Applied Geotechnology Inc.

Geotechnical Engineering
Geology & Hydrogeology

A report prepared for

Scougal Rubber Company
6239 Corson Street South
Seattle, Washington 98100

PHASE II ENVIRONMENTAL ASSESSMENT
SCOUGAL RUBBER COMPANY
SEATTLE, WASHINGTON

AGI Project No. 15,547.003.01

by

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1.0 INTRODUCTION

1.1 General

This report presents the results of Applied Geotechnology Inc.'s (AGI) Phase II Environmental Assessment (Phase II EA) for the Scougal Rubber Company (Scougal) facility in Seattle, Washington. The facility is located northeast of the Duwamish Waterway as shown on the Vicinity Map, Figure 1. AGI performed a Phase I Environmental Assessment for the Scougal facility, the results of which are contained in our letter report dated October 31, 1990 and summarized in subsequent sections of this report.

Our services for this study are outlined in our November 29, 1990 proposal, and included drilled borings, groundwater monitor well installation, hand auger borings, surface soil sampling, soil and groundwater sampling, analytical testing, and report preparation. Volatile organic compounds (VOCs) were identified in a water sample from a groundwater monitor well installed near the west property boundary of the Scougal facility during the initial work of this Phase II EA. Based on the presence of VOCs and the potential for groundwater migration off site to the west, our scope of services and the Phase II EA study area were expanded to include installation and sampling of monitor wells on the adjacent property (Machinists Inc.) as outlined in our March 1, 1991 proposal.

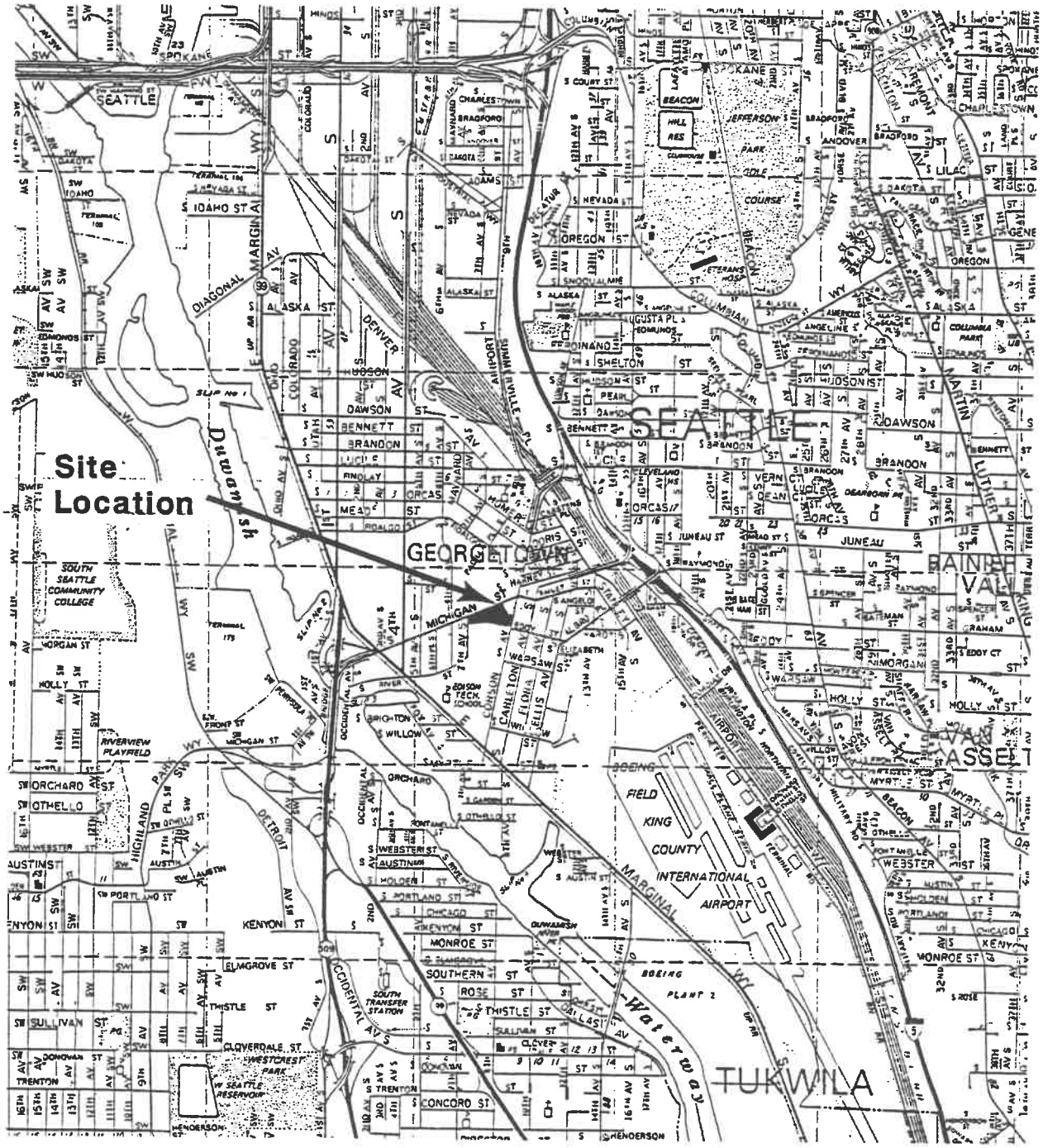
1.2 Background

1.2.1 Description

The Scougal site is located at 6239 Corson Avenue in Seattle, Washington, approximately 2,000 feet northeast of the Duwamish Waterway as shown on Figure 1. Several single-story buildings housing machinery used in producing molded rubber products are present on the 1.25-acre site. Existing structures are located approximately as shown on the Site Plan, Figure 2. A detailed description of each structure currently on the Scougal site and its use is presented in our October 30, 1990 Phase I Environmental Assessment letter report.

1.2.2 Site History

Our Phase I assessment indicated the property was owned by the Commercial Waterway District No. 1 prior to site acquisition by R. M. Scougal and F. T. Crow in 1954. Scougal Manufacturing Co., Inc. acquired the site in 1961. In 1973 the property was purchased by M. J. McIntyre, with the Scougal Rubber Company continuing operation of the facility. The property remains in the McIntyre Family Limited Partnership.



Reference: Thomas Bros. Guide, 1990 Edition.

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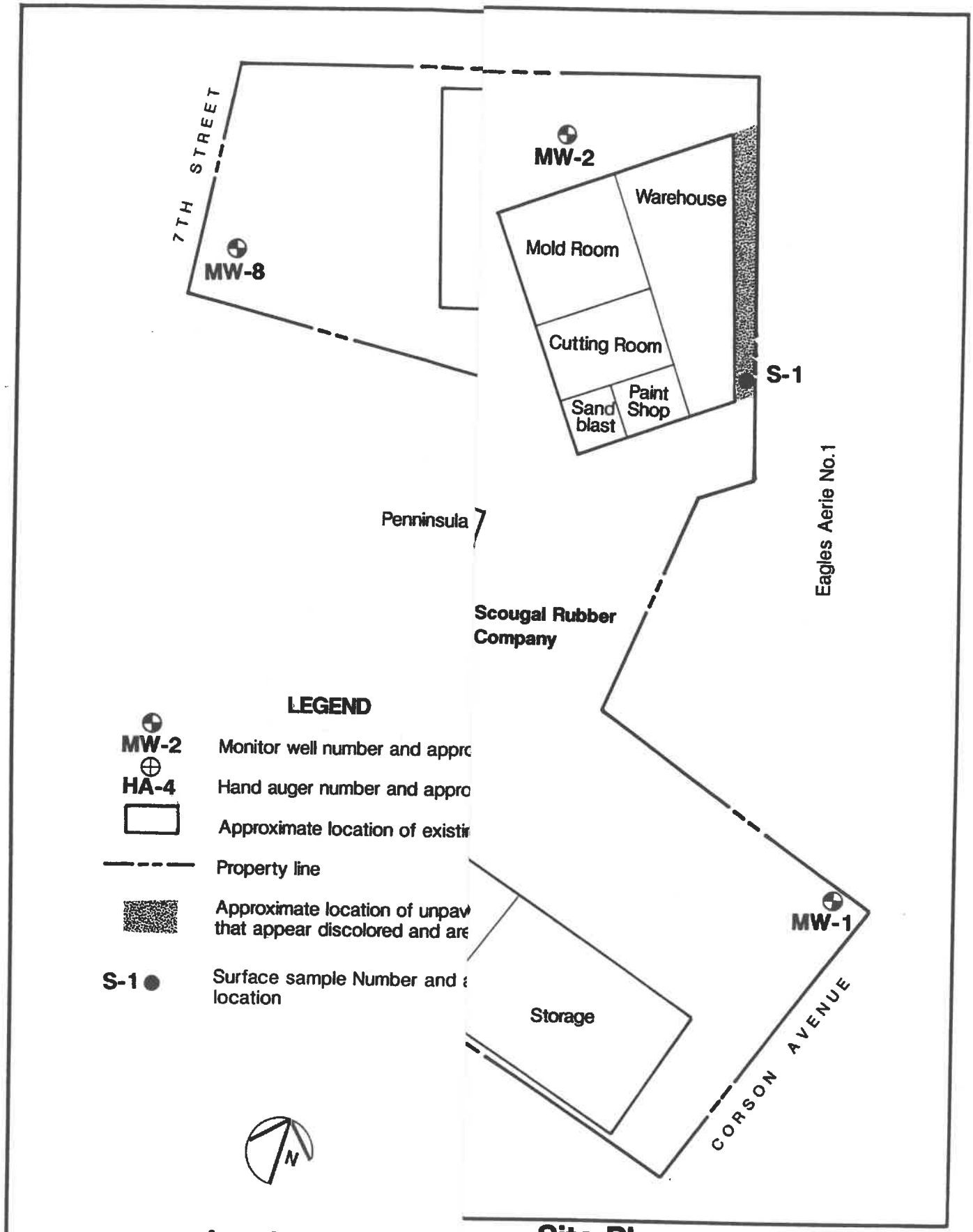
Vicinity Map

Scougal Rubber/Phase II Environmental Assessment
Seattle, Washington

FIGURE **1**

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	MCT	GHS	7 Feb. 91		



Site Plan

FIGURE 2

Rubber/Phase II Environmental Assessment
Seattle, Washington

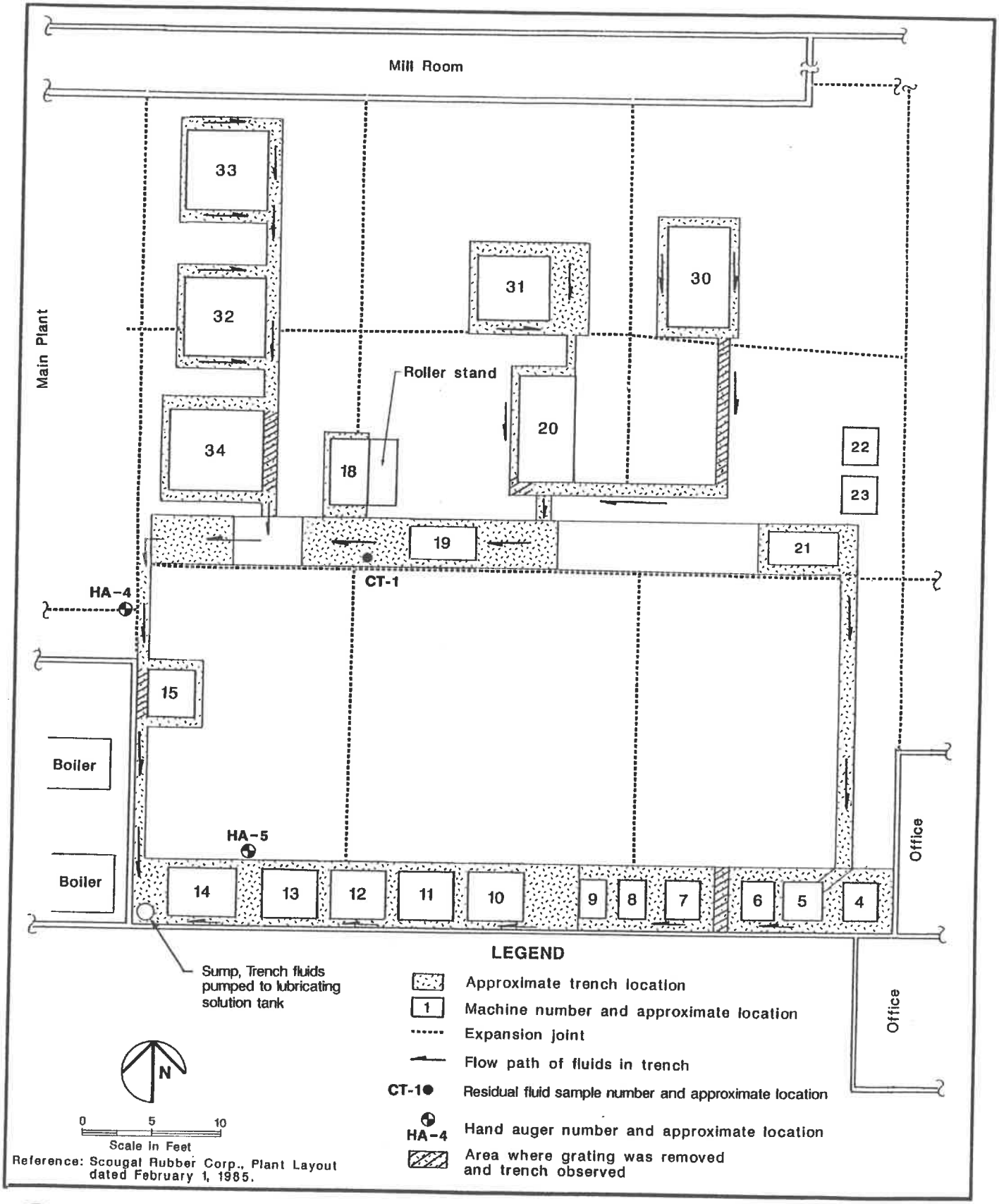
DATE	REVISED	DATE
3 May 91		

Vertical aerial photographs taken in 1960, 1976, 1978, and 1984 indicate extensive construction on the site between 1960 and 1976. City of Seattle Department of Building permits for the site indicate the majority of facility construction was performed in 1961. Structures existing on-site prior to 1960 did not appear to be used for industrial purposes. Since 1961, the site has been used for the manufacture and distribution of molded rubber products.

1.2.3 Scougal Operations

Scougal has currently and historically manufactured molded rubber products for public and private use. In general, the production process can be divided into mixing, manufacturing, mold preparation, painting, and distribution. These activities are conducted in buildings located on the property. Based on our discussions with Mr. Dimitri Vlahosotrios of Scougal Rubber, we understand the mixing process involves combining clear natural and synthetic rubber products with approximately 10 to 20 percent carbon black, which reduces ultra-violet (UV) degradation of the final product. Carbon black use and handling are not regulated by the Washington Department of Ecology (Ecology). We further understand the majority of the carbon black used during production is completely contained in the final product. The final product is manufactured by placing the mixed rubber, which is in a semi-viscous state, into a mold where it is heated and pressed into the final configuration.

A lubricating solution is used to remove excess rubber from the molds following each pressing. The lubricating solution, comprised of approximately 5 percent lubricating oil and 95 percent water, is contained in a steel tank approximately 15x10x4 feet (LxWxH) in dimension located at the west side of the Main Plant building. Approximately half of the tank is below ground surface. The lubricating solution is recirculated from the tank through subfloor piping to various molds and presses used in the production process. Subfloor piping is placed in concrete troughs located in the Main Plant floor as shown on Figure 3, Main Plant Concrete Troughs. Troughs were constructed using conventional techniques which leave construction joints. A small amount of the lubricating solution was observed dripping from pipe joints, and mold and press operations. Excess fluid drains through the subfloor trough system to a sump located in the southwest corner of the building, where it is pumped back to the lubricating solution tank. Residual fluid accumulates in the concrete troughs and is cleaned out on a semi-annual basis according to Mr. Vlahosotrios. The lubricating solution is kept at high temperatures, which turns the water into steam. This steam is subsequently discharged to the sanitary sewer, making the amount of lost fluid difficult to measure. The tank is periodically refilled with water to a specific level to compensate for the discharged steam.



Reference: Scougal Rubber Corp., Plant Layout dated February 1, 1985.

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Main Plant Concrete Troughs

Scougal Rubber/Phase II Environmental Assessment
Seattle, Washington

FIGURE **3**

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	MCT	GHS	3 May 91		

Periodically, mold equipment is removed from the machinery and dipped into an above-ground tank containing trichloroethylene (TCE). The TCE is used as a degreaser to remove excess lubricating solution from the molds. The TCE tank is located in the Warehouse. Methyl ethyl ketone (MEK) and toluene are also used in lesser quantities for degreasing mold equipment.

Historically, the facility has stored solvents in five underground storage tanks (USTs), located as shown on Figure 2. The USTs were removed in December 1989 and the in situ and excavated soils sampled and analyzed, as discussed in greater detail in the following section. Currently, solvents are stored in 55-gallon drums at various areas throughout the facility. Drum areas are shown on Figure 4, Drum Storage Areas, and discussed in detail in our Phase I assessment.

Used solvents are placed in Department of Transportation (DOT)-approved, 55-gallon drums and stored on-site for subsequent disposal by Chemical Handling Company.

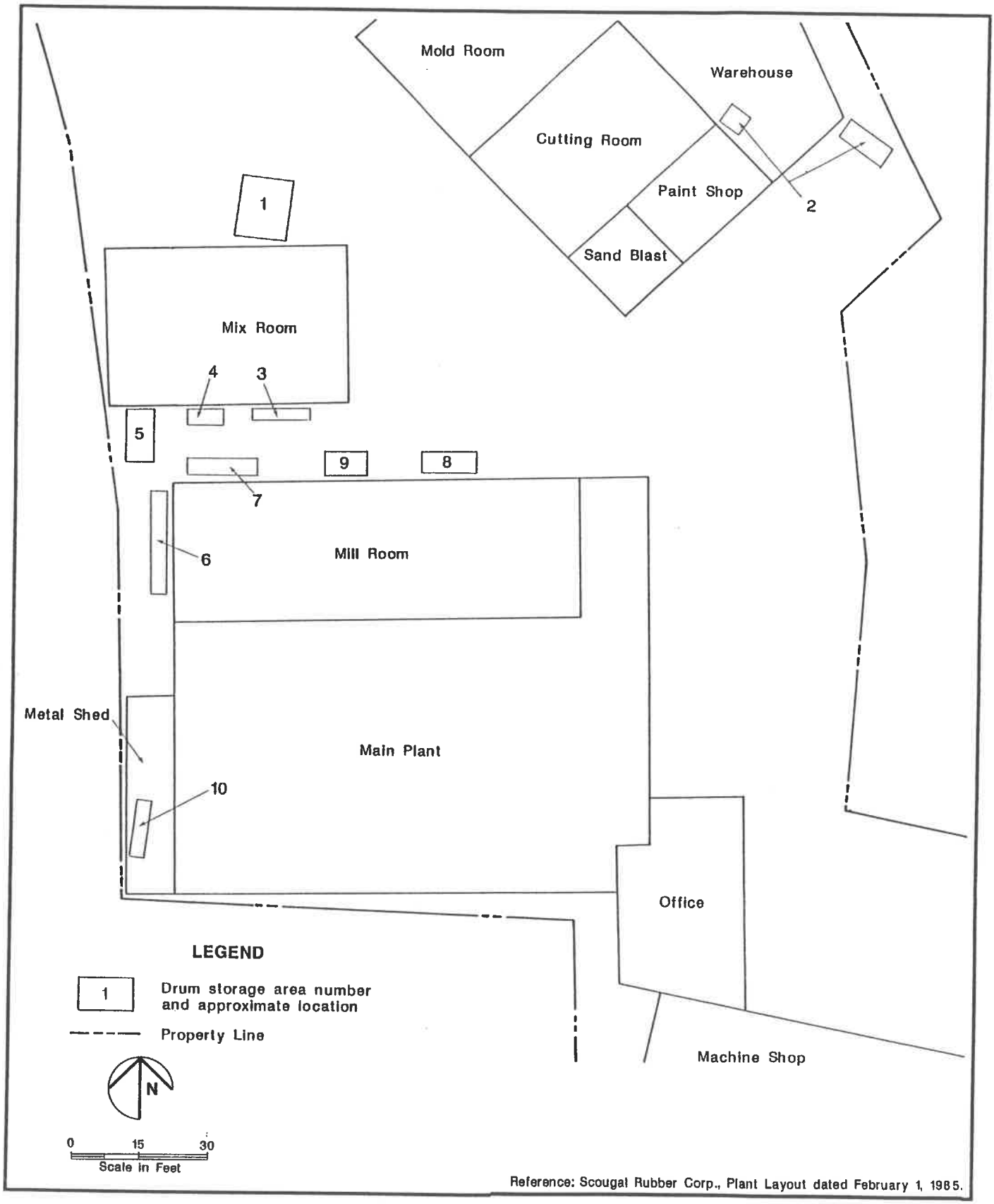
1.2.4 UST Removal

Northwest Enviroservice, Inc. removed the five USTs in December 1989. Excavation depths and dimensions were not reported.

In March 1990, Rittenhouse Zeman and Associates (RZA) collected three soil samples from the sidewalls and bottom of the excavated tank cavity (designated FS-1 through FS-3) and submitted them for laboratory analysis of total petroleum hydrocarbons (TPH) by EPA Methods 418.1 and 8015 modified. In addition, one composite sample from the stockpile of excavated soil (designated S-1) and soil sample FS-3 were analyzed for MEK. RZA assessed the laboratory data and presented the results and their conclusions in an April 3, 1990 report entitled "Results of Additional Soil Sampling, Scougal Rubber Corporation, 6239 Corson Avenue South, Seattle, Washington."

EPA Method 418.1 test results indicated TPH concentrations of 21, 1,111, and 3,066 milligrams per kilogram (mg/kg) for samples FS-1 through FS-3, respectively. Sample FS-3 had a TPH concentration, as compared to diesel, of 108 mg/kg when analyzed by EPA Method 8015 modified. However, chromatograms, which allow evaluation of the type of petroleum hydrocarbon present, were not available from the Method 8015 test results. MEK was not detected in either of the two samples analyzed.

Based on the laboratory results, RZA concluded that the high TPH concentrations may have been influenced by the presence of non-petroleum hydrocarbons, such as carbon black, rubber, or residuals of asphalt in the in situ soils. According to the RZA report, Ecology indicated that if no solvents or contaminants which could be attributed to the former tanks were found in the in situ or excavated soils, the soils could be placed back in the excavation. Based on Ecology's comments, the excavated soil was placed back into the excavation.



Reference: Scougal Rubber Corp., Plant Layout dated February 1, 1985.

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Drum Storage Areas

Scougal Rubber/Phase II Environmental Assessment

Seattle, Washington

FIGURE **4**

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	MCT	GHS	3 May 91		

1.2.5 Phase I Environmental Assessment

Our Phase I Environmental Assessment identified six potential on-site sources of contamination. Identified sources are outlined below.

- Drum storage areas. Surficial staining, lack of spill containment, and historical drum handling and storage practices presented a potential for hazardous substance releases to the environment. Drum storage areas are shown on Figure 4.

- Former underground storage tanks. Elevated TPH concentrations were documented in subsurface soils adjacent to the five former USTs. The source of this contamination was not fully documented and, therefore, the contamination could have resulted from the presence of petroleum hydrocarbons. In addition, we understand the former USTs contained MEK, toluene, xylene, and paint thinner. Soils were not analyzed for toluene, xylene, and paint thinners, and, consequently, the potential presence of these compounds required evaluation.

- Recirculating lubrication system. This system, located in the main plant, places diluted oils in contact with the concrete troughs. Cracks or construction joints in the concrete troughs pose potential avenues for diluted oils to contaminate subsurface soils and possibly groundwater. The UST for the lubricating solution and associated subfloor piping may also be a source of potential contamination.

- Drum containing TCE. This drum is stored in Drum Area 2 and has no spill containment system. A steel funnel observed in the top of the drum indicated fluids were manually poured into it. Accidental spillage is possible from this method of material handling. In addition, a 5-gallon plastic bucket containing approximately 2 gallons of fluid with an iridescent sheen was located on the asphalt surface next to this drum. Adjacent soils exposed between Eagles Aerie No. 1 and the warehouse building appear stained and do not support vegetation.

- Sump. The City of Seattle indicated the presence of a sump on-site.

- Hazardous substance spill. METRO personnel indicated a spill response at the facility. The nature, material released, and extent of the release were not available at the time the Phase I assessment was completed. However, the release may be a potential contamination source.

1.3 Purpose and Scope of Services

The purpose of the Phase II EA was to confirm or deny the potential presence of soil or groundwater contamination at the facility. Our initial scope of services for the Phase II EA included the following:

- Prepare a site Health and Safety Plan for the Phase II field investigation.

- Conduct a review of EPA and City of Seattle files on the Scougal Rubber facility.
- Prepare a map documenting cracks in the plant floor, and evaluate the condition of the concrete troughs.
- Evaluate available underground utility maps.
- Install three groundwater monitor wells to assess soil and groundwater conditions beneath the site.
- Develop and sample the groundwater monitor wells.
- Core, sample, and analyze two soil borings through the plant floor slab to evaluate subsurface soil chemistry.
- Drill and sample one soil boring near the former USTs.
- Hand auger three borings within stained areas and collect soil samples for chemical analyses.
- Collect a surface soil sample from between the warehouse building and the adjacent Eagles Aerie on the eastern side of the site.
- Submit soil and groundwater samples for analytical laboratory testing to assess potential contaminants.
- Prepare this report containing our observations, conclusions, analytical results, and recommendations.

As previously stated, VOCs were detected in a groundwater sample and our scope of services and the study area were expanded. The expanded scope of services consisted of:

- Perform a site reconnaissance of Machinists Inc.
- Install five additional groundwater monitor wells to assess soil and groundwater conditions beneath that site.
- Develop the additional groundwater monitor wells.
- Collect a groundwater sample from the additional wells and collect a second round of water samples from the initial monitor wells.
- Submit groundwater samples for analytical laboratory testing to assess groundwater quality.
- Prepare this report containing our observations, conclusions, analytical results, and recommendations.

2.0 SITE RECONNAISSANCE

The Scougal site is bounded by Machinists Inc. (Machinists) to the west; Corson Avenue and the Eagles Aerie No. 1 to the east; Michigan Avenue to the north; and the Washington Department of Transportation (WSDOT), Corson Avenue facility to the south. Eagles Aerie No. 1, located at 6205 Corson Avenue South, is primarily a restaurant/lounge. WSDOT stores and uses hazardous substances as identified in the Phase I assessment. A detailed reconnaissance of the WSDOT facility was not part of our scope of services. Since the Phase II EA study area was expanded to include Machinists property, a site reconnaissance of the Machinists facility was performed. The following paragraphs describe general operations and potential hazardous substances at Machinists.

Machinists is located at 751 Michigan Street and encompasses approximately 2.5 acres. The property currently contains several buildings including a Machine/Welding Shop, Sandblasting Buildings, Paint Shop, and Office/Machine Shop as shown on Figure 2. Machinists repairs and fabricates various metal products for a wide variety of public and private industry.

Lubricating oils are used in conjunction with metal lathe and drill press operations within the Machine/Welding Shops. Oils are temporarily stored in above-ground tanks located on the concrete floor slab adjacent to each machine. New and used lubricating oils are stored in 55-gallon drums located within the building and on the west side of the Paint Shop, respectively.

The majority of the site outside the structures is paved with asphalt concrete. An unpaved area is located between the Machine/Welding Shop and Scougal. The soils in this area are discolored and unvegetated.

3.0 SITE CONDITIONS

3.1 Area Geology

The Scougal facility is situated on the floodplain of the Duwamish River near the north end of the Duwamish Valley. Early in the 20th century, the meandering river channel was straightened through a series of cuts and hydraulic fills to create the Duwamish Waterway. Native alluvium and hydraulic fill soils in the valley typically consist of sand, silt, and clay.

3.2 Surface

According to the City of Seattle, Department of Building, the majority of building construction at the Scougal facility was accomplished in 1961, with minor building additions constructed in 1965, 1971, and 1972. The property currently contains several buildings including a Main Plant, Machine Shop/Storage, Office, Mix Room, Warehouse/Paint Room/Mold Room, and Drum Storage Area. These structures and their functions were described in detail in our Phase I assessment and are not repeated here. We collected a sample of residual fluid from the concrete trough (designated CT-1) within the Main Plant and submitted it to an analytical laboratory to test for the presence of hydrocarbon contaminants. Approximate sampling location of CT-1 is shown on Figure 3.

The majority of the site outside of the building areas is covered with asphalt-concrete. The former UST excavation, located behind the Main Plant building, has been covered with portland cement concrete. We noted visual signs of pavement staining in the vicinity of Drum Storage Areas 1, 2, 5, 6, 9, and 10. Each stained area is discussed in detail in the Phase I assessment.

The presence of an on-site sump was verified during our field investigation. The approximately 2.5-foot-wide by 5-foot-long by 2-foot-deep sump is located outside the northwest corner of the Mill Room, as shown on Figure 2.

A narrow strip of soil is present between the warehouse building and the adjacent Eagles Aerie on the eastern side of the site. This area, approximately 6 feet wide by 100 feet long, appears discolored and is currently unvegetated. We collected a composite soil sample (designated S-1) from the ground surface in this area for analytical testing. Approximate sampling location is shown on Figure 2.

On-site surface water typically drains to catch basins located throughout the site. However, during our field investigation, we observed standing water on the asphalt surface north of the Mill Room following substantial rains. We also noted that surface water near the west ends of the Mix and Mill Rooms flowed west off the Scougal property onto paved portions of Machinists and eventually into catch basins and the storm sewer.

3.3 Subsurface

Subsurface conditions were explored by drilling eight borings to depths of approximately 12 feet below current site grade. Four borings (designated MW-1 through MW-4) were drilled on the Scougal facility and four borings (designated MW-5 through MW-8) were drilled on the Machinists facility. The borings were converted to groundwater monitor wells following completion of drilling. In addition, five hand auger borings (designated HA-1 through HA-5) were advanced to a maximum depth of approximately 6-1/2 feet below ground surface. Approximate exploration locations are shown on Figure 2.

Subsurface conditions were characterized by evaluating soil samples collected during drilling in context with our understanding of the local geology. In general, subsurface soils consist of native loose to medium dense sand and gravelly sand to the maximum depth explored. Borings HA-4 and HA-5 encountered approximately 6 to 15 inches of medium dense sandy gravel immediately below the structure floor slab; this deposit probably represents fill added during building construction.

Subsurface conditions encountered at individual boring locations are described in more detail on the boring logs in Appendix A. Field exploration and sampling procedures are also contained in Appendix A.

Collected soil samples were monitored in the field with an organic vapor meter (OVM). The OVM detects organic gases (e.g. gasoline and solvent vapors). Gases are recorded as parts per million and are an approximate value for organic gas concentrations in the soil pore space. Additional information regarding concentrations in soil is provided on Plate A3, Description of Terms, in Appendix A.

3.4 Groundwater

During drilling, groundwater was encountered under water table conditions at about 5 to 7 feet below ground surface in each boring. Subsurface sand and gravelly sand yielded groundwater relatively quickly; therefore, borings were advanced to approximately 5 feet below where groundwater was encountered.

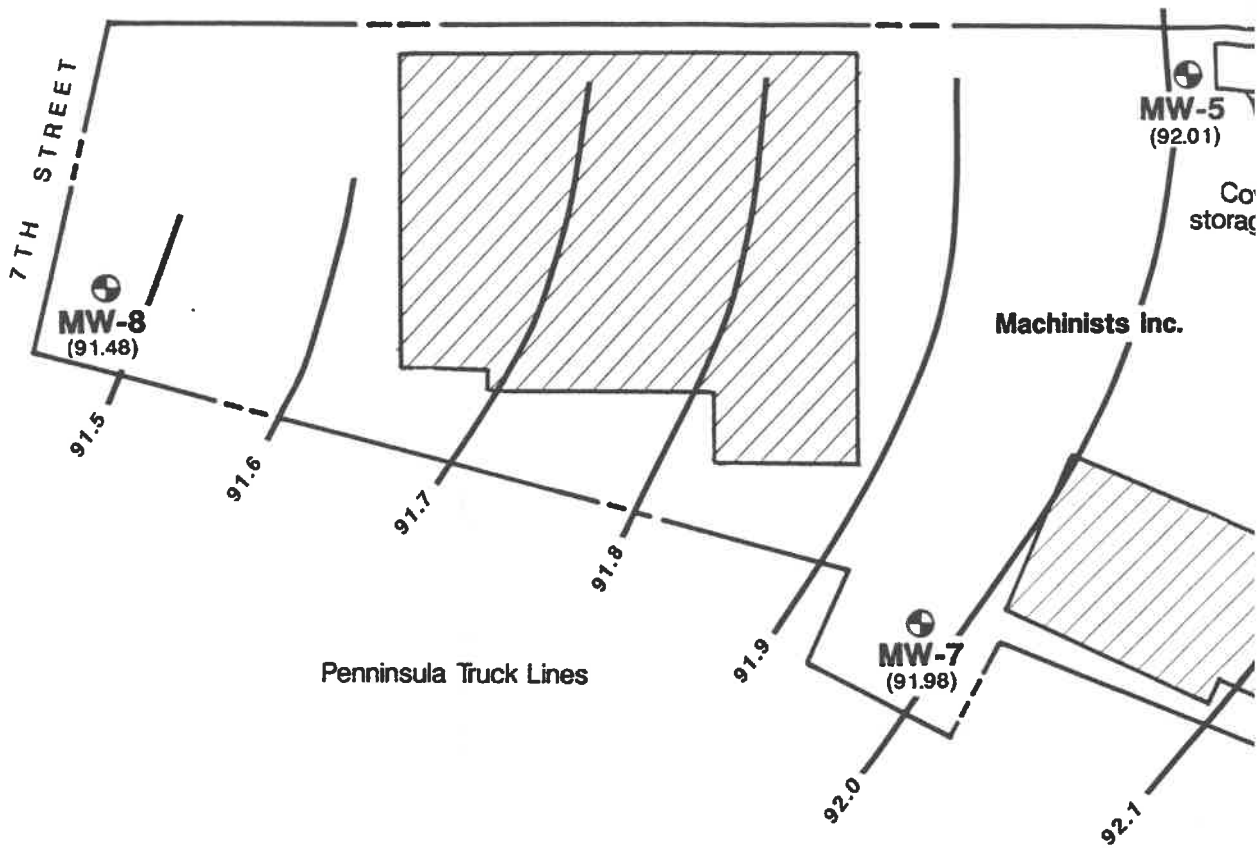
Static groundwater levels were measured in each monitoring well at about 6-1/2 to 7 feet below ground surface following well installation and are presented in Table 1, Groundwater Elevation. Groundwater elevations were used to construct a potentiometric surface map shown on Figure 5, Groundwater Surface Contours. This map indicates groundwater flow toward the west based on February 4, 1991 water level measurements. Groundwater level may fluctuate seasonally, or during other local influences, such as groundwater pumping.

Table 1
Groundwater Elevation
Scougal Rubber / Phase II Environmental Assessment

Well No.	Date	Elevation* (ft)	Depth to Water (ft)	Groundwater Elevation (ft)	Remarks
MW-1	18-Jan-91	99.81	7.54	92.27	NR
	21-Jan-91		7.56	92.25	Cloudy
	22-Jan-91		7.56	92.25	NR
	04-Feb-91		7.65	92.16	Clear
	04-Apr-91		7.47	92.34	Clear
	17-Apr-91		7.27	92.54	
MW-2	18-Oct-90	99.33	7.32	92.01	NR
	21-Jan-91		7.36	91.97	Clear
	22-Jan-91		7.33	92.00	NR
	04-Feb-91		7.36	91.97	Clear
	04-Apr-91		7.17	92.16	Clear
	17-Apr-91		7.13	92.20	
MW-3	18-Oct-90	98.19	6.28	91.91	NR
	21-Jan-91		6.31	91.88	Cloudy, Hydrocarbon odor & sheen
	22-Jan-91		6.29	91.90	NR
	04-Feb-91		6.29	91.90	Cloudy, Hydrocarbon odor & sheen
	04-Apr-91		NR	---	Cloudy, Hydrocarbon odor & sheen
	17-Apr-91		6.08	92.11	Cloudy, Hydrocarbon odor & sheen
MW-4	04-Apr-91	98.15	6.09	92.06	Clear
	17-Apr-91		5.98	92.17	Clear
MW-5	04-Apr-91	98.20	6.37	91.83	Clear
	17-Apr-91		6.19	92.01	Clear
MW-6	04-Apr-91	96.93	4.98	91.95	Yellow-gold discoloration, Slight odor
	17-Apr-91		4.84	92.09	Yellow-gold discoloration, Slight odor
MW-7	04-Apr-91	95.26	3.30	91.96	Clear
	17-Apr-91		3.28	91.98	Clear
MW-8	04-Apr-91	95.28	3.87	91.41	Yellow-gold discoloration, Slight odor
	17-Apr-91		3.80	91.48	Yellow-gold discoloration, Slight odor

Notes:

* Elevations based on local datum (AGI TBM) set at +100.00.
NR = Not recorded



LEGEND

MW-2	Monitor well number and approximate location
HA-4	Hand auger number and approximate location
	Approximate location of existing building
	Property line
(91.48)	Measured groundwater surface elevation, feet (4-17-91 data)
92.0	Approximate groundwater surface contours, feet (4-17-91 data)

N

0 25 50
Scale in Feet

4.0 LABORATORY ANALYSIS AND RESULTS

4.1 Soil Chemistry Analyses

Soil samples from the Scougal facility were selected based on field OVM readings and visual discoloration and submitted to Analytical Technologies, Inc. of Renton, Washington for chemical analysis. Chemical analyses were performed on soil samples from the Scougal facility only. Chemical results have been reviewed by an AGI staff chemist for completeness and data quality. Laboratory reports and AGI Quality Assurance Reports are presented in Appendix B.

Seven soil samples, one sample of raw carbon black (designated CB-1), and one sample from the sludge observed in the concrete trough (CT-1) were submitted for analysis. Soil chemistry results are summarized in Table 2, Analytical Results Summary - Soil. Soil samples were analyzed for one or more of the following:

Parameter	Analysis Method
Total Petroleum Hydrocarbons	EPA 8015 modified and 418.1
Halogenated Volatile Organics	EPA 8010
Aromatic Volatile Organics	EPA 8020
Semivolatile Compounds	EPA 8270

Selected soil samples were analyzed by Method 418.1 when the possible presence of lubricating oils or hydrocarbons heavier than diesel fuel (C12 to C24) were suspected. In general, each soil sample tested, except CT-1, was analyzed by Method 8015 modified for identification of lighter-fraction petroleum hydrocarbons (C7 to C12).

Only compounds detected on-site are shown in Table 2; the full list of analytes in Methods 8010, 8020, and 8270 is presented on the laboratory reports in Appendix B.

4.1.1 Volatile Organic Compounds

Soil samples were analyzed for 32 VOCs by EPA Methods 8010/8020. Only eight volatile organic compounds were detected in the soil samples as shown in Table 2. Cleanup levels listed in Table 2 are from Chapter 173-340 Washington Administrative Code (WAC), Model Toxics Control Act Cleanup Regulations (MTCA), February 1991. These regulations establish an extensive process for determining cleanup levels using one of three methods. Method A is the most straightforward since the regulations present tabulated cleanup levels; Methods B and C usually require performing a site specific risk assessment.

Table 2
Analytical Results Summary – Soil
Scougal Rubber / Phase II Environmental Assessment

Applied Geotechnology Inc.

Constituent	Sample ID: / Depth (ft):	SCOUGAL FACILITY – SOIL CHEMISTRY S-1 0.0	MW-3 7.5	CB-1 NA	HA-1 5.0	HA-2 5.0	HA-3 6.0	HA-4 6.0	HA-5 6.0	CT-1 ---	Ecology Cleanup Level
Volatile Organic Compounds EPA Test Method 8010/8020	Detection Limits (mg/kg, dry wt.)	(mg/kg, dry wt.)									(mg/kg)
Cis-1, 2-Dichloroethene	0.010	ND	0.012	ND	ND	ND	ND	ND	ND	NT	NA
Ethyl Benzene	0.025	1.10	ND	ND	ND	ND	ND	ND	ND	NT	20
Methylene Chloride	0.10	ND	0.17	ND	ND	ND	ND	ND	ND	NT	0.5
Tetrachloroethene	0.010	0.26	0.16	ND	ND	ND	0.013	ND	ND	NT	5
Toluene	0.025	4.00	0.04	0.73	ND	ND	ND	ND	ND	NT	40
1,1,1-Trichloroethane	0.010	ND	0.045	ND	ND	ND	ND	ND	ND	NT	20
Trichloroethene	0.010	4.20	0.77	ND	0.18	0.16	0.18	ND	ND	NT	5
Xylenes (total)	0.050	8.10	0.037	0.46	ND	ND	ND	ND	ND	NT	20
Semivolatile Compounds EPA Test Method 8270	(mg/kg, dry wt.)	(mg/kg, dry wt.)									
Bis(2-Ethylhexyl) Phathalate	570	NT	NT	NT	NT	NT	NT	NT	NT	240 J	NA
Fuel Hydrocarbons EPA Test Method 8015M	(mg/kg, dry wt.)	(mg/kg, dry wt.)									
Gasoline (C7 to C12)	5.0	ND	ND	58	ND	ND	ND	ND	ND	NT	100
Diesel (C12 to C24)	5.0	160 *	1,000 *	ND	ND	ND	ND	54 *	ND	NT	200
Hydrocarbon Fluid (C16 to C32)	5.0	3,300 J	NR	NR	NR	NR	NR	NR	NR	NT	
Petroleum Hydrocarbons EPA Test Method 418.1	(mg/kg, dry wt.)	(mg/kg, dry wt.)									
TPH	5.0	NT	11,000	1,100	NT	NT	NT	NT	NT	170,000	200

Notes:

* Sample chromatogram indicates the presence of a petroleum hydrocarbon-like contamination heavier than diesel.
mg/kg = milligrams per kilogram, parts per million (ppm).
J - Estimated

ND - Not detected.
NR - Not reanalyzed.
NT - Not tested.

Method A cleanup levels were used throughout this report for discussion purposes only. AGI has not made, nor to our knowledge have others made, a decision as to the appropriate method for determining cleanup levels. Use of values from the Method A tables does not constitute a determination that the Method A tables apply to this site. The regulations provide the following limitations on the use of the tables:

> "They [Method A tables] are intended to provide conservative cleanup levels for sites undergoing routine cleanup actions or those sites with relatively few hazardous substances....values in these tables should not automatically be used to define cleanup levels that must be met for financial real estate, insurance coverage or placement, or in similar transactions or purposes. Exceedance of the values in these tables do not necessarily trigger requirements for cleanup action under this section." WAC 173-340--704(4) February 1991.

Three aromatic volatile compounds were detected: ethylbenzene, toluene, and xylene. The remaining five compounds detected were chlorinated aliphatic volatiles or their degradation products. The contaminants were detected in soil samples from MW-3 and S-1. Concentrations for the volatile organic compounds are below proposed Ecology Method A cleanup levels for industrial soils.

4.1.2 Semivolatile Organic Compounds

Semivolatile analyses were performed on CT-1 only. One compound, bis (2-ethylhexyl) phthalate, was detected at an estimated concentration of 240 mg/kg as shown in Table 2.

4.1.3 Petroleum Hydrocarbons

Petroleum hydrocarbons in the C7 to C12 hydrocarbon range were detected in CB-1 at 58 mg/kg. Petroleum hydrocarbons in the C12 to C24 range were detected in samples HA-4, S-1, and MW-3 at estimated concentrations of 54, 160, and 1,000 mg/kg, respectively. Chromatograms for the HA-4, S-1, and MW-3 analyses indicate the presence of a petroleum hydrocarbon-like contamination heavier than diesel fuel (C12 to C24). Sample S-1 was reanalyzed to estimate the type of hydrocarbon and concentration. The laboratory interpreted the hydrocarbon-like contamination as a petroleum hydrocarbon in the C16 to C32 range at an estimated concentration of 3,300 mg/kg.

Samples from MW-3, CB-1, and CT-1 were analyzed for petroleum hydrocarbons by EPA Method 418.1. Hydrocarbon concentrations ranged from 1,100 mg/kg to 170,000 mg/kg, with highest concentrations in CT-1.

4.2 Water Chemistry Analyses

Three water samples (one each from MW-1 through MW-3) were submitted to the analytical laboratory on January 22, 1991 and eight water samples (one each from MW-1 through MW-8) were submitted on March 29, 1991. Water chemistry results are summarized in Table 3, Analytical Results Summary-Groundwater. Chemical results have been reviewed by an AGI staff chemist for completeness and data quality.

Temperature, pH, and specific conductance were measured in the field during well purging and after sampling each well. Stabilized values for each parameter and well are presented in Table 4, Groundwater-Field Parameters. Groundwater samples were analyzed for one or more of the following:

Parameter	Analysis Method
Total Petroleum Hydrocarbons	EPA 418.1
Total Petroleum Hydrocarbons	EPA 8015 modified
Volatile Organic Compounds	EPA 8240

Table 3 lists only those chemicals detected in the water samples; the complete list of analytes tested is provided on the laboratory reports in Appendix B. AGI Quality Assurance Reports are also presented in Appendix B.

4.2.1 Field Parameters

Table 4 lists field parameters, including pH, specific conductance, and temperature, taken during the January and March 1991 samplings. In general, pH values are slightly acidic (5.7 to 6.7). Specific conductance values ranged between 200 and 2,000 umhos/cm; the highest was in MW-4. These field parameters are considered within normal ranges typically found within the Duwamish Valley.

4.2.2 Volatile Organic Compounds

Detected volatile organic compounds are presented in Table 3. The cleanup levels listed in Table 3 are from Chapter 173-340 Washington Administrative Code, Model Toxics Control Act Cleanup Regulations, February 1991, as discussed in Section 4.4.1, Volatile Organic Compounds. Analytical results indicate volatile compounds were not detected in MW-1, MW-2, MW-7, and MW-8. A total of 12 volatile compounds out of 34 analyzed by EPA Method 8240 were detected in groundwater samples from MW-3 through MW-6. Chemical concentrations ranged from 2 micrograms per liter (ug/l) of chloroform to 1,300 ug/l of toluene.

Table 3
Analytical Results Summary – Groundwater
Scougal Rubber / Phase II Environmental Assessment

Applied Geotechnology Inc.

Constituent	Sample ID: / Date Sampled:	WATER CHEMISTRY DATA SCOUGAL AND MACHINISTS FACILITIES											Ecology Cleanup Level
		MW-1		MW-2		MW-3		MW-4	MW-5	MW-6	MW-7	MW-8	
		01/21/91	03/28/91	01/21/91	03/28/91	01/21/91	03/28/91	03/28/91	03/29/91	03/29/91	03/29/91	03/29/91	
Volatile Organic Compounds EPA Test Method 8240 (ug/l)	Detection Limit (ug/l)												(ug/l)
Acetone	10	ND	ND	ND	ND	ND	140	ND	30	81	ND	ND	NA
Chloroform	1	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	NA
1,2-Dichloroethene (total)	1	ND	ND	ND	ND	190	120	ND	ND	ND	ND	ND	5
Ethylbenzene	1	ND	ND	ND	ND	240	180	ND	ND	ND	ND	ND	20
Methylene Chloride	5	ND	ND	ND	ND	ND	30	ND	ND	ND	ND	ND	5
Toluene	1	ND	ND	ND	ND	1,300	280	ND	ND	ND	ND	ND	40
1,1,1-Trichloroethane	1	ND	ND	ND	ND	ND	ND	3	ND	ND	ND	ND	200
Trichloroethene	1	ND	ND	ND	ND	50	53	120	ND	ND	ND	ND	5
Vinyl Chloride	1	ND	ND	ND	ND	220	61	ND	ND	ND	ND	ND	0.2
Xylene (total)	1	ND	ND	ND	ND	1,200	580	ND	ND	ND	ND	ND	20
C8-C14 Branched Hydrocarbon		ND	ND	ND	ND	ND	370	ND	ND	ND	ND	ND	NA
Butane		ND	ND	ND	ND	ND	ND	ND	ND	14	ND	ND	NA

Notes:

ug/l - micrograms per liter, parts per billion (ppb).
mg/l - milligrams per liter, parts per million (ppm).
ND - Not detected.
NT - Not tested.
NA - Not applicable.

Table 3
Analytical Results Summary – Groundwater
Scougal Rubber / Phase II Environmental Assessment

Applied Geotechnology Inc.

Constituent	Sample ID: Date Sampled:	WATER CHEMISTRY DATA SCOUGAL AND MACHINISTS FACILITIES										Ecology Cleanup Level
		MW-1 01/21/91	MW-1 03/28/91	MW-2 01/21/91	MW-2 03/28/91	MW-3 01/21/91	MW-3 03/28/91	MW-4 03/28/91	MW-5 03/29/91	MW-6 03/29/91	MW-7 03/29/91	MW-8 03/29/91	
Petroleum Hydrocarbons EPA Test Method 418.1 (mg/l)	Detection Limit (mg/l)												(mg/l)
Petroleum Hydrocarbons	1	ND	NT	ND	NT	6	NT	NT	NT	NT	NT	NT	1
Petroleum Hydrocarbons EPA Test Method 8015 (mg/l)	(mg/l)												(mg/l)
Petroleum Hydrocarbons													
Gasoline, C7-C12	1	NT	NT	NT	NT	NT	5	NT	NT	ND	ND	ND	1
Diesel, C12-C24	1	NT	NT	NT	NT	NT	3	NT	NT	ND	ND	ND	1

Notes:

ug/l - micrograms per liter, parts per billion (ppb).
mg/l - milligrams per liter, parts per million (ppm).
ND - Not detected.
NT - Not tested.
NA - Not applicable.

Table 4
Groundwater – Field Parameters
Scougal Rubber / Phase II Environmental Assessment

Well No.	Date Sampled	pH	Specific Conductance (umhos/cm)	Temperature (degrees C)
MW-1	21-Jan-91	6.3	200	12.5
	28-Mar-91	5.9	210	12.2
MW-2	21-Jan-91	6.5	300	11.9
	28-Mar-91	5.8	340	12.1
MW-3	21-Jan-91	6.5	610	14.0
	28-Mar-91	6.5	940	6.5
MW-4	28-Mar-91	5.7	2000	12.9
MW-5	29-Mar-91	6.5	210	10.5
MW-6	29-Mar-91	6.4	760	11.1
MW-7	29-Mar-91	6.3	330	10.3
MW-8	29-Mar-91	6.7	1020	11.9

4.2.3 Petroleum Hydrocarbons

Petroleum hydrocarbons were not detected in water samples from MW-1, MW-2, and MW-6 through MW-8 as shown in Table 3. Water samples from MW-4 and MW-5 were not tested for petroleum hydrocarbons because of 1) the lack of obvious hydrocarbon odors and elevated OVM readings during drilling, and 2) well location with respect to suspected potential sources of hydrocarbon contamination. Petroleum hydrocarbons were detected at a concentration of 6 milligrams per liter (mg/l) in MW-3 using EPA Method 418.1, and at 5 mg/l, carbon range C7-C12, and 3 mg/l, carbon range C12-C24, using EPA Method 8015 modified.

5.0 FINDINGS AND CONCLUSIONS

Based on the results of this investigation and our professional judgement, we offer the following findings and conclusions regarding soil and groundwater conditions at the Scougal facility:

- Groundwater flow during April 1991 was to the west toward the Duwamish Waterway. Seasonal effects on the flow direction were not evaluated.

- Surface water runoff from paved areas generally drain into on-site catch basins. Surface water from paved areas of the site near the west side of the Mill and Mix Rooms drains to the west onto adjacent property (Machinists) which then drains to catch basins.

- Volatile organic compounds were detected in six of the seven soil samples analyzed. The majority of the contaminants were detected in soil samples from S-1 and MW-3. Concentrations reported by the analytical laboratory are below Ecology cleanup levels (Method A) for industrial soils.

- Petroleum hydrocarbons were detected in soil samples from HA-4, S-1, and MW-3. Analytical results indicate detected hydrocarbons are heavier than hydrocarbons typically found in diesel fuels. Comparison of chromatograms from these samples to those of the carbon black standard indicate the contamination is not due to interference from carbon black. Evaluation of sample chromatograms and comparison to known petroleum standards indicate the hydrocarbon contamination may be a lubricating oil. Generally, petroleum hydrocarbon concentrations reported by the analytical laboratory are above Ecology cleanup levels (Method A) for industrial soils.

  Petroleum hydrocarbons were also detected in S-1 at a concentration of 160 mg/kg as diesel and 3,333 mg/kg as hydraulic/lubricating fluid by EPA Method 8015 modified. Petroleum hydrocarbons were measured in MW-3 at 11,000 mg/kg by EPA Method 418.1 and 1,000 mg/kg as diesel fuel by EPA Method 8015 modified. In our opinion, the difference in concentrations is due primarily to the presence of heavy weight hydrocarbons that are not quantified in the latter testing method.

- The water sample from MW-3 contained a petroleum hydrocarbon concentration of 6 mg/l by EPA Method 418.1 and 8 mg/l of gasoline and diesel fuels combined by EPA Method 8015 modified. These concentrations exceed the Model Toxics cleanup level of 1 mg/l as determined by Method A. Petroleum hydrocarbons were not detected in water sampled from MW-1, MW-2, or MW-6 through MW-8.

- Nine volatile organic compounds (out of 34 tested) were detected in groundwater samples from MW-3. Detected contaminants are:

  - Acetone
  - 1,2 Dichloroethene (DCE)
  - Ethylbenzene
  - Methylene Chloride
  - Toluene
  - Trichloroethene (TCE)
  - Vinyl chloride
  - Xylene (total)
  - C8-C14 Branched Hydrocarbon

  Five volatile organic compounds (out of 34 tested) were detected in groundwater samples from MW-4 through MW-6. Detected contaminants are:

  - Acetone
  - Chloroform
  - 1,1,1-Trichloroethane
  - TCE
  - Butane

  WAC 173 does not provide cleanup levels for acetone, chloroform, C8-C14 branched hydrocarbons, and butane. Reported concentrations of the remaining compounds are above Ecology Method A cleanup levels. Volatile organic compounds were not detected in water samples from MW-1, MW-2, MW-7, and MW-8.

- In our opinion, the primary potential source for the volatile organic compound contamination encountered in groundwater from MW-3 is probably from the USTs formerly located in this area. This potential source has been controlled by UST removal in December 1989.

- The potential source of TCE contamination detected in the water sampled from MW-3 and MW-4 may be the above-ground TCE tank located in Scougal's warehouse; the open 55-gallon TCE drum noted outside the warehouse in Drum Storage Area No. 2 (see Figure 4); Drum Storage Areas 6, 8, 9, and 10; or releases in the Main Plant building.

- The potential source of acetone is unknown, but appears to be in the vicinity of MW-3. Acetone concentrations decrease in MW-5 and MW-6. Acetone was not detected in MW-1, MW-2, MW-4, MW-7, and MW-8.

- METRO files regarding the spill response identified in the Phase I assessment do not indicate the type of material released. However, they do indicate the incident was not significant and did not warrant further action.

6.0 RECOMMENDATIONS

Based on the results of this investigation, we recommend that a Remedial Design Evaluation be performed for contaminated soil and groundwater having contaminant concentrations exceeding Ecology cleanup levels. The design should address petroleum hydrocarbon and VOC contamination in the groundwater and petroleum hydrocarbon contamination in the soil. We also recommend that the potential TCE source identified above be evaluated.

We recommend the following remedial alternatives be assessed during the Remedial Design Evaluation:

Soil

- Excavation and Treatment

  Treatment alternatives include:
  - Aeration/Biotreatment
  - On- or Off-site Incineration
  - Soil Washing
  - Landfilling

Groundwater

- Extraction and Treatment

  Extraction alternatives include:
  - Well(s)
  - Trench(es)

  Treatment alternatives include:
  - Activated Carbon
  - Air-Stripping
  - Fixed Film Bioreactor
  - Polymeric Resins

We recommend remedial alternative(s) chosen for the Scougal facility be discussed and accepted by Ecology during preliminary design phases. In addition, applicable permits should be obtained during remedial alternative design.

7.0 LIMITATIONS

This report has been prepared for the exclusive use of Scougal Rubber Company. The analyses, conclusions, and recommendations in this report are based on conditions encountered at the time of our field investigation, our experience, and our scientific and engineering judgement. AGI cannot be responsible for the interpretation of the data contained herein by others.

Our services have been performed in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the area. No other warranty, express or implied, is made.

DISTRIBUTION

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Quality Control/Technical Review by:

Mackey Smith, C.E.G.
Principal Hydrogeologist

JMS/GCC/cgl

APPENDIX A

Field Exploration and Sampling Procedures

APPENDIX A

Field Exploration and Sampling Procedures

General

The following sections describe the field investigation performed for the Phase II Environmental Assessment. The field investigation was performed in general accordance with our November 29, 1990 and March 1, 1991 proposals.

Borings

Subsurface conditions beneath the site were explored on January 16 through January 18, 1991 and March 27 by drilling eight borings (designated MW-1 through MW-8) to a maximum depth of about 12 feet below site grade. In addition, five hand auger borings (designated HA-1 through HA-5) were advanced to a maximum depth of 6-1/2 feet below existing site grade. Approximate boring locations are shown on the Site Plan, Figure 2.

MW-1 through MW-3 and MW-4 and MW-8 were advanced using forklift-mounted and truck-mounted drilling equipment, respectively. Hand auger borings were advanced using a 2-inch-diameter auger.

Exploration locations were established in the field by measuring from existing site structures and features. Elevations were surveyed by AGI using an assumed datum of 100.00, southwest point of a ventilation condenser concrete support pad on the west side of the warehouse.

Drilling equipment was decontaminated using a high-pressure steam cleaner and potable water from an on-site fire hydrant before drilling the first borings, between subsequent borings, and after completing the final boring. Hand auger equipment was decontaminated before augering the first borings, between subsequent borings, and after completing the final boring using the decontamination procedures outlined below.

Soil and groundwater conditions were characterized and logged using the following methods:

- Regularly observing drill cuttings removed from the borings.
- Observing resistance to drilling, as indicated by drilling rate, rig pressure applied, and overall rig behavior.
- Obtaining drive samples at regular intervals, as described below.

Soil samples from MW-1 through MW-3 were collected using a 2-inch-diameter split-barrel hand sampler. The hand sampler was driven with a 40-pound hammer falling approximately 18 inches. Blow counts required to drive the hand sampler were not recorded. Soil samples from MW-4 through MW-8 were collected using a Standard Penetration Test (SPT) sampler. The SPT sampler was driven by a 140-pound hammer falling 30 inches, with blow counts recorded for the lower 12 inches of each sample. Blow counts required to drive the SPT sampler the final 1 foot are recorded on the boring logs in Appendix A. Samples were placed in glass jars with teflon-lined lids, sealed to limit moisture loss, labeled, and stored in an ice-filled cooler. Each sampler was decontaminated between each sample attempt using decontamination procedures described below.

Our field geologist monitored drilling operations, logged the borings, and obtained representative soil samples from the drilling operation and grab samples from the hand augering operation for visual examination and subsequent laboratory testing. Soil samples were classified in accordance with the Unified Soil Classification System, summarized on Soil Classification/Legend, Plate A1 in this appendix. Summary logs of the borings are presented on Plates A4 through A16. Stratification lines, shown on individual logs, represent approximate boundaries between soil types; actual transitions may be either more gradual or more severe. Conditions depicted are for the date and location indicated only, and it should not necessarily be expected they are representative of conditions at other locations and times.

Monitor Well Installation and Development

Monitor wells were constructed in the drilled borings immediately after the boring was completed. Well designs were prepared by our field representative. Typical monitoring well construction is shown on Plate A2, Monitoring Well Construction. Design modifications included the length and locations of seals and screened interval for each well.

The general procedure for well construction follows. Minor departures from prescribed construction techniques were occasionally required. Refer to the well construction diagrams on the monitor well logs presented in Appendix A.

- PVC well screen and blank sections were screwed together at the ground surface and lowered through the hollow-stem auger. Well casing consisted of 2-inch-diameter, flush-thread coupled, Schedule 40 PVC pipe with 0.020-inch-wide milled slots for screened intervals. Bottom caps were also flush-thread coupled; top caps were slip coupled. PVC casing used to construct the wells was decontaminated by steam cleaning prior to installation. Screened interval was 10 feet long in all wells. Casing caps were vented.

- Well annulus was backfilled with sand, bentonite chips, and cement/bentonite grout, as described below. Depth to the top of backfill materials within the well was measured frequently with a weighted fiberglass tape to maintain strict control of well construction and prevent overfilling the hollow-stem auger.

- The hollow-stem auger was extracted as sand, bentonite, and grout were installed. The amount of sand backfill within the auger was kept to about 2 feet or less to prevent bridging or sand locking PVC casing to the auger.

- No. 10/20 sand was used to pack the boring within the screened interval. Sand was placed from land surface at a controlled rate to avoid bridging.

- Hydraulic seals were constructed of bentonite chips. Seals were placed 1 to 2 feet above the top of screen. The chips were activated with potable water prior to continuing construction.

- Lean mix concrete was used to backfill borings above the hydraulic seals. Concrete was placed in the borings from the ground surface.

- Flush-mounted monument casings with locking caps were installed over the well casing. Flush monuments were set in a lean mix concrete.

Well Development

Prior to well development, water levels were measured and recorded. Monitor wells were developed after all wells had been installed. Wells were developed by a combination of bailing and surging. Equipment used in well development activities was decontaminated between each well in accordance with procedures outlined in this appendix.

Surging was performed with a bailer slightly smaller in diameter than the well casing. The bailer was jerked up and down rapidly to force water in and out of the sand pack and loosen sediment within the formation and/or sand pack. Throughout this procedure, water and sediment were bailed from the well.

Generally more than five well casing volumes or approximately 20 gallons were typically removed to develop each well.

Groundwater Sampling

MW-1 through MW-3 were initially sampled on January 21, 1991 and resampled on March 28, 1991. MW-4 through MW-8 were sampled on March 28 and 29, 1991. Water quality sampling was conducted in accordance with EPA specifications and recommendations as presented in the "Ground Water Technical Enforcement Guidance Document" (EPA, 1985) and "Practical Guide for Ground Water Sampling" (Barcelona, et al, 1984). The following field sampling procedures were adhered to throughout the sampling program.

Initial Measurements: Water levels were measured in the wells prior to each sampling to the nearest 0.01 foot using a calibrated electric water level sounder.

Organic Vapor Meter

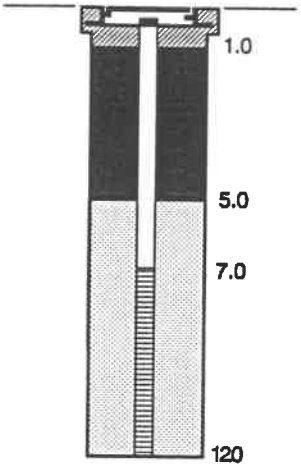
Concentrations of photoionizable organic gases (e.g. gasoline vapors) in the headspace of soil sample containers were determined in the field with an OVM Air Analyzer and recorded as ppm (parts per million) of petroleum product. The recorded concentrations are only an approximate value for organic gas concentrations in the soil pore spaces (soil gas). Actual values are within the range of $\pm$ 50 to 100%.

The recorded OVM values are not petroleum hydrocarbon concentrations in the soil. For coarse grained soils, such as gravels, the concentrations of petroleum products in the soil are typically 10 or more times less than soil gas concentrations. In finer grained soils, such as silts and clays, soil and soil gas concentrations are closer to each other in value.

Equipment 4-inch Hallow-Stem Auger

Land Surface Elevation 100.1 feet * Date 1/17/91

Well Construction Summary



Depth (feet)	Sample	OVM
0		
		124
5		36
		102
10		159
15		
20		
25		
30		
35		
40		

3" Asphalt Concrete.
BLACK BROWN SAND (SP) loose, moist; with occasional gravel, medium grained.

Boring terminated at 12 feet.

Groundwater encountered at 8.5 feet on 1/17/91 during drilling.

Boring converted to monitoring well on 1/17/91.

* Based on AGI temporary bench mark located at the southwest point of a ventilation condenser concrete support pad on the west side of the warehouse.

Top of casing elevation = 99.81 feet.

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Log of Monitoring Well 1

Scougal Rubber/Phase II Environmental Assessment
Seattle, Washington

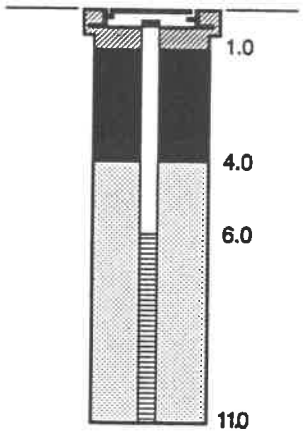
PLATE A4

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	JFL	GHS	23 Jan. 91		

Equipment 4-inch Hallow-Stem Auger

Land Surface Elevation 99.6 feet Date 1/17/91

Well Construction Summary



Depth (feet)	Sample	OVM
0		
		10
5		22
		74
10		2
15		
20		
25		
30		
35		
40		

3" Asphalt Concrete.

BLACK BROWN SAND (SP) loose, moist; with occasional gravel, medium grained.

Boring terminated at 11 feet.

Groundwater encountered at 6.5 feet on 1/17/91 during drilling.

Boring converted to monitoring well on 1/17/91.

Top of casing elevation = 99.33 feet.

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Log of Monitoring Well 2

Scougal Rubber/Phase II Environmental Assessment
Seattle, Washington

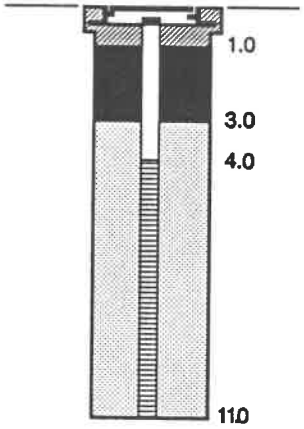
PLATE A5

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	JFL	GHS	23 Jan. 91		

Equipment 4-inch Hallow-Stem Auger

Land Surface Elevation 98.4 feet Date 1/17/91

Well Construction Summary



Depth (feet)	Sample	OVM	
0			12" Portland Cement Concrete.
		NR*	BLACK BROWN SAND (SP) loose, moist; occasional gravel, medium grained, petroleum odor.
5		NR	Some silt.
		NR	
10		NR	Becomes saturated, slight sheen, strong petroleum odor.
			Boring terminated at 11 feet.
			Groundwater encountered at 6.5 feet on 1/17/91.
15			Boring converted to monitoring well on 1/17/91.
20			
25			
30			
35			
40			

* NR = Not recorded

Top of casing elevation = 98.19 feet.

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Log of Monitoring Well 3

Scougal Rubber/Phase II Environmental Assessment
Seattle, Washington

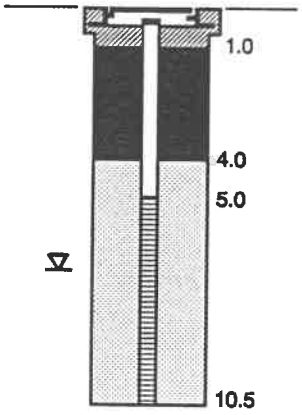
PLATE A6

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	JFL	GHS	23 Jan. 91		

Equipment Modified Mobile Drill B-61

Land Surface Elevation 98.5 feet Date 3/27/91

Well Construction Summary



Top of casing elevation = 98.15 feet.

Depth	Sample	Blows per Foot	OVM	
0				4" Asphalt Concrete.
		7	0	BROWN GRAY SAND (SP) loose, moist; medium grained.
5				
		6	0	Becomes dark gray, saturated.
10				Boring terminated at 10.5 feet on 3/27/91.
				Groundwater encountered at 7.0 feet during drilling.
				Boring converted to monitoring well on 3/27/91.
15				
20				
25				
30				
35				
40				

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Log of Monitoring Well 4

Scougal Rubber/Phase II Environmental Assessment
Seattle, Washington

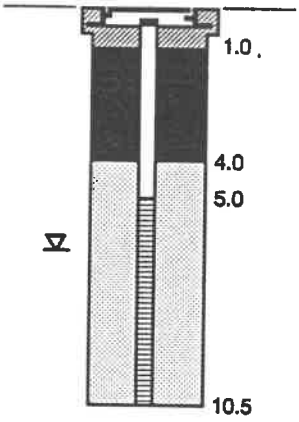
PLATE A7

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	JFL	GHJ	23 Jan. 91		

Equipment Modified Mobile DrillB-61

Land Surface Elevation 98.6 feet Date 3/27/91

Well Construction Summary



Top of casing elevation = 98.20 feet.

OVM	Blows per Foot	Depth	Sample	
		0		4" Asphalt Concrete.
0	7	5		BROWN GRAY SAND (SP) loose, moist; medium grained.
2	2	10		Becomes dark gray, saturated; with a trace of organics, sand is fine grained.
				Boring terminated at 10.5 feet on 3/27/91.
				Groundwater encountered at 6.5 feet during drilling.
				Boring converted to monitoring well on 3/27/91.
		15		
		20		
		25		
		30		
		35		
		40		

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Log of Monitoring Well 5

Scougal Rubber/Phase II Environmental Assessment
Seattle, Washington

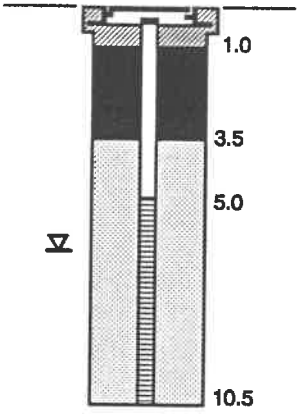
PLATE
A8

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	JFL	GHS	23 Jan. 91		

Equipment Modified Mobile Drill B-61

Land Surface Elevation 97.4 feet Date 3/27/91

Well Construction Summary



Top of casing elevation = 96.93 feet.

Depth	Sample	Blows per Foot	OVM	
0				2" Asphalt Concrete.
5		52	1	GRAY SAND (SP) very dense, moist; medium grained, with some gravel and silt.
10		3	0	GRAY SILTY SAND (SM) loose, saturated; fine grained, with a trace of organics.
15				Boring terminated at 10.5 feet on 3/27/91.
20				Groundwater encountered at 6.5 feet during drilling.
25				Boring converted to monitoring well on 3/27/91.
30				
35				
40				

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Log of Monitoring Well 6

Scougal Rubber/Phase II Environmental Assessment
Seattle, Washington

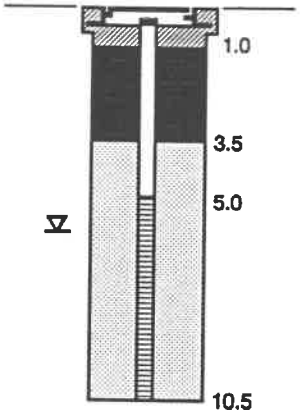
PLATE A9

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	JFL		23 Jan. 91		

Equipment Modified Mobile Drill B-61

Land Surface Elevation 95.9 feet Date 3/27/91

Well Construction Summary



Top of casing elevation = 95.26 feet.

Depth	Sample	Blows per Foot	OVM	
0				2" Asphalt Concrete.
		16	0	BROWN GRAY SAND (SP) medium dense, moist; medium grained.
5				
		4	0	Becomes gray, loose, saturated.
10				Boring terminated at 9.5 feet on 3/27/91.
				Groundwater encoutered at 6.0 feet during drilling.
15				Boring converted to monitoring well on 3/27/91.
20				
25				
30				
35				
40				

Applied Geotechnology Inc.
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Log of Monitoring Well 7

Scougal Rubber/Phase II Environmental Assessment
Seattle, Washington

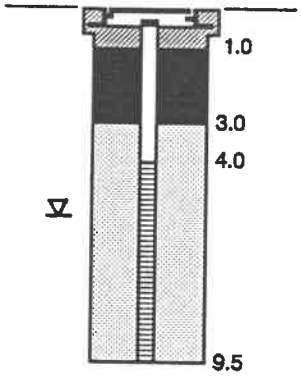
PLATE A10

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	JFL	GHS	23 Jan. 91		

Equipment Modified Mobil Drill B-61

Land Surface Elevation 95.8 feet Date 3/27/91

Well Construction Summary



Top of casing elevation 95.28 feet.

Depth	Sample	Blows per Foot	OVM	
0				BROWN SILTY SAND (SM) medium dense, moist; with some gravel.
		7	2	DARK GRAY SAND (SP) loose, moist.
5				
		6	0	Becomes saturated.
10				Boring terminated at 9.5 feet on 3/27/91.
				Groundwater encountered at 5.5 feet during drilling.
				Boring converted to monitoring well on 3/27/91.
15				
20				
25				
30				
35				
40				

Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

Log of Monitoring Well 8

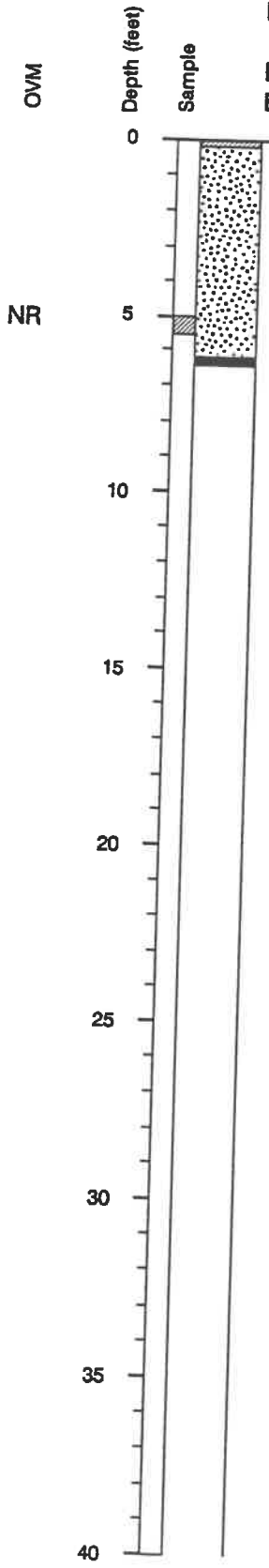
Scougal Rubber/Phase II Environmental Assessment
Seattle, Washington

PLATE A11

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	JFL	GHS	23 Jan. 91		

Equipment Hand Auger

Land Surface Elevation NR Date 1/16/91



2" Asphalt Concrete.

BROWN GRAVELLY SAND (SP) medium dense, moist; with some silt, medium grained.

Color change to black brown and becomes loose at approximately 3 feet.

Boring terminated at approximate depth of 6-1/2 feet.

Groundwater encountered at approximate depth of 6-1/2 feet on 1/16/91 while drilling.

Boring backfilled with bentonite and sealed with concrete on 1/16/91.

Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

Log of Boring HA-1

Scougal Rubber/Phase II Environmental Assessment
Seattle, Washington

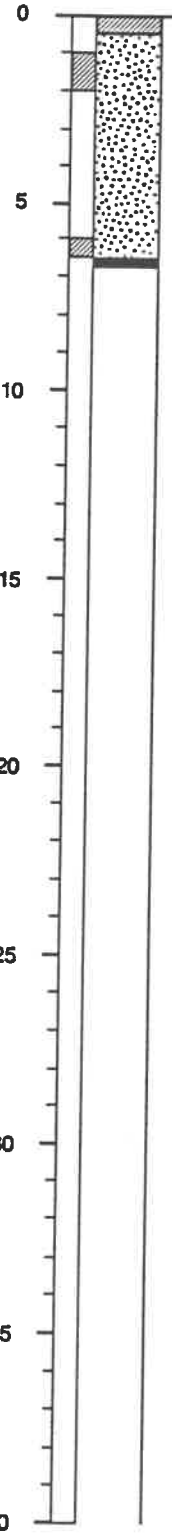
PLATE
A12

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	JFL	GHS	23 Jan. 91		

Equipment Hand Auger

Land Surface Elevation NR Date 1/16/91

OVM	Depth (feet)	Sample
	0	
NR		
NR	5	
	10	
	15	
	20	
	25	
	30	
	35	
	40	



6" Portland Cement Concrete.

BLACK BROWN SAND (SP) loose, moist; occasional gravel, medium grained.

Boring terminated at approximate depth of 6-1/2 feet.

Groundwater encountered at approximate depth of 6-1/2 feet on 1/18/91 while drilling.

Boring backfilled with bentonite and sealed with concrete on 1/18/91.

Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

Log of Boring HA-2

Scougal Rubber/Phase II Environmental Assessment
Seattle, Washington

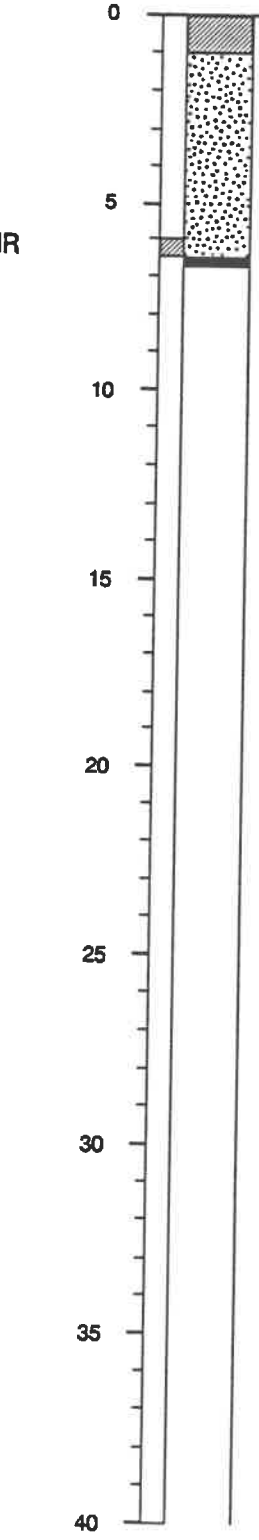
PLATE
A13

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	JFL	GHS	23 Jan. 91		

Equipment Hand Auger

Land Surface Elevation NR Date 1/18/91

OVM	Depth (feet)	Sample
	0	
NR	5	
	10	
	15	
	20	
	25	
	30	
	35	
	40	



12" Portland Cement Concrete.
BROWN GRAVELLY SAND (SP) medium dense, moist, medium grained.
Color change to black brown.

Boring terminated at approximate depth of 6-1/2 feet.

Groundwater encountered at approximate depth of 6-1/2 feet on 1/18/91 while drilling.

Boring backfilled with bentonite and sealed with concrete on 1/18/91.

Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

Log of Boring HA-3

Scougal Rubber/Phase II Environmental Assessment
Seattle, Washington

PLATE
A14

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	JFL	GHS	23 Jan. 91		

Equipment Hand Auger

Land Surface Elevation NR Date 1/18/91

OVM	Depth (feet)	Sample
	0	
NR	5	
	10	
	15	
	20	
	25	
	30	
	35	
	40	

6" Portland Cement Concrete.

BROWN SANDY GRAVEL (GP) medium dense, moist; fine grained.

BLACK BROWN SAND (SP) loose, moist; medium grained.

Boring terminated at approximate depth of 6-1/2 feet.

Groundwater encountered at approximate depth of 6-1/2 feet on 1/18/91 while drilling.

Boring backfilled with bentonite and sealed with concrete on 1/18/91.

Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

Log of Boring HA-4

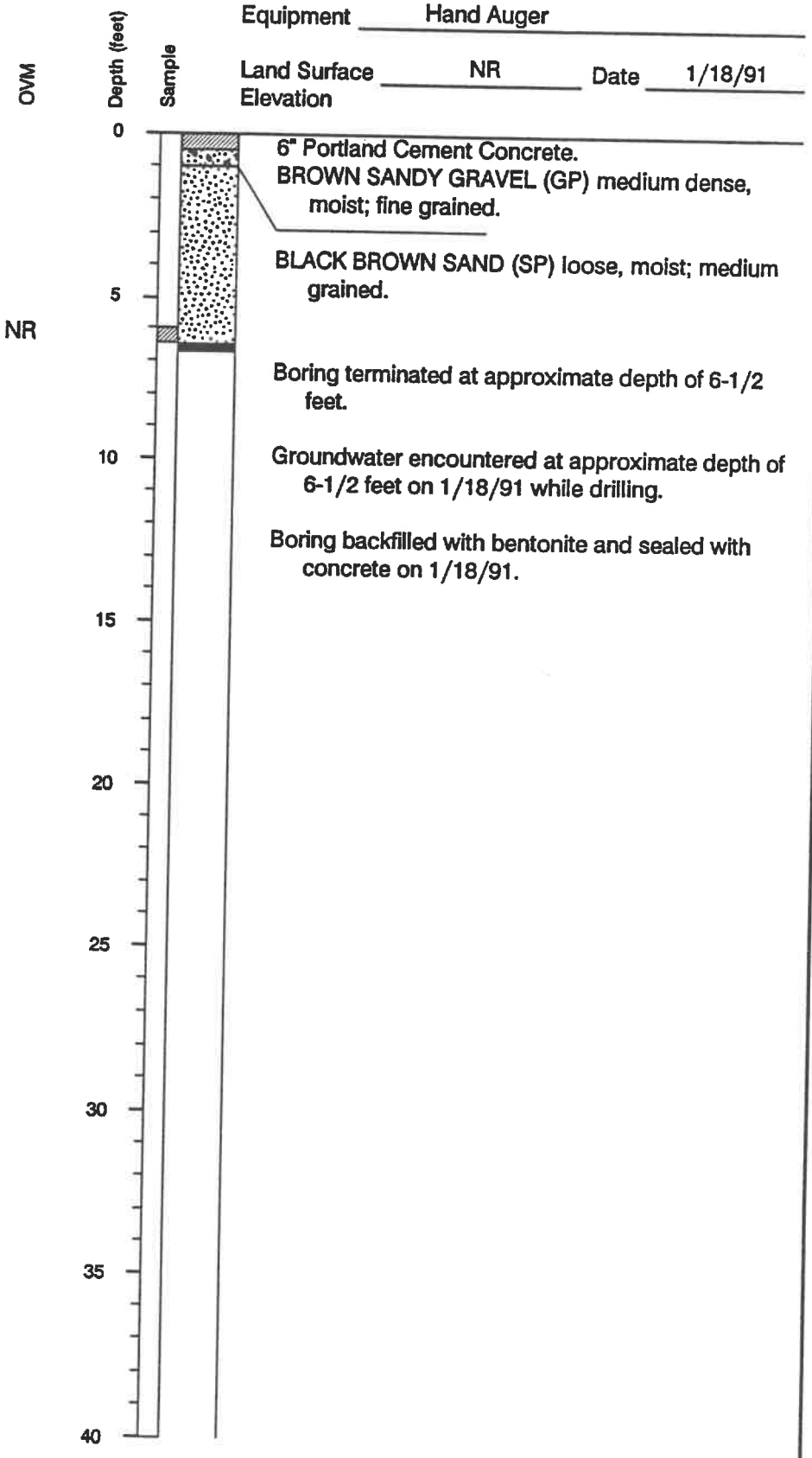
Scougal Rubber/Phase II Environmental Assessment
Seattle, Washington

PLATE A15

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	JFL	GHS	23 Jan. 91		

Equipment Hand Auger

Land Surface Elevation NR Date 1/18/91



Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

Log of Boring HA-5

Scougal Rubber/Phase II Environmental Assessment
Seattle, Washington

PLATE
A16

JOB NUMBER	DRAWN	APPROVED	DATE	REVISED	DATE
15,547.003	JFL	C H S	23 Jan. 91		

APPENDIX B

Laboratory Test Reports

QUALITY ASSURANCE REPORT

PROJECT AND SAMPLE INFORMATION

Project Name: Scougal Rubber/Suppl. Phase II
Project No.: 15,547.003
Lab Name: ATI-Renton
Lab Number: 9103-291
Sample No.: MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, Trip Blank
Matrix: Water

QUALITY ASSURANCE SUMMARY

All data is of known and acceptable quality except for the following:

EPA Method 8240: The methylene chloride detection in Sample MW-3 and the trip blank has been flagged (B) indicating laboratory contamination.

ANALYTICAL METHODS

Parameter	Technique	Method
Volatile Organic Compounds	GC/MS	EPA 8240
Fuel Hydrocarbons	GC/FID	EPA 8015 Modified

TIMELINESS

Parameter	Date Sampled	Date Extracted	Date Analyzed	Time Till Extraction	Time Till Analysis
Volatile Organic Compounds	03/28/91	N/A	04/09/91	N/A	12 (14)
	03/28/91	N/A	04/10/91	N/A	13 (14)
	03/29/91	N/A	04/10/91	N/A	12 (14)
Fuel Hydrocarbons	03/28/91	04/01/91	04/03/91	4 (14)	2 (40)
	03/29/91	04/01/91	04/02/91	3 (14)	1 (40)
	03/29/91	04/01/91	04/03/91	3 (14)	2 (40)

WDOE manual for UST site assesments is referenced for fuel hydrocarbon holding times.
Numbers in parentheses ( ) indicate recommended holding times for water.

All samples were extracted and analyzed within recommended holding times for water.

QUALITY ASSURANCE REPORT

PROJECT AND SAMPLE INFORMATION

Project Name: Scougal Rubber/Suppl. Phase II
Project No.: 15,547.003
Lab Name: ATI-Renton
Lab Number: 9103-291

FIELD QUALITY CONTROL SAMPLES

Field Duplicates: None collected.

Rinsate: None collected.

Trip Blank: Lab results for EPA Method 8240 report an 8 ppb methylene chloride detection in the trip blank. It is unlikely the methylene chloride detection is due to a field contamination. Groundwater samples MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, and MW-8 which accompanied the trip blank did not contain methylene chloride. Methylene chloride was detected in Sample MW-3 at a concentration less than 10 times detection limit. Sample MW-3 and the trip blank are flagged (B) indicating laboratory contamination.

LAB QUALITY CONTROL SAMPLES

Reagent Blank: EPA Method 8240: The reagent blank, analyzed on April 10, 1991, contained two non TCL compounds: tetradecane and limonene. The results are acceptable because these compounds were not detected in any of the samples.

EPA Method 8015: No contamination was present.

Matrix Spikes: EPA Method 8240: The matrix spike/matrix spike duplicate percent recoveries are within ATIs control limits. RPD values, however, are outside of ATIs control limits. The results are acceptable because all surrogate percent recoveries are within ATI control limits, and percent recoveries of a matrix spike/matrix spike duplicate from a different sample set are acceptable and within ATIs control limits.

The matrix spike/matrix spike duplicate percent recoveries and relative percent difference (RPD) are acceptable and within ATI control limits for EPA Method 8015 Modified.

Surrogates: The surrogate percent recoveries are acceptable and within ATI control limits for EPA Method 8240.

FUEL HYDROCARBON CHEMISTRY

The fuel hydrocarbon chromatogram result for Sample MW-3 has been compared to several hydrocarbon standards. This Sample MW-3 contains gasoline, a diesel fuel and a hydrocarbon heavier than diesel, possibly hydraulic fluid.

QUALITY ASSURANCE REPORT

PROJECT AND SAMPLE INFORMATION

Project Name: Scougal Rubber/Phase II
Project No.: 15,547.002
Lab Name: ATI-Renton
Lab Number: 9101-132
Sample No.: MW-1, MW-2, CT-1, HA-2, HA-4, MW-3, HA-5, HA-3, CB-1
Matrix: Soil

QUALITY ASSURANCE SUMMARY

All data is of known and acceptable quality except for the following:

EPA Method 8270: Sample CT-1 had a detection for bis(2-ethylhexyl)phthalate which is flagged (J) as estimated by the lab because it was detected below the detection limit.

ANALYTICAL METHODS

Parameter	Technique	Method
Semivolatile Compounds	GCMS	EPA 8270
Volatile Organic Compounds	GC/ELCD, GC/PID	EPA 8010/8020
Fuel Hydrocarbons	GC/FID	EPA 8015 Modified
Petroleum Hydrocarbons	IR	EPA 418.1
Moisture	Gravimetric	Method 7-2.2

TIMELINESS

Parameter	Date Sampled	Date Extracted	Date Analyzed	Time Till Extraction	Time Till Analysis
Semivolatile Compounds	01/18/91	01/30/91	01/31/91	12 (14)	1 (40)
Volatile Organic Compounds	01/17/91	01/22/91	01/25/91	5	3 (14)
	01/18/91	01/22/91	01/25/91	4	3 (14)
Fuel Hydrocarbons	01/17/91	01/22/91	01/22/91	5 (14)	0 (40)
	01/18/91	01/22/91	01/22/91	4	0 (40)
Petroleum Hydrocarbons	01/17/91	01/18/91	01/18/91	1	0 (28)
	01/18/91	01/24/91	01/24/91	6	0 (28)

Fuel Hydrocarbons - The CA-LUFT manual is referenced for the recommended holding times. Numbers in parentheses ( ) indicate recommended holding times for soil.

All samples were extracted and analyzed within recommended holding times for soil.

FIELD QUALITY CONTROL SAMPLES

Field Duplicates: None collected.
Rinsate: None collected.

LAB QUALITY CONTROL SAMPLES

Reagent Blank: EPA Method 8270: Several unknown tenatively identified compounds (TICs) were detected in the reagent blank. The results are acceptable because the unknown TICs were not detected in the sample. The lab verbally confirmed that on occasion similar types of unknown TICs are detected in reagent blanks and are usually due to contaminated glassware.

Matrix Spikes: The matrix spike/matrix spike duplicate and relative percent difference (RPD) are acceptable and within ATI control limit criteria for the following methods:

EPA 8010/8020
EPA 8015 Modified
EPA 418.1

EPA Method 8270: The percent recoveries for the matrix spike and matrix spike duplicate are high and outside of ATI control limits. Sample CT-1 was extracted as a medium level semivolatile because of the high concentrations of fuel hydrocarbons detected in the sample. The sample was diluted ten times due to hydrocarbon interferences and this has consequently raised the detection limits. Bis(2-ethylhexyl)phthalate was the only semivolatile organic compound detected (it was flagged as estimated because it was below the detection limit) in Sample CT-1. Sample CT-1 had high percent recoveries for six of the eleven matrix spiking compounds. The semivolatile results for Sample CT-1 are acceptable because no positive detections were seen due to high matrix spike recoveries, and the medium level semivolatile extraction is typically regarded as a screening analysis.

Surrogates: The surrogate percent recoveries are acceptable and within ATI control limit criteria for EPA Method 8010/8020.

EPA Method 8270: The surrogate 2-Fluorobiphenyl in Sample CT-1 is outside ATIs percent recovery acceptance limits. However the results are acceptable because the EPA allows one base/neutral and or one acid surrogate to be outside specification limits.

FUEL HYDROCARBON CHEMISTRY

The fuel hydrocarbon chromatogram results for Samples HA-4, MW-3, and CB-1 have been compared to several hydrocarbon standards. These Samples HA-4, and MW-3 contain a petroleum hydrocarbon heavier than diesel, possibly hydraulic fluid. Sample CB-1 is a carbon black sample and there appears to be a light solvent in the C7-C10 range.

Analytical Technologies, Inc. 560 Naches Avenue, S.W., Suite 101, Renton, WA 98055, (206) 228-8335

ATI I.D. # 9103-291

April 19, 1991

Applied Geotechnology, Inc.
P.O. Box 3885
Bellevue, WA 98009

Attention : Jim Schmidt

Project Number : 15,547.003

Project Name : Scougal Rubber/Suppl. Phase II

On March 29, 1991, Analytical Technologies, Inc., received nine water samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Donna M. McKinney
Senior Project Manager

Frederick W. Grothkopp
Technical Manager

FWG/elf

SAMPLE CROSS REFERENCE SHEET

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15,547.003
PROJECT NAME : SCOUGAL RUBBER/PHASE II

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9103-291-1	MW-1	03/28/91	WATER
9103-291-2	MW-2	03/28/91	WATER
9103-291-3	MW-3	03/28/91	WATER
9103-291-4	MW-4	03/28/91	WATER
9103-291-5	MW-5	03/29/91	WATER
9103-291-6	MW-6	03/29/91	WATER
9103-291-7	MW-7	03/29/91	WATER
9103-291-8	MW-8	03/29/91	WATER
9103-291-9	TRIP BLANK	N/A	WATER

----- TOTALS -----

MATRIX	# SAMPLES
WATER	9

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

ANALYTICAL SCHEDULE

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15,547.003
PROJECT NAME : SCOUGAL RUBBER/PHASE II

ANALYSIS	TECHNIQUE	REFERENCE	LAB
VOLATILE ORGANIC COMPOUNDS	GCMS	EPA 8240	R
FUEL HYDROCARBONS	GC/FID	EPA 8015 MODIFIED	R

R = ATI - Renton
SD = ATI - San Diego
T = ATI - Tempe
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

VOLATILE ORGANIC COMPOUNDS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,547.003	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 04/08/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND	RESULT
ACETONE	<10
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	98
TOLUENE-d8	94
BROMOFLUOROBENZENE	93

VOLATILE ORGANIC COMPOUNDS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,547.003	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 04/08/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD.

VOLATILE ORGANIC COMPOUNDS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,547.003	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 04/09/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND	RESULT
ACETONE	<10
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	96
TOLUENE-d8	96
BROMOFLUOROBENZENE	95

VOLATILE ORGANIC COMPOUNDS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,547.003	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 04/09/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD.

ATI I.D. # 9103-291

VOLATILE ORGANIC COMPOUNDS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,547.003	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 04/10/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND	RESULT
ACETONE	<10
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	108
TOLUENE-d8	107
BROMOFLUOROBENZENE	105

ATI I.D. # 9103-291

VOLATILE ORGANIC COMPOUNDS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,547.003	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 04/10/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION
TETRADECANE	1380	10
LIMONENE	1409	15

VOLATILE ORGANIC COMPOUNDS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/28/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-1	DATE ANALYZED	: 04/09/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND	RESULT
ACETONE	<10
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	98
TOLUENE-d8	93
BROMOFLUOROBENZENE	95

VOLATILE ORGANIC COMPOUNDS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/28/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-1	DATE ANALYZED	: 04/09/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD.

ATI I.D. # 9103-291-2

VOLATILE ORGANIC COMPOUNDS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/28/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-2	DATE ANALYZED	: 04/09/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND	RESULT
ACETONE	<10
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	109
TOLUENE-d8	100
BROMOFLUOROBENZENE	101

VOLATILE ORGANIC COMPOUNDS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/28/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-2	DATE ANALYZED	: 04/09/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD.

ATI I.D. # 9103-291-3

VOLATILE ORGANIC COMPOUNDS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/28/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-3	DATE ANALYZED	: 04/09/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 5

COMPOUND	RESULT
ACETONE	140
BENZENE	<5
BROMODICHLOROMETHANE	<5
BROMOFORM	<25
BROMOMETHANE	<50
2-BUTANONE (MEK)	<50
CARBON DISULFIDE	<5
CARBON TETRACHLORIDE	<5
CHLOROBENZENE	<5
CHLOROETHANE	<5
CHLOROFORM	<5
CHLOROMETHANE	<50
DIBROMOCHLOROMETHANE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHANE	<5
1,1-DICHLOROETHENE	<5
1,2-DICHLOROETHENE (TOTAL)	120
1,2-DICHLOROPROPANE	<5
CIS-1,3-DICHLOROPROPENE	<5
TRANS-1,3-DICHLOROPROPENE	<5
ETHYLBENZENE	180
2-HEXANONE (MBK)	<50
4-METHYL-2-PENTANONE (MIBK)	<50
METHYLENE CHLORIDE	30
STYRENE	<5
1,1,2,2-TETRACHLOROETHANE	<5
TETRACHLOROETHENE	<5
TOLUENE	280
1,1,1-TRICHLOROETHANE	<5
1,1,2-TRICHLOROETHANE	<5
TRICHLOROETHENE	53
VINYL ACETATE	<50
VINYL CHLORIDE	61
TOTAL XYLENES	580

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	105
TOLUENE-d8	103
BROMOFLUOROBENZENE	104

VOLATILE ORGANIC COMPOUNDS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/28/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-3	DATE ANALYZED	: 04/09/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 5

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION
C8-C14 BRANCHED HYDROCARBON	1246	370

ATI I.D. # 9103-291-4

VOLATILE ORGANIC COMPOUNDS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/28/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-4	DATE ANALYZED	: 04/10/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND	RESULT
ACETONE	<10
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	3
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	120
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	107
TOLUENE-d8	105
BROMOFLUOROBENZENE	102

VOLATILE ORGANIC COMPOUNDS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/28/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-4	DATE ANALYZED	: 04/10/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD.

ATI I.D. # 9103-291-5

VOLATILE ORGANIC COMPOUNDS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/29/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-5	DATE ANALYZED	: 04/10/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND	RESULT
ACETONE	30
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	2
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	110
TOLUENE-d8	108
BROMOFLUOROBENZENE	107

VOLATILE ORGANIC COMPOUNDS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/29/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-5	DATE ANALYZED	: 04/10/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD.

VOLATILE ORGANIC COMPOUNDS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/29/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-6	DATE ANALYZED	: 04/10/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND	RESULT
ACETONE	81
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	102
TOLUENE-d8	98
BROMOFLUOROBENZENE	97

VOLATILE ORGANIC COMPOUNDS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/29/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-6	DATE ANALYZED	: 04/10/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION
BUTANE	14	14

ATI I.D. # 9103-291-7

VOLATILE ORGANIC COMPOUNDS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/29/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-7	DATE ANALYZED	: 04/10/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND	RESULT
ACETONE	<10
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	99
TOLUENE-d8	99
BROMOFLUOROBENZENE	102

VOLATILE ORGANIC COMPOUNDS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/29/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-7	DATE ANALYZED	: 04/10/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD.

ATI I.D. # 9103-291-8

VOLATILE ORGANIC COMPOUNDS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/29/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-8	DATE ANALYZED	: 04/10/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND	RESULT
ACETONE	<10
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	102
TOLUENE-d8	102
BROMOFLUOROBENZENE	102

ATI I.D. # 9103-291-8

VOLATILE ORGANIC COMPOUNDS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/29/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-8	DATE ANALYZED	: 04/10/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD.

VOLATILE ORGANIC COMPOUNDS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: TRIP BLANK	DATE ANALYZED	: 04/10/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND	RESULT
ACETONE	<10
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	8
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	92
TOLUENE-d8	91
BROMOFLUOROBENZENE	91

VOLATILE ORGANIC COMPOUNDS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: TRIP BLANK	DATE ANALYZED	: 04/10/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD.

VOLATILE ORGANIC COMPOUNDS
QUALITY CONTROL DATA

CLIENT	: APPLIED GEOTECHNOLOGY INC.	SAMPLE I.D.	: 9103-233-8
PROJECT #	: 15,547.003	DATE ANALYZED	: 04/04/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	MATRIX	: WATER
EPA METHOD	: 8240	UNITS	: ug/L

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
1,1-DICHLOROETHENE	<1.0	50.0	49.9	100	48.2	96	3
TRICHLOROETHENE	<1.0	50.0	54.4	109	52.6	105	3
BENZENE	<1.0	50.0	56.0	112	53.4	107	5
TOLUENE	<1.0	50.0	51.8	104	51.0	102	2
CHLOROBENZENE	<1.0	50.0	53.3	107	52.1	104	2

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

VOLATILE ORGANIC COMPOUNDS
QUALITY CONTROL DATA

CLIENT	: APPLIED GEOTECHNOLOGY INC.	SAMPLE I.D.	: 9103-164-1
PROJECT #	: 15,547.003	DATE ANALYZED	: 04/09/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	MATRIX	: WATER
EPA METHOD	: 8240	UNITS	: ug/L

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
1,1-DICHLOROETHENE	<1.0	50.0	44.8	90	43.2	86	4
TRICHLOROETHENE	<1.0	50.0	54.2	108	50.1	100	8
BENZENE	4.6	50.0	58.3	107	55.2	101	5
TOLUENE	115	50.0	163	96	160	90	2
CHLOROBENZENE	<1.0	50.0	51.4	103	48.9	98	5

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

VOLATILE ORGANIC COMPOUNDS
QUALITY CONTROL DATA

CLIENT : APPLIED GEOTECHNOLOGY INC.
PROJECT # : 15,547.003
PROJECT NAME : SCOUGAL RUBBER/PHASE II
EPA METHOD : 8240

SAMPLE I.D. : 9103-291-8
DATE ANALYZED : 04/10/91
MATRIX : WATER
UNITS : ug/L

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
1,1-DICHLOROETHENE	<1.0	50.0	49.8	100	40.9	82	20*
TRICHLOROETHENE	<1.0	50.0	50.5	101	41.5	83	20*
BENZENE	<1.0	50.0	54.0	108	44.6	89	19*
TOLUENE	<1.0	50.0	50.1	100	42.3	85	17*
CHLOROBENZENE	<1.0	50.0	51.3	103	43.9	88	16*

* Out of limits.

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,547.003	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: 04/01/91
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 04/02/91
SAMPLE MATRIX	: WATER	UNITS	: mg/L
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<1
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	<1
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	DIESEL

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/28/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: 04/01/91
CLIENT I.D.	: MW-3	DATE ANALYZED	: 04/03/91
SAMPLE MATRIX	: WATER	UNITS	: mg/L
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	5
HYDROCARBON RANGE	C7 - C12
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	3
HYDROCARBON RANGE	C12 - C24
HYDROCARBONS QUANTITATED USING	DIESEL

BEST ESTIMATE OF FUEL TYPE - 2 PARTS GASOLINE : 1 PART DIESEL

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/29/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: 04/01/91
CLIENT I.D.	: MW-6	DATE ANALYZED	: 04/03/91
SAMPLE MATRIX	: WATER	UNITS	: mg/L
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<1
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	<1
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	DIESEL

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/29/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: 04/01/91
CLIENT I.D.	: MW-7	DATE ANALYZED	: 04/02/91
SAMPLE MATRIX	: WATER	UNITS	: mg/L
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<1
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	<1
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	DIESEL

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 03/29/91
PROJECT #	: 15,547.003	DATE RECEIVED	: 03/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: 04/01/91
CLIENT I.D.	: MW-8	DATE ANALYZED	: 04/03/91
SAMPLE MATRIX	: WATER	UNITS	: mg/L
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<1
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	<1
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	DIESEL

FUEL HYDROCARBONS
QUALITY CONTROL DATA

CLIENT	: APPLIED GEOTECHNOLOGY INC.	SAMPLE I.D.	: 9103-291-7
PROJECT #	: 15,547.003	DATE EXTRACTED	: 04/01/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE ANALYZED	: 04/02/91
EPA METHOD	: 8015 MODIFIED	MATRIX	: WATER
		UNITS	: mg/L

COMPOUND	SAMPLE RESULT	CONC SPIKED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % RECOVERY	RPD
FUEL HYDROCARBONS	<1	100	96	96	97	97	1

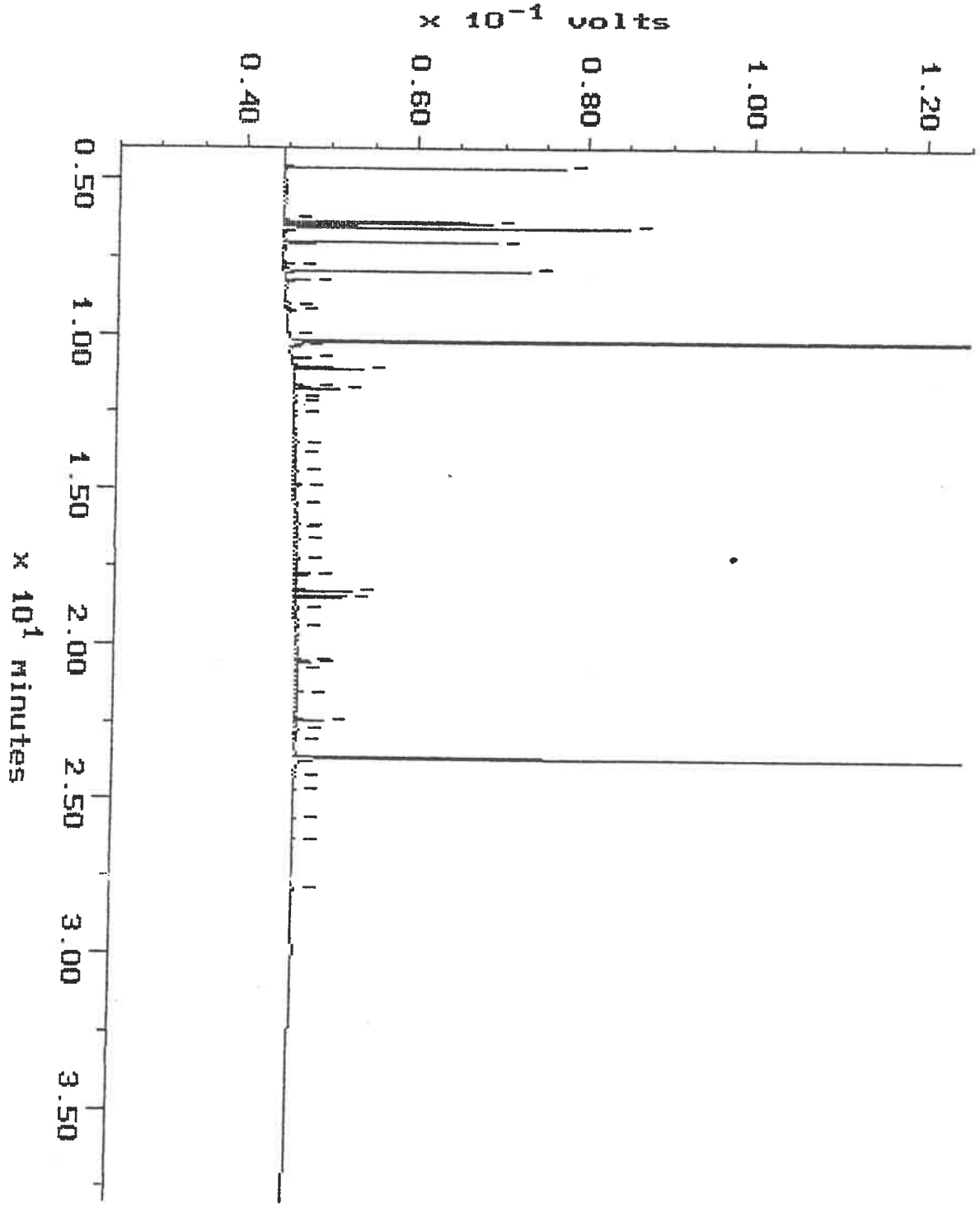
$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Sample: 9103-291-3
Acquired: 03-APR-91 3:15
Inj Vol: 1.00

Channel: DEMITRI
Method: M:\MAXDATA\SERGE-D\FUEL0402

Filename: 0402SD15
Operator: BRE



Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

PM: Jim Schmidt

Chain of Custody

9103-291

PAGE 1 OF 1

PROJECT NAME Seaboard Rubber Supply Phase II
PROJECT NUMBER 15,547.003
LOCATION 6239 Corson Ave
Seattle, WA 98108

SAMPLER (Signature) Robert A Reuter

SAMPLE ID.	DATE	TIME	MATRIX	LAB ID.	BASE/NEU/ACID CMPDS. GC/MS 625/8270	VOLATILE CMPDS. GC/MS 624/8240	PESTICIDES/PCBS 608/8080	POLYNUCLEAR AROMATIC 610/8310	PHENOLS 604/8040	HALOGENATED VOLATILES 601/8010	AROMATIC VOLATILES 602/8020	Gas/BTEX	8015 4/1/91			PRIORITY POLLUTANT METALS (13)	EP TOX METALS (8)	SDWA-INORGANICS PRIMARY/SECONDARY					NUMBER OF CONTAINERS
MW-1	3/28	1500	H_2O	-1		✓						✓										4
MW-2	3/28	1630		-2		✓						✓										4
MW-3*	3/28	1700		-3		✓						✓	X									4
MW-4	3/28	1520		-4		✓						✓										4
MW-5	3/29	1230		-5		✓						✓										4
MW-6	3/29	1415		-6		✓						✓	X									4
MW-7	3/29	1101		-7		✓						✓	X									4
MW-8	3/29	1320	↓	-8		✓						✓	X									4
Trip Blank	3/28			-9		✓																2

RELINQUISHED BY 1.	RELINQUISHED BY 2.	RELINQUISHED BY 3.
(Signature) Robert A Reuter (Time) 1615	(Signature) (Time)	(Signature) (Time)
(Printed Name) Robert A Reuter (Date) 3/29/91	(Printed Name) (Date)	(Printed Name) (Date)
(Company) AGI	(Company)	(Company)
RECEIVED BY 1.	**RECEIVED BY 2.**	**RECEIVED BY (LABORATORY) 3.**
(Signature) P. Nicholls (Time) 1615	(Signature) (Time)	(Signature) (Time)
(Printed Name) P. Nicholls (Date) 3/29/91	(Printed Name) (Date)	(Printed Name) (Date)
(Company) ATI	(Company)	(Company)

SHIPPING INFORMATION	
Total No. of Containers	25
Chain of Custody Seals	✓
Shipping I.D. No.	
Shipped Via:	Hand Delivered
Date Shipped	3/29/91

SAMPLE RECEIPT BY LAB	
Total No. of Containers	25
Chain of Custody Seals	Y
Rec'd Good Condition/Cold	Y
Conforms to Record	Y
Lab No.	9103-291
Date Received	3/29/91

SPECIAL INSTRUCTIONS/COMMENTS:
MW-3 Hot!! 1300ppb Toluene + Xylene

DISTRIBUTION: WHITE, CANARY - **ANALYTICAL LABORATORY** • PINK - **ORIGINATOR**

QUALITY ASSURANCE REPORT

PROJECT AND SAMPLE INFORMATION

Project Name: Scougal Rubber/Phase II
Project No.: 15,547.002
Lab Name: ATI-Renton
Lab Number: 9101-147
Sample No.: MW-1, MW-2, MW-3
Matrix: Water

QUALITY ASSURANCE SUMMARY

All data is of known and acceptable quality.

ANALYTICAL METHODS

Parameter	Technique	Method
Volatile Organic Compounds	GCMS	EPA 8240
Petroleum Hydrocarbons	IR	EPA 418.1

TIMELINESS

Parameter	Date Sampled	Date Extracted	Date Analyzed	Time Till Extraction	Time Till Analysis
Volatile Organic Compounds	01/21/91	N/A	01/29/91	N/A	8 (14)
	01/21/91	N/A	01/30/91	N/A	9 (14)
Petroleum Hydrocarbons	01/21/91	01/23/91	01/23/91	2	2 (28)

N/A - Not applicable
Numbers in parentheses ( ) indicate recommended holding times for water.

All samples were extracted and analyzed within recommended holding times for water.

FIELD QUALITY CONTROL SAMPLES

Field Duplicates: None collected.

Rinsate: None collected.

LAB QUALITY CONTROL SAMPLES

Reagent Blank: No contamination was present.

Matrix Spikes: The matrix spike/matrix spike duplicate and relative percent difference (RPD) were acceptable and fell within ATI control limit criteria for the following methods:

EPA 8240
EPA 418.1

Surrogates: The surrogate percent recovery is acceptable and within ATI control limit criteria for EPA Method 8240.

Analytical Technologies, Inc. 560 Naches Avenue, S.W., Suite 101, Renton, WA 98055, (206) 228-8335

ATI I.D. # 9101-132

February 8, 1991

Applied Geotechnology, Inc.
P.O. Box 3885
Bellevue, WA 98009

Attention : James Schmidt

Project Number : 15547.002

Project Name : Scougal Rubber

On January 18, 1991, Analytical Technologies, Inc., received nine soil samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Donna M. McKinney
Project Manager

FWG/tc

Frederick W. Grothkopp
Technical Manager

SAMPLE CROSS REFERENCE SHEET

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15547.002
PROJECT NAME : SCOUGAL RUBBER

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9101-132-1	MW-1	01/17/91	SOIL
9101-132-2	MW-2	01/17/91	SOIL
9101-132-3	CT-1	01/18/91	SOIL
9101-132-4	HA-2	01/18/91	SOIL
9101-132-5	HA-4	01/18/91	SOIL
9101-132-6	MW-3	01/17/91	SOIL
9101-132-7	HA-5	01/18/91	SOIL
9101-132-8	HA-3	01/18/91	SOIL
9101-132-9	CB-1	01/18/91	SOIL

----- TOTALS -----

MATRIX	# SAMPLES
SOIL	9

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

ANALYTICAL SCHEDULE

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15547.002
PROJECT NAME : SCOUGAL RUBBER

ANALYSIS	TECHNIQUE	REFERENCE	LAB
SEMI-VOLATILE COMPOUNDS	GCMS	EPA 8270	R
PURGEABLE HALOCARBONS	GC/ELCD	EPA 8010	R
PURGEABLE AROMATICS	GC/PID	EPA 8020	R
FUEL HYDROCARBONS	GC/FID	EPA 8015 MODIFIED	R
PETROLEUM HYDROCARBONS	IR	EPA 418.1	R
MOISTURE	GRAVIMETRIC	METHOD 7-2.2	R

R = ATI - Renton
SD = ATI - San Diego
T = ATI - Tempe
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

CASE NARRATIVE

CLIENT : APPLIED GEOTECHNOLOGY INC.
PROJECT # : 15547.002
PROJECT NAME : SCOUGAL RUBBER

CASE NARRATIVE : SEMI-VOLATILE COMPOUNDS

The 8270 analysis done on sample number 9101-132-3 was done by medium level extraction. 2.0 grams of sample were extracted in methylene chloride and spiked with appropriate surrogate solution to give the reported final percent recoveries. The matrix spike data was developed in the same manner. The final extract was run at a 1:10 dilution because of its dark appearance. The data showed a late eluting broad mass of hydrocarbons containing a wide variety of compound which may be indicative of a petroleum hydrocarbon mixture.

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15547.002	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/30/91
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 01/31/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270 MEDIUM LEVEL	DILUTION FACTOR	: 1

RESULTS BASED ON DRY WEIGHT

COMPOUND	RESULT
N-NITROSODIMETHYLAMINE	<26
PHENOL	<26
ANILINE	<26
BIS(2-CHLOROETHYL)ETHER	<26
2-CHLOROPHENOL	<26
1,3-DICHLOROBENZENE	<26
1,4-DICHLOROBENZENE	<26
BENZYL ALCOHOL	<26
1,2-DICHLOROBENZENE	<26
2-METHYLPHENOL	<26
BIS(2-CHLOROISOPROPYL)ETHER	<26
4-METHYLPHENOL	<26
N-NITROSO-DI-N-PROPYLAMINE	<26
HEXACHLOROETHANE	<26
NITROBENZENE	<26
ISOPHORONE	<26
2-NITROPHENOL	<26
2,4-DIMETHYLPHENOL	<26
BENZOIC ACID	<130
BIS(2-CHLOROETHOXY)METHANE	<26
2,4-DICHLOROPHENOL	<26
1,2,4-TRICHLOROBENZENE	<26
NAPHTHALENE	<26
4-CHLOROANILINE	<26
HEXACHLOROBUTADIENE	<26
4-CHLORO-3-METHYLPHENOL	<26
2-METHYLNAPHTHALENE	<26
HEXACHLOROCYCLOPENTADIENE	<26
2,4,6-TRICHLOROPHENOL	<26
2,4,5-TRICHLOROPHENOL	<130
2-CHLORONAPHTHALENE	<26
2-NITROANILINE	<130
DIMETHYLPHTHALATE	<26
ACENAPHTHYLENE	<26
3-NITROANILINE	<130
ACENAPHTHENE	<26
2,4-DINITROPHENOL	<130
4-NITROPHENOL	<130

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SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY (CONTINUED)

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15547.002	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/30/91
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 01/31/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270 MEDIUM LEVEL	DILUTION FACTOR	: 1

RESULTS BASED ON DRY WEIGHT

COMPOUND	RESULT
DIBENZOFURAN	<26
2,4-DINITROTOLUENE	<26
2,6-DINITROTOLUENE	<26
DIETHYLPHTHALATE	<26
4-CHLOROPHENYL-PHENYLETHER	<26
FLUORENE	<26
4-NITROANILINE	<130
4,6-DINITRO-2-METHYLPHENOL	<130
N-NITROSODIPHENYLAMINE	<26
4-BROMOPHENYL-PHENYLETHER	<26
HEXACHLOROBENZENE	<26
PENTACHLOROPHENOL	<130
PHENANTHRENE	<26
ANTHRACENE	<26
DI-N-BUTYLPHTHALATE	<26
FLUORANTHENE	<26
BENZIDINE	<260
PYRENE	<26
BUTYLBENZYLPHTHALATE	<26
3,3-DICHLOROBENZIDINE	<51
BENZO(a)ANTHRACENE	<26
BIS(2-ETHYLHEXYL)PHTHALATE	<26
CHRYSENE	<26
DI-N-OCTYLPHTHALATE	<26
BENZO(b)FLUORANTHENE	<26
BENZO(k)FLUORANTHENE	<26
BENZO(a)PYRENE	<26
INDENO(1,2,3-cd)PYRENE	<26
DIBENZ(a,h,)ANTHRACENE	<26
BENZO(g,h,i)PERYLENE	<26

SURROGATE PERCENT RECOVERIES

NITROBENZENE-d5	76
2-FLUOROBIPHENYL	99
TERPHENYL-d14	86
PHENOL-d6	95
2-FLUOROPHENOL	92
2,4,6-TRIBROMOPHENOL	78

SEMI-VOLATILE ORGANICS ANALYSIS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15547.002	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/30/91
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 01/31/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270 MEDIUM LEVEL	DILUTION FACTOR	: 1

RESULTS BASED ON DRY WEIGHT

COMPOUND	SCAN NUMBER	ESTIMATED CONCENTRATION
UNKNOWN	1790	220
UNKNOWN	1855	260
UNKNOWN	1926	280
UNKNOWN	2008	290
UNKNOWN	2107	250

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/18/91
PROJECT #	: 15547.002	DATE RECEIVED	: 01/18/91
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/30/91
CLIENT I.D.	: CT-1	DATE ANALYZED	: 01/31/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270 MEDIUM LEVEL	DILUTION FACTOR	: 10

RESULTS BASED ON DRY WEIGHT

COMPOUND	RESULT
N-NITROSODIMETHYLAMINE	<570
PHENOL	<570
ANILINE	<570
BIS(2-CHLOROETHYL)ETHER	<570
2-CHLOROPHENOL	<570
1,3-DICHLOROBENZENE	<570
1,4-DICHLOROBENZENE	<570
BENZYL ALCOHOL	<570
1,2-DICHLOROBENZENE	<570
2-METHYLPHENOL	<570
BIS(2-CHLOROISOPROPYL)ETHER	<570
4-METHYLPHENOL	<570
N-NITROSO-DI-N-PROPYLAMINE	<570
HEXACHLOROETHANE	<570
NITROBENZENE	<570
ISOPHORONE	<570
2-NITROPHENOL	<570
2,4-DIMETHYLPHENOL	<570
BENZOIC ACID	<2800
BIS(2-CHLOROETHOXY)METHANE	<570
2,4-DICHLOROPHENOL	<570
1,2,4-TRICHLOROBENZENE	<570
NAPHTHALENE	<570
4-CHLOROANILINE	<570
HEXACHLOROBUTADIENE	<570
4-CHLORO-3-METHYLPHENOL	<570
2-METHYLNAPHTHALENE	<570
HEXACHLOROCYCLOPENTADIENE	<570
2,4,6-TRICHLOROPHENOL	<570
2,4,5-TRICHLOROPHENOL	<2800
2-CHLORONAPHTHALENE	<570
2-NITROANILINE	<2800
DIMETHYLPHTHALATE	<570
ACENAPHTHYLENE	<570
3-NITROANILINE	<2800
ACENAPHTHENE	<570
2,4-DINITROPHENOL	<2800
4-NITROPHENOL	<2800

CONTINUED NEXT PAGE

SEMI-VOLATILE ORGANICS ANALYSIS
DATA SUMMARY (CONTINUED)

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/18/91
PROJECT #	: 15547.002	DATE RECEIVED	: 01/18/91
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/30/91
CLIENT I.D.	: CT-1	DATE ANALYZED	: 01/31/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270 MEDIUM LEVEL	DILUTION FACTOR	: 10

RESULTS BASED ON DRY WEIGHT

COMPOUND	RESULT
DIBENZOFURAN	<570
2,4-DINITROTOLUENE	<570
2,6-DINITROTOLUENE	<570
DIETHYLPHTHALATE	<570
4-CHLOROPHENYL-PHENYLETHER	<570
FLUORENE	<570
4-NITROANILINE	<2800
4,6-DINITRO-2-METHYLPHENOL	<2800
N-NITROSODIPHENYLAMINE	<570
4-BROMOPHENYL-PHENYLETHER	<570
HEXACHLOROBENZENE	<570
PENTACHLOROPHENOL	<2800
PHENANTHRENE	<570
ANTHRACENE	<570
DI-N-BUTYLPHTHALATE	<570
FLUORANTHENE	<570
BENZIDINE	<5700
PYRENE	<570
BUTYLBENZYLPHTHALATE	<570
3,3-DICHLOROBENZIDINE	<1100
BENZO(a)ANTHRACENE	<570
BIS(2-ETHYLHEXYL)PHTHALATE	240
CHRYSENE	<570
DI-N-OCTYLPHTHALATE	<570
BENZO(b)FLUORANTHENE	<570
BENZO(k)FLUORANTHENE	<570
BENZO(a)PYRENE	<570
INDENO(1,2,3-cd)PYRENE	<570
DIBENZ(a,h,)ANTHRACENE	<570
BENZO(g,h,i)PERYLENE	<570

SURROGATE PERCENT RECOVERIES

NITROBENZENE-d5	93	
2-FLUOROBIPHENYL	133	*
TERPHENYL-d14	104	
PHENOL-d6	112	
2-FLUOROPHENOL	108	
2,4,6-TRIBROMOPHENOL	88	

* Out of limits.

SEMI-VOLATILE ORGANICS ANALYSIS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/18/91
PROJECT #	: 15547.002	DATE RECEIVED	: 01/18/91
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/30/91
CLIENT I.D.	: CT-1	DATE ANALYZED	: 01/31/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8270 MEDIUM LEVEL	DILUTION FACTOR	: 10

RESULTS BASED ON DRY WEIGHT

COMPOUND	SCAN NUMBER	ESTIMATED CONCENTRATION
HYDROCARBON	1280	600
HYDROCARBON	1422	2,500

SEMI-VOLATILE ORGANIC QUALITY CONTROL DATA

CLIENT	: APPLIED GEOTECHNOLOGY INC.	SAMPLE I.D.	: 9101-132-3
PROJECT #	: 15547.002	DATE EXTRACTED	: 01/30/91
PROJECT NAME	: SCOUGAL RUBBER	DATE ANALYZED	: 01/31/91
EPA METHOD	: 8270 MEDIUM LEVEL	MATRIX	: SOIL
		UNITS	: mg/Kg

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
1,2,4-TRICHLOROBENZENE	<57	1000	1,150	115	1,250	125	8
ACENAPHTHENE	<57	1000	1,480	148	1,510	151	2
2,4-DINITROTOLUENE	<57	1000	729	73	773	77	6
PYRENE	<57	1000	1,100	110	1,200	120	9
N-NITROSO-DI-N-PROPYLAMINE	<57	1000	1,140	114	1,200	120	5
1,4-DICHLOROBENZENE	<57	1000	1,310	131	1,380	138	5
PENTACHLOROPHENOL	<280	2000	732	37	734	37	0
PHENOL	<57	2000	2,550	128	2,640	132	3
2-CHLOROPHENOL	<57	2000	2,440	122	2,520	126	3
4-CHLORO-3-METHYLPHENOL	<57	2000	2,410	120	2,450	123	2
4-NITROPHENOL	<280	2000	1,210	61	1,080	54	11

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

VOLATILE ORGANIC ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15547.002	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/22/91
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 01/22/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8010/8020	DILUTION FACTOR	: 1

RESULTS BASED ON DRY WEIGHT

COMPOUND	RESULT
BENZENE	<0.025
BROMODICHLOROMETHANE	<0.010
BROMOFORM	<0.010
BROMOMETHANE	<0.025
CARBON TETRACHLORIDE	<0.010
CHLOROBENZENE	<0.025
CHLOROETHANE	<0.025
CHLOROFORM	<0.010
CHLOROMETHANE	<0.10
DIBROMOCHLOROMETHANE	<0.010
1,2-DICHLOROBENZENE	<0.025
1,3-DICHLOROBENZENE	<0.025
1,4-DICHLOROBENZENE	<0.025
1,1-DICHLOROETHANE	<0.010
1,2-DICHLOROETHANE	<0.010
1,1-DICHLOROETHENE	<0.010
CIS-1,2,-DICHLOROETHENE	<0.010
TRANS-1,2-DICHLOROETHENE	<0.010
1,2-DICHLOROPROPANE	<0.010
CIS-1,3-DICHLOROPROPENE	<0.010
TRANS-1,3-DICHLOROPROPENE	<0.010
ETHYLBENZENE	<0.025
METHYLENE CHLORIDE	<0.10
1,1,2,2-TETRACHLOROETHANE	<0.010
TETRACHLOROETHENE	<0.010
TOLUENE	<0.025
1,1,1-TRICHLOROETHANE	<0.010
1,1,2-TRICHLOROETHANE	<0.010
TRICHLOROETHENE	<0.010
TRICHLOROFLUOROMETHANE	<0.025
VINYL CHLORIDE	<0.025
TOTAL XYLENES	<0.025

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE	96
BROMOFLUOROBENZENE	100

VOLATILE ORGANIC ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15547.002	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/25/91
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 01/25/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8010/8020	DILUTION FACTOR	: 1

RESULTS BASED ON DRY WEIGHT

COMPOUND	RESULT
BENZENE	<0.025
BROMODICHLOROMETHANE	<0.010
BROMOFORM	<0.010
BROMOMETHANE	<0.025
CARBON TETRACHLORIDE	<0.010
CHLOROBENZENE	<0.025
CHLOROETHANE	<0.025
CHLOROFORM	<0.010
CHLOROMETHANE	<0.10
DIBROMOCHLOROMETHANE	<0.010
1,2-DICHLOROBENZENE	<0.025
1,3-DICHLOROBENZENE	<0.025
1,4-DICHLOROBENZENE	<0.025
1,1-DICHLOROETHANE	<0.010
1,2-DICHLOROETHANE	<0.010
1,1-DICHLOROETHENE	<0.010
CIS-1,2,-DICHLOROETHENE	<0.010
TRANS-1,2-DICHLOROETHENE	<0.010
1,2-DICHLOROPROPANE	<0.010
CIS-1,3-DICHLOROPROPENE	<0.010
TRANS-1,3-DICHLOROPROPENE	<0.010
ETHYLBENZENE	<0.025
METHYLENE CHLORIDE	<0.10
1,1,2,2-TETRACHLOROETHANE	<0.010
TETRACHLOROETHENE	<0.010
TOLUENE	<0.025
1,1,1-TRICHLOROETHANE	<0.010
1,1,2-TRICHLOROETHANE	<0.010
TRICHLOROETHENE	<0.010
TRICHLOROFLUOROMETHANE	<0.025
VINYL CHLORIDE	<0.025
TOTAL XYLENES	<0.025

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE	84
BROMOFLUOROBENZENE	94

VOLATILE ORGANIC ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/18/91
PROJECT #	: 15547.002	DATE RECEIVED	: 01/18/91
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/22/91
CLIENT I.D.	: HA-2	DATE ANALYZED	: 01/25/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8010/8020	DILUTION FACTOR	: 1

RESULTS BASED ON DRY WEIGHT

COMPOUND	RESULT
BENZENE	<0.025
BROMODICHLOROMETHANE	<0.010
BROMOFORM	<0.010
BROMOMETHANE	<0.025
CARBON TETRACHLORIDE	<0.010
CHLOROBENZENE	<0.025
CHLOROETHANE	<0.025
CHLOROFORM	<0.010
CHLOROMETHANE	<0.10
DIBROMOCHLOROMETHANE	<0.010
1,2-DICHLOROBENZENE	<0.025
1,3-DICHLOROBENZENE	<0.025
1,4-DICHLOROBENZENE	<0.025
1,1-DICHLOROETHANE	<0.010
1,2-DICHLOROETHANE	<0.010
1,1-DICHLOROETHENE	<0.010
CIS-1,2,-DICHLOROETHENE	<0.010
TRANS-1,2-DICHLOROETHENE	<0.010
1,2-DICHLOROPROPANE	<0.010
CIS-1,3-DICHLOROPROPENE	<0.010
TRANS-1,3-DICHLOROPROPENE	<0.010
ETHYLBENZENE	<0.025
METHYLENE CHLORIDE	<0.10
1,1,2,2-TETRACHLOROETHANE	<0.010
TETRACHLOROETHENE	<0.010
TOLUENE	<0.025
1,1,1-TRICHLOROETHANE	<0.010
1,1,2-TRICHLOROETHANE	<0.010
TRICHLOROETHENE	0.16
TRICHLOROFLUOROMETHANE	<0.025
VINYL CHLORIDE	<0.025
TOTAL XYLENES	<0.025

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE	81
BROMOFLUOROBENZENE	91

VOLATILE ORGANIC ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/18/91
PROJECT #	: 15547.002	DATE RECEIVED	: 01/18/91
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/22/91
CLIENT I.D.	: HA-4	DATE ANALYZED	: 01/25/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8010/8020	DILUTION FACTOR	: 1

RESULTS BASED ON DRY WEIGHT

COMPOUND	RESULT
BENZENE	<0.025
BROMODICHLOROMETHANE	<0.010
BROMOFORM	<0.010
BROMOMETHANE	<0.025
CARBON TETRACHLORIDE	<0.010
CHLOROBENZENE	<0.025
CHLOROETHANE	<0.025
CHLOROFORM	<0.010
CHLOROMETHANE	<0.10
DIBROMOCHLOROMETHANE	<0.010
1,2-DICHLOROBENZENE	<0.025
1,3-DICHLOROBENZENE	<0.025
1,4-DICHLOROBENZENE	<0.025
1,1-DICHLOROETHANE	<0.010
1,2-DICHLOROETHANE	<0.010
1,1-DICHLOROETHENE	<0.010
CIS-1,2,-DICHLOROETHENE	<0.010
TRANS-1,2-DICHLOROETHENE	<0.010
1,2-DICHLOROPROPANE	<0.010
CIS-1,3-DICHLOROPROPENE	<0.010
TRANS-1,3-DICHLOROPROPENE	<0.010
ETHYLBENZENE	<0.025
METHYLENE CHLORIDE	<0.10
1,1,2,2-TETRACHLOROETHANE	<0.010
TETRACHLOROETHENE	<0.010
TOLUENE	<0.025
1,1,1-TRICHLOROETHANE	<0.010
1,1,2-TRICHLOROETHANE	<0.010
TRICHLOROETHENE	<0.010
TRICHLOROFLUOROMETHANE	<0.025
VINYL CHLORIDE	<0.025
TOTAL XYLENES	<0.025

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE	94
BROMOFLUOROBENZENE	101

VOLATILE ORGANIC ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/17/91
PROJECT #	: 15547.002	DATE RECEIVED	: 01/18/91
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/22/91
CLIENT I.D.	: MW-3	DATE ANALYZED	: 01/25/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8010/8020	DILUTION FACTOR	: 1

RESULTS BASED ON DRY WEIGHT

COMPOUND	RESULT
BENZENE	<0.025
BROMODICHLOROMETHANE	<0.010
BROMOFORM	<0.010
BROMOMETHANE	<0.025
CARBON TETRACHLORIDE	<0.010
CHLOROBENZENE	<0.025
CHLOROETHANE	<0.025
CHLOROFORM	<0.010
CHLOROMETHANE	<0.10
DIBROMOCHLOROMETHANE	<0.010
1,2-DICHLOROBENZENE	<0.025
1,3-DICHLOROBENZENE	<0.025
1,4-DICHLOROBENZENE	<0.025
1,1-DICHLOROETHANE	<0.010
1,2-DICHLOROETHANE	<0.010
1,1-DICHLOROETHENE	<0.010
CIS-1,2,-DICHLOROETHENE	0.012
TRANS-1,2-DICHLOROETHENE	<0.010
1,2-DICHLOROPROPANE	<0.010
CIS-1,3-DICHLOROPROPENE	<0.010
TRANS-1,3-DICHLOROPROPENE	<0.010
ETHYLBENZENE	<0.025
METHYLENE CHLORIDE	0.17
1,1,2,2-TETRACHLOROETHANE	<0.010
TETRACHLOROETHENE	0.16
TOLUENE	0.037
1,1,1-TRICHLOROETHANE	0.045
1,1,2-TRICHLOROETHANE	<0.010
TRICHLOROETHENE	0.77
TRICHLOROFLUOROMETHANE	<0.025
VINYL CHLORIDE	<0.025
TOTAL XYLENES	<0.025
SURROGATE PERCENT RECOVERIES	
BROMOCHLOROMETHANE	89
BROMOFLUOROBENZENE	93

VOLATILE ORGANIC ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/18/91
PROJECT #	: 15547.002	DATE RECEIVED	: 01/18/91
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/22/91
CLIENT I.D.	: HA-5	DATE ANALYZED	: 01/25/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8010/8020	DILUTION FACTOR	: 1

RESULTS BASED ON DRY WEIGHT

COMPOUND	RESULT
BENZENE	<0.025
BROMODICHLOROMETHANE	<0.010
BROMOFORM	<0.010
BROMOMETHANE	<0.025
CARBON TETRACHLORIDE	<0.010
CHLOROBENZENE	<0.025
CHLOROETHANE	<0.025
CHLOROFORM	<0.010
CHLOROMETHANE	<0.10
DIBROMOCHLOROMETHANE	<0.010
1,2-DICHLOROBENZENE	<0.025
1,3-DICHLOROBENZENE	<0.025
1,4-DICHLOROBENZENE	<0.025
1,1-DICHLOROETHANE	<0.010
1,2-DICHLOROETHANE	<0.010
1,1-DICHLOROETHENE	<0.010
CIS-1,2,-DICHLOROETHENE	<0.010
TRANS-1,2-DICHLOROETHENE	<0.010
1,2-DICHLOROPROPANE	<0.010
CIS-1,3-DICHLOROPROPENE	<0.010
TRANS-1,3-DICHLOROPROPENE	<0.010
ETHYLBENZENE	<0.025
METHYLENE CHLORIDE	<0.10
1,1,2,2-TETRACHLOROETHANE	<0.010
TETRACHLOROETHENE	<0.010
TOLUENE	<0.025
1,1,1-TRICHLOROETHANE	<0.010
1,1,2-TRICHLOROETHANE	<0.010
TRICHLOROETHENE	<0.010
TRICHLOROFLUOROMETHANE	<0.025
VINYL CHLORIDE	<0.025
TOTAL XYLENES	<0.025

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE	88
BROMOFLUOROBENZENE	101

VOLATILE ORGANIC ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/18/91
PROJECT #	: 15547.002	DATE RECEIVED	: 01/18/91
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/22/91
CLIENT I.D.	: HA-3	DATE ANALYZED	: 01/25/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8010/8020	DILUTION FACTOR	: 1

RESULTS BASED ON DRY WEIGHT

COMPOUND	RESULT
BENZENE	<0.025
BROMODICHLOROMETHANE	<0.010
BROMOFORM	<0.010
BROMOMETHANE	<0.025
CARBON TETRACHLORIDE	<0.010
CHLOROBENZENE	<0.025
CHLOROETHANE	<0.025
CHLOROFORM	<0.010
CHLOROMETHANE	<0.10
DIBROMOCHLOROMETHANE	<0.010
1,2-DICHLOROBENZENE	<0.025
1,3-DICHLOROBENZENE	<0.025
1,4-DICHLOROBENZENE	<0.025
1,1-DICHLOROETHANE	<0.010
1,2-DICHLOROETHANE	<0.010
1,1-DICHLOROETHENE	<0.010
CIS-1,2,-DICHLOROETHENE	<0.010
TRANS-1,2-DICHLOROETHENE	<0.010
1,2-DICHLOROPROPANE	<0.010
CIS-1,3-DICHLOROPROPENE	<0.010
TRANS-1,3-DICHLOROPROPENE	<0.010
ETHYLBENZENE	<0.025
METHYLENE CHLORIDE	<0.10
1,1,2,2-TETRACHLOROETHANE	<0.010
TETRACHLOROETHENE	0.013
TOLUENE	<0.025
1,1,1-TRICHLOROETHANE	<0.010
1,1,2-TRICHLOROETHANE	<0.010
TRICHLOROETHENE	0.18
TRICHLOROFLUOROMETHANE	<0.025
VINYL CHLORIDE	<0.025
TOTAL XYLENES	<0.025

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE	88
BROMOFLUOROBENZENE	98

VOLATILE ORGANIC
QUALITY CONTROL DATA

CLIENT	: APPLIED GEOTECHNOLOGY INC.	SAMPLE I.D.	: BLANK SPIKE
PROJECT #	: 15547.002	DATE EXTRACTED	: 01/22/91
PROJECT NAME	: SCOUGAL RUBBER	DATE ANALYZED	: 01/24/91
EPA METHOD	: 8010/8020	MATRIX	: SOIL
		UNITS	: mg/Kg

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	<0.025	0.60	0.528	88	N/A	N/A	N/A
CHLOROBENZENE	<0.025	0.60	0.587	98	N/A	N/A	N/A
1,1-DICHLOROETHENE	<0.010	0.20	0.164	82	N/A	N/A	N/A
TETRACHLOROETHENE	<0.010	0.20	0.187	94	N/A	N/A	N/A
TOLUENE	<0.025	0.60	0.592	99	N/A	N/A	N/A
TRICHLOROETHENE	<0.010	0.20	0.187	94	N/A	N/A	N/A
TOTAL XYLENES	<0.025	0.83	1.08	130	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15547.002	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/22/91
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 01/22/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	DIESEL

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/18/91
PROJECT #	: 15547.002	DATE RECEIVED	: 01/18/91
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/22/91
CLIENT I.D.	: HA-2	DATE ANALYZED	: 01/22/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	DIESEL

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/18/91
PROJECT #	: 15547.002	DATE RECEIVED	: 01/18/91
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/22/91
CLIENT I.D.	: HA-4	DATE ANALYZED	: 01/22/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	54 *
HYDROCARBON RANGE	C12 - C24
HYDROCARBONS QUANTITATED USING	DIESEL

* Sample chromatogram indicates the presence of a petroleum hydrocarbon-like contamination heavier than diesel.

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/17/91
PROJECT #	: 15547.002	DATE RECEIVED	: 01/18/91
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/22/91
CLIENT I.D.	: MW-3	DATE ANALYZED	: 01/22/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 10

COMPOUND	RESULT
FUEL HYDROCARBONS	<50
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	1,000 *
HYDROCARBON RANGE	C12 - C24
HYDROCARBONS QUANTITATED USING	DIESEL

* Sample chromatogram indicates the presence of a petroleum hydrocarbon-like contamination heavier than diesel.

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/18/91
PROJECT #	: 15547.002	DATE RECEIVED	: 01/18/91
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/22/91
CLIENT I.D.	: HA-5	DATE ANALYZED	: 01/22/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	DIESEL

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/18/91
PROJECT #	: 15547.002	DATE RECEIVED	: 01/18/91
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/22/91
CLIENT I.D.	: HA-3	DATE ANALYZED	: 01/22/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	DIESEL

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/18/91
PROJECT #	: 15547.002	DATE RECEIVED	: 01/18/91
PROJECT NAME	: SCOUGAL RUBBER	DATE EXTRACTED	: 01/22/91
CLIENT I.D.	: CB-1	DATE ANALYZED	: 01/22/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 2

COMPOUND	RESULT
FUEL HYDROCARBONS	58
HYDROCARBON RANGE	C7 - C12
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	<10
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	DIESEL

FUEL HYDROCARBONS
QUALITY CONTROL DATA

CLIENT	: APPLIED GEOTECHNOLOGY INC.	SAMPLE I.D.	: 9101-132-7
PROJECT #	: 15547.002	DATE EXTRACTED	: 01/22/91
PROJECT NAME	: SCOUGAL RUBBER	DATE ANALYZED	: 01/22/91
EPA METHOD	: 8015 MODIFIED	MATRIX	: SOIL
		UNITS	: mg/Kg

COMPOUND	SAMPLE RESULT	CONC SPIKED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % RECOVERY	RPD
FUEL HYDROCARBONS	<5	500	424	85	455	91	7

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

GENERAL CHEMISTRY

CLIENT : APPLIED GEOTECHNOLOGY INC.
PROJECT # : 15547.002
PROJECT NAME : SCOUGAL RUBBER
SAMPLE MATRIX : SOIL

ANALYSIS	DATE PREPARED	DATE ANALYZED
PETROLEUM HYDROCARBONS	01/18/91	01/18/91
PETROLEUM HYDROCARBONS	01/24/91	01/24/91
MOISTURE	-	01/22/91
MOISTURE	-	01/23/91

GENERAL CHEMISTRY RESULTS

CLIENT : APPLIED GEOTECHNOLOGY INC. MATRIX : SOIL
PROJECT # : 15547.002
PROJECT NAME : SCOUGAL RUBBER UNITS : mg/Kg

ATI I.D. #	CLIENT I.D.	PETROLEUM HYDROCARBONS
9101-132-3	CT-1	170,000
9101-132-6	MW-3	11,000
9101-132-9	CB-1	1,100
REAGENT BLANK (01/18/91)		<5
REAGENT BLANK (01/24/91)		<5

GENERAL CHEMISTRY RESULTS

CLIENT : APPLIED GEOTECHNOLOGY INC. MATRIX : SOIL
PROJECT # : 15547.002
PROJECT NAME : SCOUGAL RUBBER UNITS : %

ATI I.D. #	CLIENT I.D.	MOISTURE
9101-132-3	CT-1	55
9101-132-4	HA-2	6.1
9101-132-5	HA-4	6.4
9101-132-6	MW-3	7.3
9101-132-7	HA-5	8.0
9101-132-8	HA-3	7.9
9101-132-9	CB-1	<0.5

GENERAL CHEMISTRY QUALITY CONTROL

CLIENT : APPLIED GEOTECHNOLOGY INC. SAMPLE MATRIX : SOIL
PROJECT # : 15547.002
PROJECT NAME : SCOUGAL RUBBER

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
PETROLEUM HYDROCARBONS	mg/Kg	9101-131-3	270	240	12	681	460	89
PETROLEUM HYDROCARBONS	mg/Kg	9101-132-6	10,900	8,660	23	**	**	**
PETROLEUM HYDROCARBONS	mg/Kg	BLANK SPIKE	N/A	N/A	N/A	209	219	95
MOISTURE	%	9101-134-5	9.2	8.9	3	N/A	N/A	N/A
MOISTURE	%	9101-148-4	43	41	5	N/A	N/A	N/A

** Due to the necessary dilution of the sample, result was not attainable.

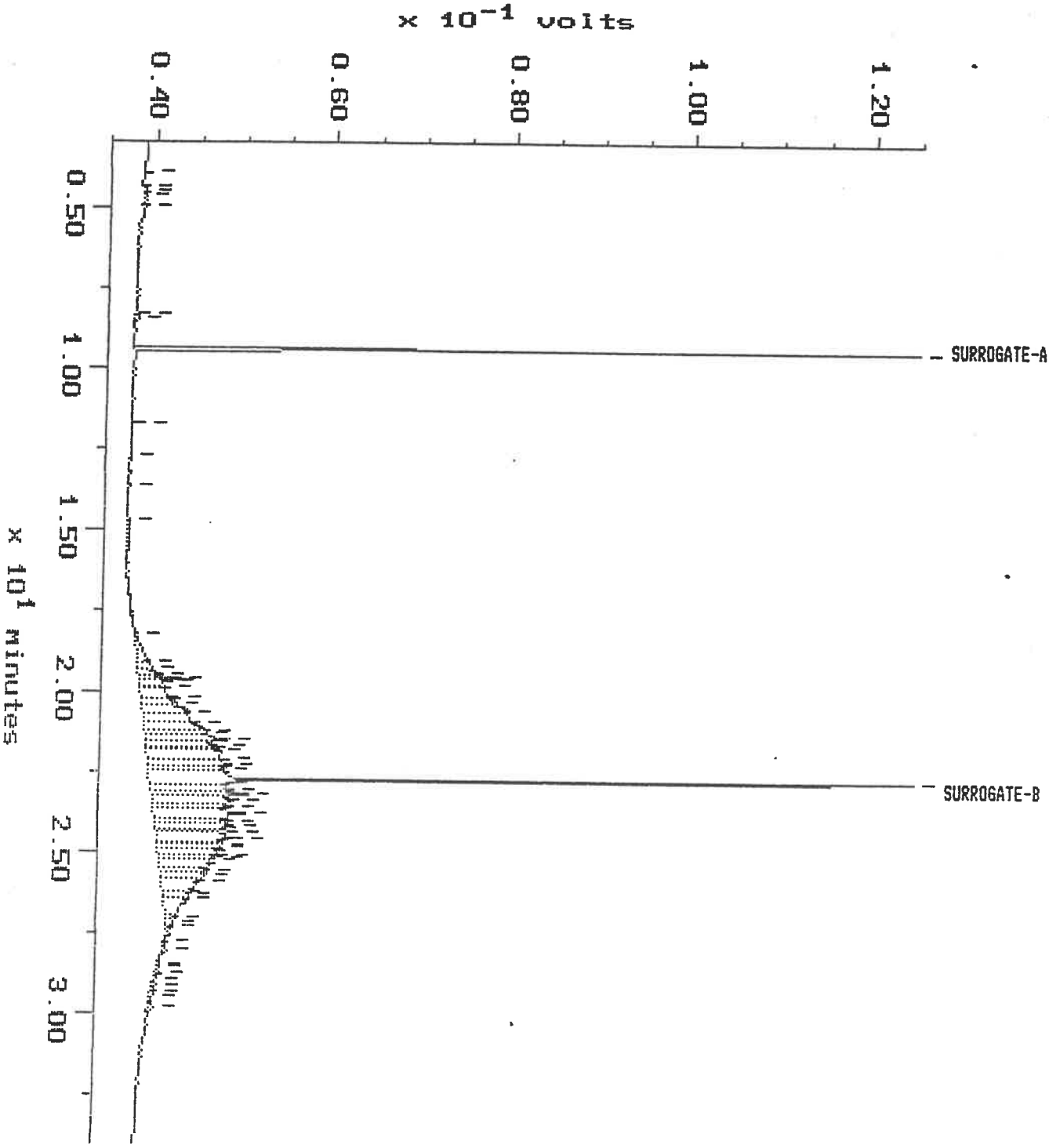
$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Sample: 9101-132-5
Acquired: 22-JAN-91 21:22
Inj Vol: 1.00

Channel: DEMITRI
Method: M:\MAXDATA\SERGE-D\FUEL0122

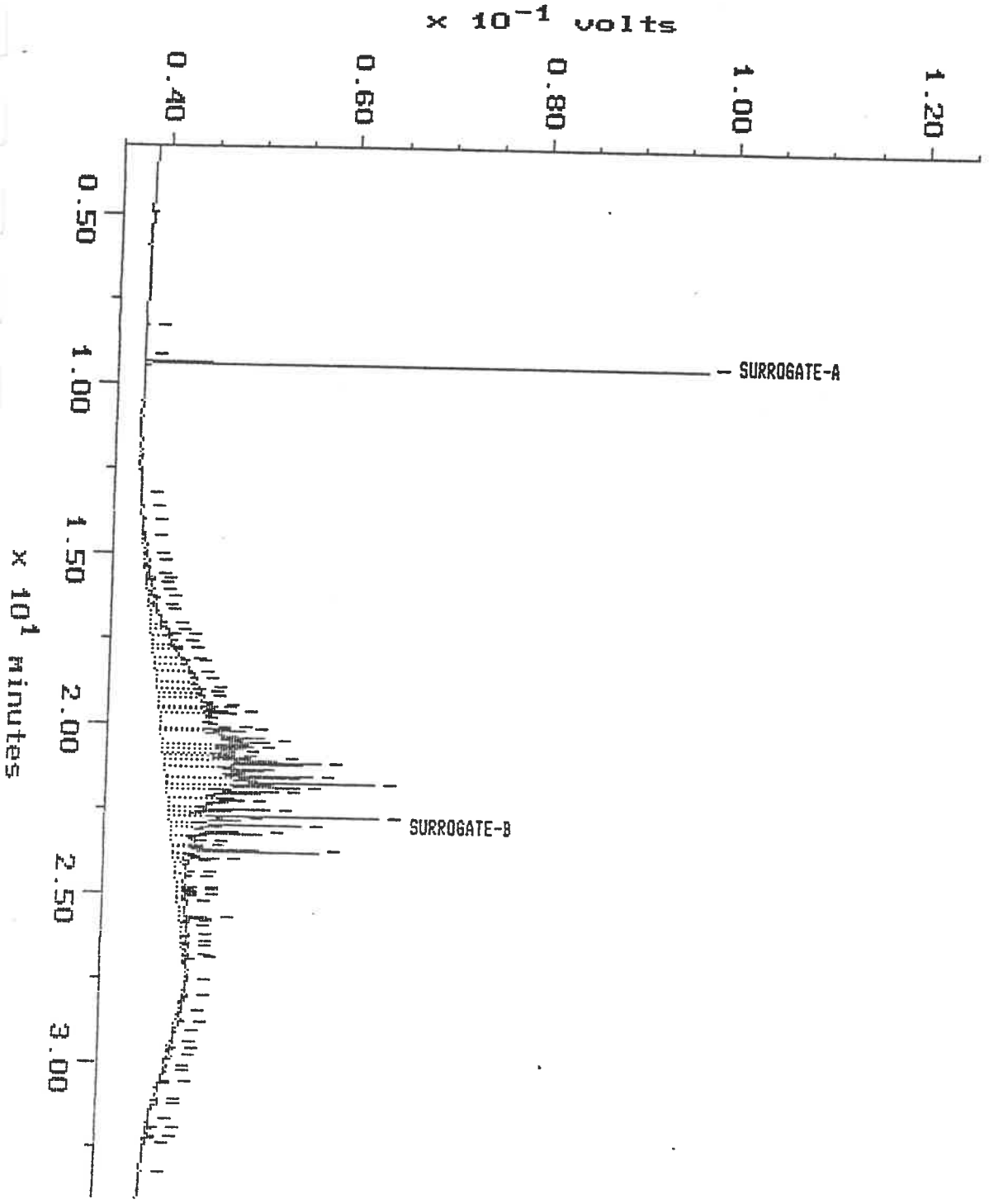
Filename: 0122SD15
Operator: BRE



Sample: 9101-132-6
Acquired: 22-JAN-91 23:39
Inj Vol: 1.00

Channel: DEMITRI
Method: M:\MAXDATA\SERGE-D\FUEL0122

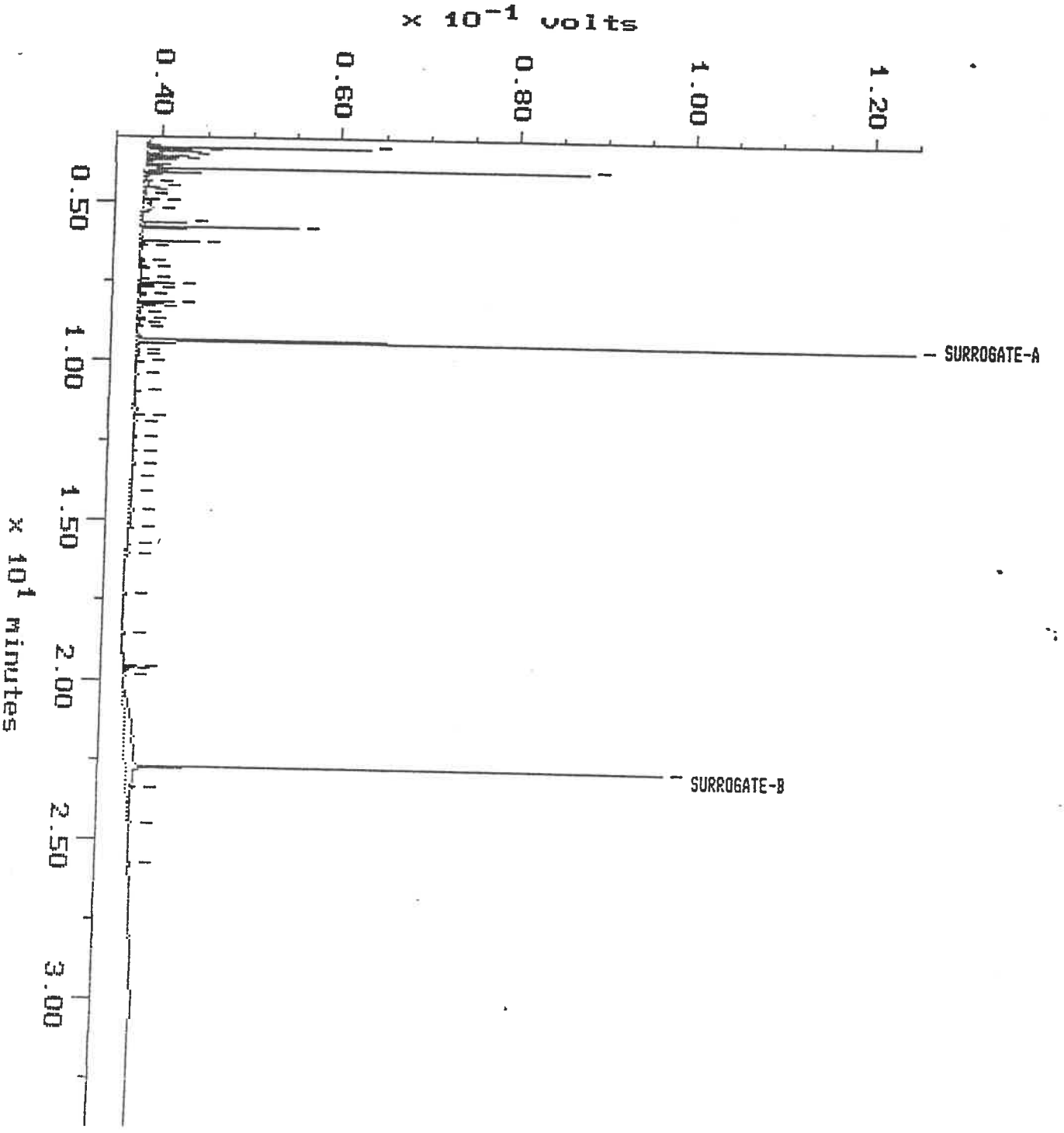
Filename: 0122SD18
Operator: BRE



Sample: 9101-132-9
Acquired: 22-JAN-91 22:53
Inj Vol: 1.00

Channel: DEMITRI
Method: M:\MAXDATA\SERGE-D\FUEL0122

Filename: 0122SD17
Operator: BRE



Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

Chain of Custody

PAGE 1 OF 1

PM: James Schmidt

PROJECT NAME: [illegible] Rubber
PROJECT NUMBER: 15 547.002
LOCATION: [illegible]

SAMPLER (Signature): [signature]

9101-132

ANALYSIS REQUEST

SAMPLE ID.	DATE	TIME	MATRIX	LAB ID.	BASE/NEU/ACID CMPDS. GC/MS 625/8270	VOLATILE CMPDS. GC/MS 624/8240	PESTICIDES/PCBS 608/8080	POLYNUCLEAR AROMATIC 610/8310	PHENOLS 604/8040	HALOGENATED VOLATILES 601/8010	AROMATIC VOLATILES 602/8020	8010/8020	418.1 TPH	8015 Fuel Modified			PRIORITY POLLUTANT METALS (13)	EP TOX METALS (8)	SDWA-INORGANICS PRIMARY/SECONDARY				[illegible]	NUMBER OF CONTAINERS
MW-1	1/17/91	9:45	Soil	-1																			X	1
MW-2	1/17/91	10:30	Soil	-2																			X	1
CT-1	1/18/91	12:30	Soil	-3	X (crossed out)								X (crossed out)										X	1
HA-2	1/18/91	14:45	Soil	-4								X		X										1
HA-4	1/18/91	16:00	Soil	-5								X		X										1
MW-3	1/17/91	15:00	Soil	-6								X	X (crossed out)	X										1
HA-5	1/18/91	11:30	Soil	-7								X		X										1
HA-3	1/18/91	15:15	Soil	-8								X		X										1
[illegible]-1	1/18/91	12:00	Soil	-9							X (crossed out)		X	X										1

Hot!

RELINQUISHED BY 1.	RELINQUISHED BY 2.	RELINQUISHED BY 3.
[signature] (Signature) 1800 (Time)	(Signature) (Time)	(Signature) (Time)
Robert Preuter 1/18/91 (Printed Name) (Date)	(Printed Name) (Date)	(Printed Name) (Date)
AGI (Company)	(Company)	(Company)

RECEIVED BY 1.	RECEIVED BY 2.	RECEIVED BY (LABORATORY) 3.
[signature] (Signature) 18:00 (Time)	(Signature) (Time)	(Signature) (Time)
T. Lindreth 1-18-91 (Printed Name) (Date)	(Printed Name) (Date)	(Printed Name) (Date)
ATI (Company)	(Company)	(Company)

SHIPPING INFORMATION

- Total No. of Containers: 9
- Chain of Custody Seals: N
- Shipping I.D. No.: —
- Shipped Via: Hand Delivered
- Date Shipped: 1/18/91

SAMPLE RECEIPT BY LAB

- Total No. of Containers: 9
- Chain of Custody Seals: NA
- Rec'd Good Condition/Cold: ✓/✓
- Conforms to Record: ✓
- Lab No.: 9101-132
- Date Received: 1/18/91

SPECIAL INSTRUCTIONS/COMMENTS:

8010/8020; halogenated and aromatic hydrocarbons
EPA Method 8015
ATI 400 [illegible]

DISTRIBUTION: WHITE, CANARY - ANALYTICAL LABORATORY • PINK - ORIGINATOR

QUALITY ASSURANCE REPORT

PROJECT AND SAMPLE INFORMATION

Project Name: Scougal Rubber/Phase II
Project No.: 15,547.002
Lab Name: ATI-Renton, ATI-San Diego
Lab Number: 9101-112
Sample No.: S-1, HA-1
Matrix: Soil

QUALITY ASSURANCE SUMMARY

All data is of known and acceptable quality.

ANALYTICAL METHODS

Parameter	Technique	Method	Lab
Volatile Organic Compounds	GC/ELCD, GC/PID	EPA 8010/8020	ATI-San Diego
Fuel Hydrocarbons	GC/FID	EPA 8015 Modified	ATI-Renton
Moisture	Gravimetric	Method 7-2.2	ATI-Renton

TIMELINESS

Parameter	Date Sampled	Date Extracted	Date Analyzed	Time Till Extraction	Time Till Analysis
Volatile Organic Compounds	01/16/91	01/20/91	01/23/91	4	3 (14)
Fuel Hydrocarbons	01/16/91	01/20/91	01/26/91	4	6
	01/16/91	01/18/91	01/19/91	2 (14)	1 (40)
	01/16/91	01/18/91	01/21/91	2	3

Fuel Hydrocarbons - The CA-LUFT manual is referenced for the recommended holding times. Numbers in parentheses ( ) indicate recommended holding times for soil.

All samples were extracted and analyzed within recommended holding times for soil.

FIELD QUALITY CONTROL SAMPLES

Field Duplicates: None collected.

Rinsate: None collected.

LAB QUALITY CONTROL SAMPLES

Reagent Blank: No contamination was present.

Matrix Spikes: The matrix spike/matrix spike duplicate and relative percent difference (RPD) are acceptable and within ATI control limit criteria for EPA Method 8015.

EPA 8010/8020: The toluene and trichloroethene percent recoveries are low and outside of ATI control limits. The sample had toluene and trichloroethene levels four times greater than the spike level. Because sample dilution was necessary the spike was not recovered. The data however is still acceptable because a blank spike was performed and the results are acceptable and within ATI control limit criteria.

Surrogates: The surrogate percent recoveries are acceptable and within ATI control limit criteria for EPA Method 8010/8020.

Project Name: Scougal Rubber/Phase II
Project No.: 15,547.002
Lab Number: 9101-112
Sample No.: S-1, HA-1

FUEL HYDROCARBON CHEMISTRY

The fuel hydrocarbon chromatogram for Sample S-1 shows a petroleum hydrocarbon heavier than diesel. Sample S-1 was initially quantified using a diesel standard. A requantification was requested using a heavier petroleum hydrocarbon standard. Sample S-1 was quantified using a hydraulic standard. It appears that the Sample S-1 contains a petroleum hyrocarbon possibly hydraulic fluid, or lubricating oil.

Analytical Technologies, Inc. 560 Naches Avenue, S.W., Suite 101, Renton, WA 98055, (206) 228-8335

ATI I.D. # 9101-147

February 7, 1991

Applied Geotechnology, Inc.
P.O. Box 3885
Bellevue, WA 98009

Attention : Jim Schmidt

Project Number : 15,547.002

Project Name : Scougal Rubber/Phase II

On January 22, 1991, Analytical Technologies, Inc., received three water samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Donna M. McKinney
Project Manager

FWG/elf

Frederick W. Grothkopp
Technical Manager

SAMPLE CROSS REFERENCE SHEET

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15,547.002
PROJECT NAME : SCOUGAL RUBBER/PHASE II

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9101-147-1	MW-1	01/21/91	WATER
9101-147-2	MW-2	01/21/91	WATER
9101-147-3	MW-3	01/21/91	WATER

----- TOTALS -----

MATRIX	# SAMPLES
WATER	3

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

ATI I.D. # 9101-147

ANALYTICAL SCHEDULE

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15,547.002
PROJECT NAME : SCOUGAL RUBBER/PHASE II

ANALYSIS	TECHNIQUE	REFERENCE	LAB
VOLATILE ORGANIC COMPOUNDS	GCMS	EPA 8240	R
PETROLEUM HYDROCARBONS	IR	EPA 418.1	R

R = ATI - Renton
SD = ATI - San Diego
T = ATI - Tempe
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

ATI I.D. # 9101-147

VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,547.002	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 01/29/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND	RESULT
ACETONE	<10
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	96
TOLUENE-d8	99
BROMOFLUOROBENZENE	102

VOLATILE ORGANICS ANALYSIS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,547.002	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 01/29/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD.

VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,547.002	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 01/30/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND	RESULT
ACETONE	<10
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	103
TOLUENE-d8	102
BROMOFLUOROBENZENE	104

VOLATILE ORGANICS ANALYSIS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,547.002	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 01/30/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD.

VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/21/91
PROJECT #	: 15,547.002	DATE RECEIVED	: 01/22/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-2	DATE ANALYZED	: 01/30/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND	RESULT
ACETONE	<10
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	104
TOLUENE-d8	100
BROMOFLUOROBENZENE	104

VOLATILE ORGANICS ANALYSIS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/21/91
PROJECT #	: 15,547.002	DATE RECEIVED	: 01/22/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-2	DATE ANALYZED	: 01/30/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD.

VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/21/91
PROJECT #	: 15,547.002	DATE RECEIVED	: 01/22/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-3	DATE ANALYZED	: 01/29/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 10

COMPOUND	RESULT
ACETONE	<100
BENZENE	<10
BROMODICHLOROMETHANE	<10
BROMOFORM	<50
BROMOMETHANE	<100
2-BUTANONE (MEK)	<100
CARBON DISULFIDE	<10
CARBON TETRACHLORIDE	<10
CHLOROBENZENE	<10
CHLOROETHANE	<10
CHLOROFORM	<10
CHLOROMETHANE	<100
DIBROMOCHLOROMETHANE	<10
1,1-DICHLOROETHANE	<10
1,2-DICHLOROETHANE	<10
1,1-DICHLOROETHENE	<10
1,2-DICHLOROETHENE (TOTAL)	190
1,2-DICHLOROPROPANE	<10
CIS-1,3-DICHLOROPROPENE	<10
TRANS-1,3-DICHLOROPROPENE	<10
ETHYLBENZENE	240
2-HEXANONE (MBK)	<100
4-METHYL-2-PENTANONE (MIBK)	<100
METHYLENE CHLORIDE	<50
STYRENE	<10
1,1,2,2-TETRACHLOROETHANE	<10
TETRACHLOROETHENE	<10
TOLUENE	1,300
1,1,1-TRICHLOROETHANE	<10
1,1,2-TRICHLOROETHANE	<10
TRICHLOROETHENE	50
VINYL ACETATE	<100
VINYL CHLORIDE	220
TOTAL XYLENES	1,200

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-d4	97
TOLUENE-d8	98
BROMOFLUOROBENZENE	101

VOLATILE ORGANICS ANALYSIS
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/21/91
PROJECT #	: 15,547.002	DATE RECEIVED	: 01/22/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-3	DATE ANALYZED	: 01/29/91
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 10

COMPOUND NAME	SCAN NUMBER	ESTIMATED CONCENTRATION
HYDROCARBON	1268	320

VOLATILE ORGANICS
QUALITY CONTROL DATA

CLIENT	: APPLIED GEOTECHNOLOGY INC.	SAMPLE I.D.	: 9101-158-2
PROJECT #	: 15,547.002	DATE ANALYZED	: 01/29/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	MATRIX	: WATER
EPA METHOD	: 8240	UNITS	: ug/L

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
1,1-DICHLOROETHENE	<1	50	39	78	37	73	6
TRICHLOROETHENE	<1	50	47	94	44	89	6
BENZENE	<1	50	48	97	47	93	4
TOLUENE	<1	50	51	101	48	96	6
CHLOROBENZENE	<1	50	53	106	51	102	5

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

GENERAL CHEMISTRY

CLIENT : APPLIED GEOTECHNOLOGY INC.
PROJECT # : 15,547.002
PROJECT NAME : SCOUGAL RUBBER/PHASE II
SAMPLE MATRIX : WATER

ANALYSIS	DATE PREPARED	DATE ANALYZED
PETROLEUM HYDROCARBONS	01/23/91	01/23/91

GENERAL CHEMISTRY RESULTS

CLIENT : APPLIED GEOTECHNOLOGY INC. MATRIX : WATER
PROJECT # : 15,547.002
PROJECT NAME : SCOUGAL RUBBER/PHASE II UNITS : mg/L

ATI I.D.#	CLIENT I.D.	PETROLEUM HYDROCARBONS
9101-147-1	MW-1	<1
9101-147-2	MW-2	<1
9101-147-3	MW-3	6
REAGENT BLANK	-	<1

Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

CHAIN OF COUSTODY

Date JANUARY 21, 1991 Page 1 of 1

Project Manager: JIM SCHMIDT
Project Name: Schuchart Rubber \ Phase II
Project Number: 15,547.002
Site Location: 6234 Corson St. S. Seattle, WA
Phone: 453-8383 Sampled By: E.P.Reuter

Laboratory Number: 9101-147

SAMPLE DISPOSAL INSTRUCTIONS

☑ Lab Disposal ☐ Return ☐ Pickup (will call)

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TCL Metals (23)	Priority Pollutant Metals (13)	EPTOX Metals (8) Total	EP TOX Metals (8) EP EXT	TCLP Metals	EP TOX Pesticides (5)	TCLP - Volatiles	8010 Halogenated Volatiles	8020 Aromatic Volatiles	BETX ONLY	8240 GCMS Volatiles	8270 GCMS BNA	8310 HPLC PNA	8080 OC Pesticides & PCB's	PCB's ONLY	8140 Phosphate Pesticides	8150 Herbicides	WDOE PAH/HH (WAC 173)	418.1 (TPH)	413.2 Grease & Oil	8015M Fuel Fingerprint	TOC 9060	TOX 9020	% Moisture	NUMBER OF CONTAINERS
MW-1	1/21/91	1532	WATER	-1											✓								✓						3
MW-2	1/21/91	1640	WATER	-2											✓								✓						3
MW-3	1/21/91	1725	WATER	-3											✓								✓						3

LAB INFORMATION

Lab Name: ATI
Lab Address: Renton, WA
Via: Picked Up Courier

SAMPLE RECEIPT

Total Number of Containers:	9
Chain of Custody Seals: Y/N/NA	NA
Intact?: Y/N/N	Y
Received in Good Cond./Cold:	Y

TAT: ☐ 24hr. ☐ 48 hr. ☐ 72 hr. ☐ 1 wk. ☑ 2 wks. (normal)

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH DATA

Special Instructions:
[illegible] Head Space
[illegible] (3) [illegible]

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: [signature] Time: 0820	Signature: Time:	Signature: Time:
Printed Name: Robert P. Reuter Date: 1/22/91	Printed Name: Date:	Printed Name: Date:
Company: AGI	Company:	Company:

RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: 3.
Signature: [signature] Time: 9:35	Signature: Time:	Signature: Time:
Printed Name: D. Thomas Date: 1-22-91	Printed Name: Date:	Printed Name: Date:
Company: ATI	Company:	Company:

AGI OFFICES: Bellevue: (206)453-8383 Tacoma: (206)383-4380 Portland: (503)222-2820

DISTRIBUTION: White, Canary = Analytical Laboratory; Pink = AGI Files

Analytical Technologies, Inc.

ATI I.D. # 9101-112-1

FUEL HYDROCARBONS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY, INC.	DATE SAMPLED	: 01/16/91
PROJECT #	: 15,547.002	DATE RECIEVED	: 01/17/91
PROJECT NAME	: SLOUGAL RUBBER\PHASE II	DATE EXTRACTED	: 01/24/91
CLIENT I.D.	: S-1	DATE ANALYZED	: 01/24/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 5

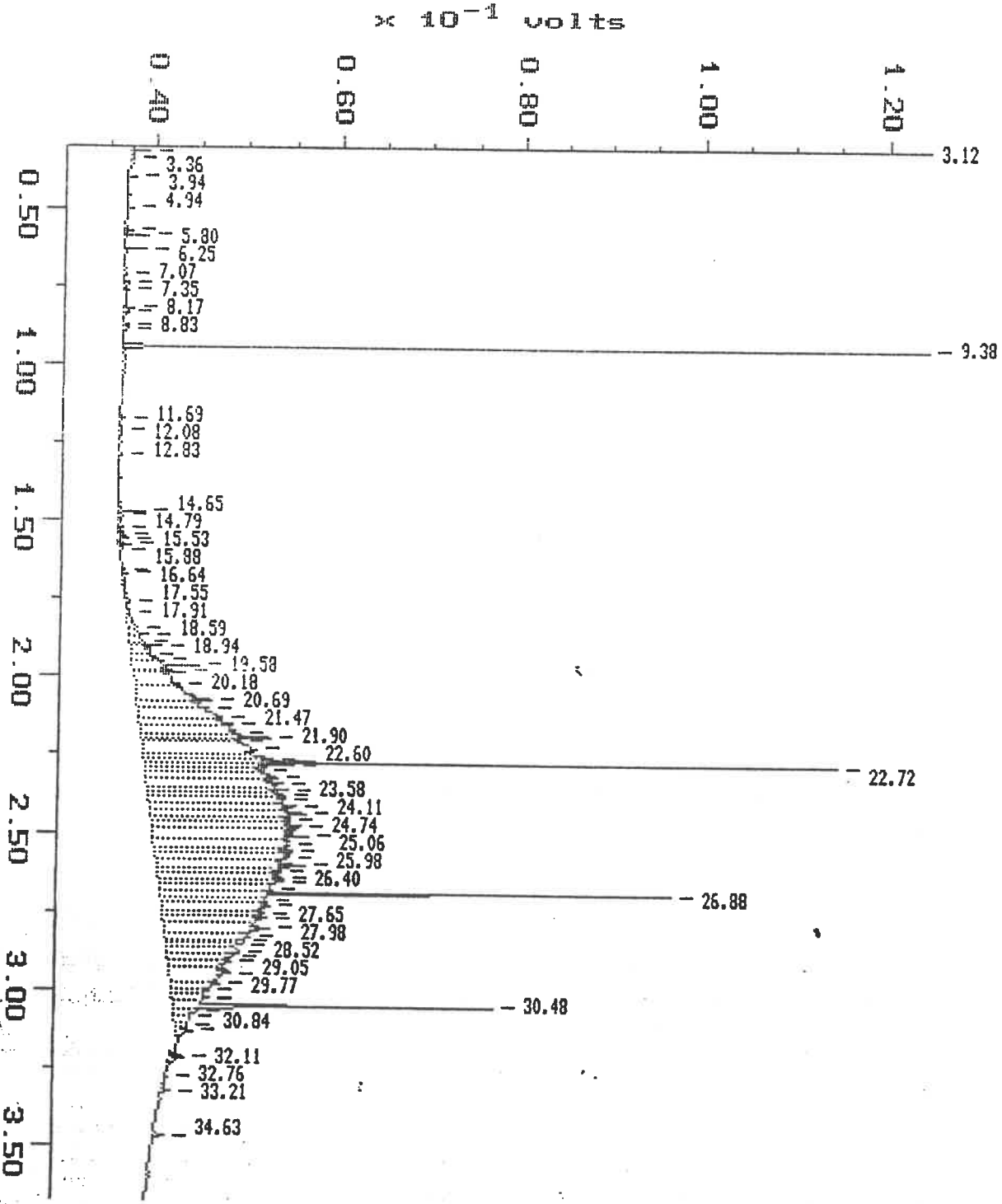
COMPOUNDS	RESULTS
FUEL HYDROCARBONS	<25
HYDROCARBON RANGE	-
HYDROCARBON QUANTITATION USING	GASOLINE
FUEL HYDROCARBONS	<25
HYDROCARBON RANGE	-
HYDROCARBON QUANTITATION USING	DIESEL
FUEL HYDROCARBONS	3300 *
HYDROCARBON RANGE	C16 to C32
HYDROCARBON QUANTITATION USING	HYDRAULIC FLUID

* Estimated

Sample: 9
Acquired: 24-JAN-91 16:00
Comments: 9101-112-1

Channel: DEMITRI
Method: M:\MAXDATA\SERGE-D\FUEL0124

Filename: 0124SD09
Operator: BRE



Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

9101-112

Chain of Custody

PAGE 1 OF 1

PROJECT NAME: Seagal Rubber / Phase II
PROJECT NUMBER: 15,547.002
LOCATION: Seattle, Washington
Contact: James Schmidt of AGI

SAMPLER (Signature): Robert P. Reutex

SAMPLE ID.	DATE	TIME	MATRIX	LAB ID.	BASE/NEU/ACID CMPDS. GC/MS 625/8270	VOLATILE CMPDS. GC/MS 624/8240	PESTICIDES/PCBS 608/8080	POLYNUCLEAR AROMATIC 610/8310	PHENOLS 604/8040	HALOGENATED VOLATILES 601/8010	AROMATIC VOLATILES 602/8020	8010/8020	8015 Mod. Ext.				PRIORITY POLLUTANT METALS (13)	EP TOX METALS (8)	SDWA-INORGANICS PRIMARY/SECONDARY					NUMBER OF CONTAINERS
S-1	1/16/91	1530	Soil	-1								✓	✓											1
HA-1	1/16/91	1500	Soil	-2								✓	✓											1

RELINQUISHED BY 1.	RELINQUISHED BY 2.	RELINQUISHED BY 3.
(Signature) Robert P. Reutex (Time) 0700	(Signature) (Time)	(Signature) (Time)
(Printed Name) Robert P Reutex (Date) 1/17/91	(Printed Name) (Date)	(Printed Name) (Date)
(Company) AGI	(Company)	(Company)
RECEIVED BY 1.	**RECEIVED BY 2.**	**RECEIVED BY (LABORATORY) 3.**
(Signature) DL Thomas (Time) 11:00	(Signature) (Time)	(Signature) (Time)
(Printed Name) DL THOMAS (Date) 1-17-91	(Printed Name) (Date)	(Printed Name) (Date)
(Company) ATL	(Company)	(Company)

SHIPPING INFORMATION	
Total No. of Containers	2
Chain of Custody Seals	YES
Shipping I.D. No.	—
Shipped Via:	Courier
Date Shipped	1/17/91

SAMPLE RECEIPT BY LAB	
Total No. of Containers	2
Chain of Custody Seals	Y
Rec'd Good Condition/Cold	Y/Y
Conforms to Record	Y
Lab No.	9101-112
Date Received	1/17/91

SPECIAL INSTRUCTIONS/COMMENTS:

SBC (O)

DISTRIBUTION: WHITE, CANARY - ANALYTICAL LABORATORY • PINK - ORIGINATOR

Analytical Technologies, Inc. 560 Naches Avenue, S.W., Suite 101, Renton, WA 98055, (206) 228-8335

ATI I.D. # 9101-112

February 5, 1991

Applied Geotechnology, Inc.
P.O. Box 3885
Bellevue, WA 98009

Attention : James Schmidt

Project Number : 15,547.002

Project Name : Scougal Rubber/Phase II

On January 17, 1991, Analytical Technologies, Inc., received two soil samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Donna M. McKinney
Project Manager

Frederick W. Grothkopp
Technical Manager

FWG/tc

SAMPLE CROSS REFERENCE SHEET

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15,547.002
PROJECT NAME : SCOUGAL RUBBER/PHASE II

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9101-112-1	S-1	01/16/91	SOIL
9101-112-2	HA-1	01/16/91	SOIL

----- TOTALS -----

MATRIX	# SAMPLES
SOIL	2

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

ANALYTICAL SCHEDULE

CLIENT : APPLIED GEOTECHNOLOGY, INC.
PROJECT # : 15,547.002
PROJECT NAME : SCOUGAL RUBBER/PHASE II

ANALYSIS	TECHNIQUE	REFERENCE	LAB
PURGEABLE HALOCARBONS	GC/ELCD	EPA 8010	SD
PURGEABLE AROMATICS	GC/PID	EPA 8020	SD
FUEL HYDROCARBONS	GC/FID	EPA 8015 MODIFIED	R
MOISTURE	GRAVIMETRIC	METHOD 7-2.2	R

R = ATI - Renton
SD = ATI - San Diego
T = ATI - Tempe
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

VOLATILE ORGANIC ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,547.002	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: 01/20/91
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 01/23/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8010/8020	DILUTION FACTOR	: 1

RESULTS BASED ON DRY WEIGHT

COMPOUND	RESULT
BENZENE	<0.025
BROMODICHLOROMETHANE	<0.010
BROMOFORM	<0.010
BROMOMETHANE	<0.025
CARBON TETRACHLORIDE	<0.010
CHLOROBENZENE	<0.025
CHLOROETHANE	<0.025
CHLOROFORM	<0.010
CHLOROMETHANE	<0.10
DIBROMOCHLOROMETHANE	<0.010
1,2-DICHLOROBENZENE	<0.025
1,3-DICHLOROBENZENE	<0.025
1,4-DICHLOROBENZENE	<0.025
1,1-DICHLOROETHANE	<0.010
1,2-DICHLOROETHANE	<0.010
1,1-DICHLOROETHENE	<0.010
CIS-1,2,-DICHLOROETHENE	<0.010
TRANS-1,2-DICHLOROETHENE	<0.010
1,2-DICHLOROPROPANE	<0.010
CIS-1,3-DICHLOROPROPENE	<0.010
TRANS-1,3-DICHLOROPROPENE	<0.010
ETHYLBENZENE	<0.025
METHYLENE CHLORIDE	<0.10
1,1,2,2-TETRACHLOROETHANE	<0.010
TETRACHLOROETHENE	<0.010
TOLUENE	<0.025
1,1,1-TRICHLOROETHANE	<0.010
1,1,2-TRICHLOROETHANE	<0.010
TRICHLOROETHENE	<0.010
TRICHLOROFLUOROMETHANE	<0.10
VINYL CHLORIDE	<0.010
TOTAL XYLENES	<0.025

SURROGATE PERCENT RECOVERIES

BROMOFLUOROBENZENE (ELCD)	81
BROMOFLUOROBENZENE (PID)	88

VOLATILE ORGANIC ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/16/91
PROJECT #	: 15,547.002	DATE RECEIVED	: 01/17/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: 01/20/91
CLIENT I.D.	: S-1	DATE ANALYZED	: 01/23/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8010/8020	DILUTION FACTOR	: 8

RESULTS BASED ON DRY WEIGHT

COMPOUND	RESULT
BENZENE	<0.20
BROMODICHLOROMETHANE	<0.080
BROMOFORM	<0.080
BROMOMETHANE	<0.20
CARBON TETRACHLORIDE	<0.080
CHLOROBENZENE	<0.20
CHLOROETHANE	<0.20
CHLOROFORM	<0.080
CHLOROMETHANE	<0.80
DIBROMOCHLOROMETHANE	<0.080
1,2-DICHLOROBENZENE	<0.20
1,3-DICHLOROBENZENE	<0.20
1,4-DICHLOROBENZENE	<0.20
1,1-DICHLOROETHANE	<0.080
1,2-DICHLOROETHANE	<0.080
1,1-DICHLOROETHENE	<0.080
CIS-1,2,-DICHLOROETHENE	<0.080
TRANS-1,2-DICHLOROETHENE	<0.080
1,2-DICHLOROPROPANE	<0.080
CIS-1,3-DICHLOROPROPENE	<0.080
TRANS-1,3-DICHLOROPROPENE	<0.080
ETHYLBENZENE	1.1
METHYLENE CHLORIDE	<0.80
1,1,2,2-TETRACHLOROETHANE	<0.080
TETRACHLOROETHENE	0.26
TOLUENE	4.0
1,1,1-TRICHLOROETHANE	<0.080
1,1,2-TRICHLOROETHANE	<0.080
TRICHLOROETHENE	4.2
TRICHLOROFLUOROMETHANE	<0.80
VINYL CHLORIDE	<0.080
TOTAL XYLENES	8.1

SURROGATE PERCENT RECOVERIES

BROMOFLUOROBENZENE (ELCD)	117
BROMOFLUOROBENZENE (PID)	118

VOLATILE ORGANIC ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/16/91
PROJECT #	: 15,547.002	DATE RECEIVED	: 01/17/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: 01/20/91
CLIENT I.D.	: HA-1	DATE ANALYZED	: 01/26/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8010/8020	DILUTION FACTOR	: 1

RESULTS BASED ON DRY WEIGHT

COMPOUND	RESULT
BENZENE	<0.025
BROMODICHLOROMETHANE	<0.010
BROMOFORM	<0.010
BROMOMETHANE	<0.025
CARBON TETRACHLORIDE	<0.010
CHLOROBENZENE	<0.025
CHLOROETHANE	<0.025
CHLOROFORM	<0.010
CHLOROMETHANE	<0.10
DIBROMOCHLOROMETHANE	<0.010
1,2-DICHLOROBENZENE	<0.025
1,3-DICHLOROBENZENE	<0.025
1,4-DICHLOROBENZENE	<0.025
1,1-DICHLOROETHANE	<0.010
1,2-DICHLOROETHANE	<0.010
1,1-DICHLOROETHENE	<0.010
CIS-1,2,-DICHLOROETHENE	<0.010
TRANS-1,2-DICHLOROETHENE	<0.010
1,2-DICHLOROPROPANE	<0.010
CIS-1,3-DICHLOROPROPENE	<0.010
TRANS-1,3-DICHLOROPROPENE	<0.010
ETHYLBENZENE	<0.025
METHYLENE CHLORIDE	<0.10
1,1,2,2-TETRACHLOROETHANE	<0.010
TETRACHLOROETHENE	<0.010
TOLUENE	<0.025
1,1,1-TRICHLOROETHANE	<0.010
1,1,2-TRICHLOROETHANE	<0.010
TRICHLOROETHENE	0.18
TRICHLOROFLUOROMETHANE	<0.10
VINYL CHLORIDE	<0.010
TOTAL XYLENES	<0.025

SURROGATE PERCENT RECOVERIES

BROMOFLUOROBENZENE (ELCD)	82
BROMOFLUOROBENZENE (PID)	84

VOLATILE ORGANIC
QUALITY CONTROL DATA

CLIENT	: APPLIED GEOTECHNOLOGY INC.	SAMPLE I.D.	: 9101-112-1
PROJECT #	: 15,547.002	DATE EXTRACTED	: 01/20/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE ANALYZED	: 01/23/91
EPA METHOD	: 8010/8020	MATRIX	: SOIL
		UNITS	: mg/Kg

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	<0.20	0.50	0.42	84	0.45	90	7
CHLOROBENZENE	<0.20	0.20	0.18	90	0.19	95	5
1,1-DICHLOROETHENE	<0.080	0.20	0.14	70	0.16	80	13
TETRACHLOROETHENE	0.26	0.24	0.42	67	0.40	58	5
TOLUENE	4.0	0.590	6.0	**	4.1	**	38*
TRICHLOROETHENE	4.2	0.24	4.9	**	2.7	**	43*

* Out of limits due to matrix interference.

** Due to the necessary dilution of the sample, result was not attainable.

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

VOLATILE ORGANIC
QUALITY CONTROL DATA

CLIENT	: APPLIED GEOTECHNOLOGY INC.	SAMPLE I.D.	: BLANK SPIKE
PROJECT #	: 15,547.002	DATE EXTRACTED	: 01/20/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE ANALYZED	: 01/24/91
EPA METHOD	: 8010/8020	MATRIX	: SOIL
		UNITS	: mg/Kg

COMPOUND	SAMPLE RESULT	SPIKE ADDED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % REC	RPD
BENZENE	<0.025	0.50	0.49	98	N/A	N/A	N/A
CHLOROBENZENE	<0.025	0.20	0.21	105	N/A	N/A	N/A
1,1-DICHLOROETHENE	<0.010	0.20	0.18	90	N/A	N/A	N/A
TETRACHLOROETHENE	<0.010	0.20	0.20	100	N/A	N/A	N/A
TOLUENE	<0.025	0.50	0.51	102	N/A	N/A	N/A
TRICHLOROETHENE	<0.010	0.20	0.20	100	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: N/A
PROJECT #	: 15,547.002	DATE RECEIVED	: N/A
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: 01/18/91
CLIENT I.D.	: REAGENT BLANK	DATE ANALYZED	: 01/18/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	DIESEL

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/16/91
PROJECT #	: 15,547.002	DATE RECEIVED	: 01/17/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: 01/18/91
CLIENT I.D.	: S-1	DATE ANALYZED	: 01/19/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	160 *
HYDROCARBON RANGE	C12 - C24
HYDROCARBONS QUANTITATED USING	DIESEL

* Sample chromatogram indicates the presence of a petroleum hydrocarbon-like contamination heavier than diesel.

FUEL HYDROCARBONS ANALYSIS
DATA SUMMARY

CLIENT	: APPLIED GEOTECHNOLOGY INC.	DATE SAMPLED	: 01/16/91
PROJECT #	: 15,547.002	DATE RECEIVED	: 01/17/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE EXTRACTED	: 01/18/91
CLIENT I.D.	: HA-1	DATE ANALYZED	: 01/21/91
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8015 MODIFIED	DILUTION FACTOR	: 1

COMPOUND	RESULT
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	GASOLINE
FUEL HYDROCARBONS	<5
HYDROCARBON RANGE	-
HYDROCARBONS QUANTITATED USING	DIESEL

FUEL HYDROCARBONS
QUALITY CONTROL DATA

CLIENT	: APPLIED GEOTECHNOLOGY INC.	SAMPLE I.D.	: 9101-112-1
PROJECT #	: 15,547.002	DATE EXTRACTED	: 01/18/91
PROJECT NAME	: SCOUGAL RUBBER/PHASE II	DATE ANALYZED	: 01/19/91
EPA METHOD	: 8015 MODIFIED	MATRIX	: SOIL
		UNITS	: mg/Kg

COMPOUND	SAMPLE RESULT	CONC SPIKED	SPIKED SAMPLE	% REC	DUP SPIKED SAMPLE	DUP % RECOVERY	RPD
FUEL HYDROCARBONS	<5	500	501	100	478	96	5

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

GENERAL CHEMISTRY

CLIENT : APPLIED GEOTECHNOLOGY INC.
PROJECT # : 15,547.002
PROJECT NAME : SCOUGAL RUBBER/PHASE II
SAMPLE MATRIX : SOIL

ANALYSIS	DATE ANALYZED
MOISTURE	01/18/91

GENERAL CHEMISTRY RESULTS

CLIENT : APPLIED GEOTECHNOLOGY INC. MATRIX : SOIL
PROJECT # : 15,547.002
PROJECT NAME : SCOUGAL RUBBER/PHASE II UNITS : %

ATI I.D.#	CLIENT I.D.	MOISTURE
9101-112-1	S-1	15
9101-112-2	HA-1	12

GENERAL CHEMISTRY QUALITY CONTROL

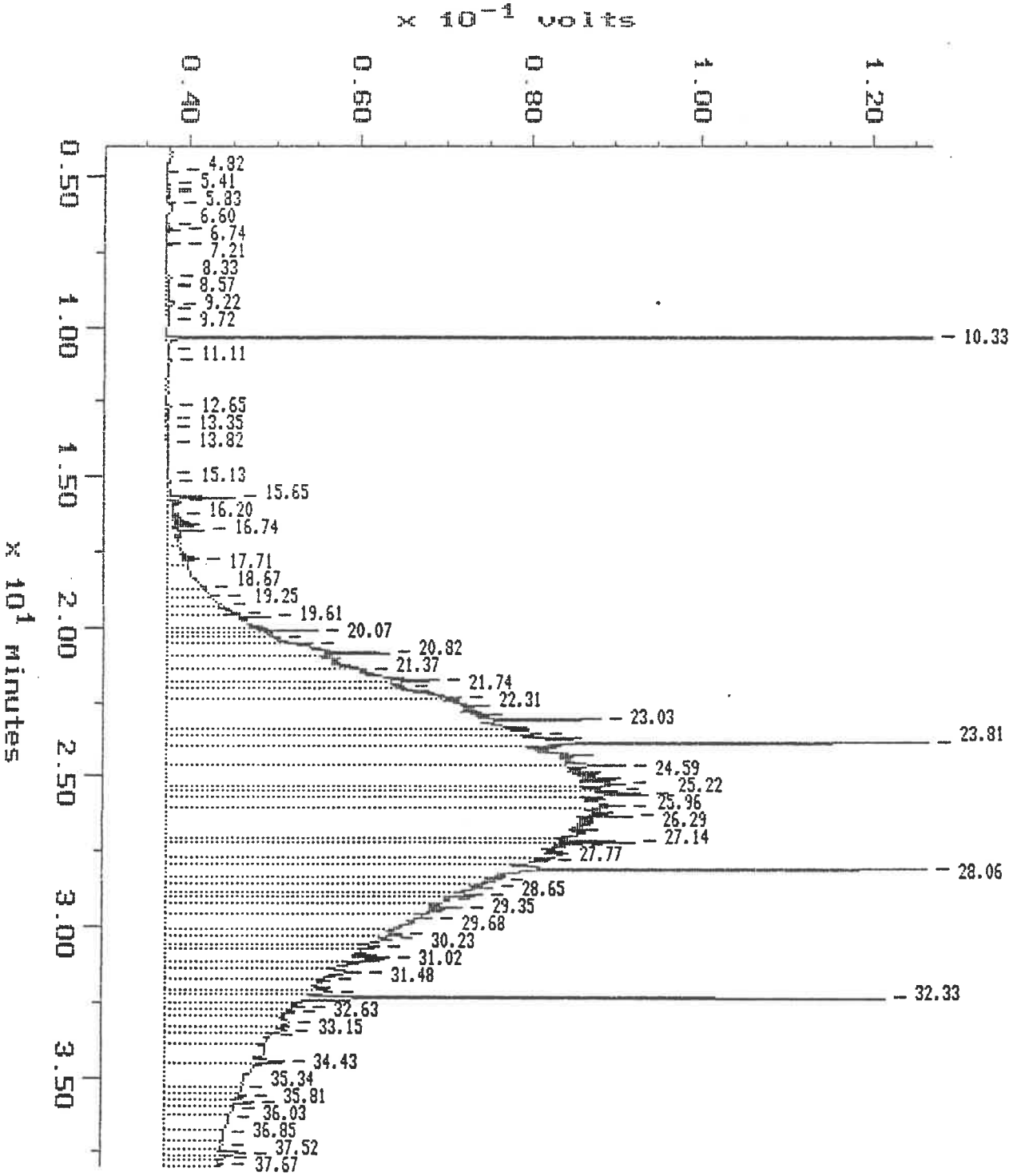
CLIENT : APPLIED GEOTECHNOLOGY INC. MATRIX : SOIL
PROJECT # : 15,547.002
PROJECT NAME : SCOUGAL RUBBER/PHASE II UNITS : %

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
MOISTURE	9101-112-2	12	13	8	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Sample: S12 Channel: LISA Filename: 0118WL12
Acquired: 19-JAN-91 1:32 Method: L:\MAXDATA\WINS-L\FUEL0118 Operator:
Comments: 9101-112-1



Applied Geotechnology Inc.
Geotechnical Engineering
Geology & Hydrogeology

9101-112

Chain of Custody

PAGE 1 OF 1

PROJECT NAME: Scougal Rubber \ Phase II
PROJECT NUMBER: 15,547.002
LOCATION: Seattle, Washington
Contact: James Schmidt of AGI

SAMPLER (Signature): Robert P Rentz

SAMPLE ID.	DATE	TIME	MATRIX	LAB ID.	BASE/NEU/ACID CMPDS. GC/MS 625/8270	VOLATILE CMPDS. GC/MS 624/8240	PESTICIDES/PCBS 608/8080	POLYNUCLEAR AROMATIC 610/8310	PHENOLS 604/8040	HALOGENATED VOLATILES 601/8010	AROMATIC VOLATILES 602/8020	8010 \ 8020	8015 Modified				PRIORITY POLLUTANT METALS (13)	EP TOX METALS (8)	SDWA-INORGANICS PRIMARY/SECONDARY					NUMBER OF CONTAINERS
S-1	1/16/91	1530	Soil	-1								✓	✓											1
HA-1	1/16/91	1500	Soil	-2								✓	✓											1

RELINQUISHED BY 1.	RELINQUISHED BY 2.	RELINQUISHED BY 3.
Robert P Rentz 0700		
(Signature) (Time)	(Signature) (Time)	(Signature) (Time)
Robert P Rentz 1/17/91		
(Printed Name) (Date)	(Printed Name) (Date)	(Printed Name) (Date)
AGI		
(Company)	(Company)	(Company)
RECEIVED BY 1.	**RECEIVED BY 2.**	**RECEIVED BY (LABORATORY) 3.**
DL Thomas		
(Signature) (Time)	(Signature) (Time)	(Signature) (Time)
DL THOMAS 11:00		
(Printed Name) (Date)	(Printed Name) (Date)	(Printed Name) (Date)
ATL 1-17-91		
(Company)	(Company)	(Company)

SHIPPING INFORMATION	
Total No. of Containers	2
Chain of Custody Seals	Yes
Shipping I.D. No.	—
Shipped Via:	COURIER
Date Shipped	1/17/91

SAMPLE RECEIPT BY LAB	
Total No. of Containers	2
Chain of Custody Seals	Y
Rec'd Good Condition/Cold	Y / Y
Conforms to Record	Y
Lab No.	9101-112
Date Received	1/17/91

SPECIAL INSTRUCTIONS/COMMENTS:

SBC (O)

DISTRIBUTION: WHITE, CANARY - ANALYTICAL LABORATORY • PINK - ORIGINATOR