       |                    |            |         |
| Tetrachloroethene:         | ND<0.5              | 0.5       |                    |            |         |
| Dibromochloromethane:      | ND<0.5              | 0.5       |                    |            |         |
| Chlorobenzene:             | ND<0.5              | 0.5       | 112/109            | 70-158     | 3%      |
| Bromoform:                 | ND<0.5              | 0.5       |                    |            |         |
| 1,1,2,2-Tetrachloroethane: | ND<0.5              | 0.5       |                    |            |         |
| 1,3-Dichlorobenzene:       | ND<0.5              | 0.5       |                    |            |         |
| 1,2-Dichlorobenzene:       | ND<0.5              | 0.5       |                    |            |         |
| 1,4-Dichlorobenzene:       | ND<0.5              | 0.5       |                    |            |         |

Definitions:

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

*Abigail S. Sal...* 10/10/94  
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