LUST # 414542
Hilton Hotel Parking Garage

T-1772-01

ENTERED
CSS 12/4/98

Site Assessment Report
Seattle Hilton Hotel
Seattle, Washington

February 1998

DEPARTMENT OF ECOLOGY
NWRO/TCP TANKS UNIT

INTERIM CLEANUP REPORT	☑
SITE CHARACTERIZATON	☐
FINAL CLEANUP REPORT	☐
OTHER _____	☐
AFFECTED MEDIA: SOIL	☑
OTHER _____ GW	☐
INSPECTOR (INIT.) MY DATE 1-26-99	

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SITE ASSESSMENT REPORT
SEATTLE HILTON HOTEL
SEATTLE, WASHINGTON

1.0 INTRODUCTION AND SCOPE

1.1 Introduction

Shannon & Wilson has completed a site assessment (SA) at the Seattle Hilton Hotel (Hilton) parking garage located at Sixth Avenue and University Street in Seattle, Washington. The work was authorized by Mr. Steve Long on September 11, 1997, in anticipation of the termination of AMPCO System Parking's (AMPCO's) garage lease (October 1, 1997). This report presents the results of the SA.

The objectives of the assessment were to (1) determine the approximate lateral and vertical extent of soil contamination related to the two gasoline underground storage tanks (USTs), (2) assess groundwater contaminant levels and groundwater flow direction beneath the property, (3) provide a preliminary assessment of whether or not the gasoline contamination has migrated offsite, (4) evaluate hydrogeologic factors such as hydraulic conductivity of soils, and (5) evaluate various remedial approaches. These objectives were proposed to provide support for the overall project goal which is to identify and conduct the necessary cleanup actions (if any) and obtain a No Further Action (NFA) designation from the Washington State Department of Ecology (Ecology). We understand that the hotel owner (Mr. R.C. Hedreen) must apply for the NFA determination through the Voluntary Cleanup Program (VCP) (formerly the Independent Remedial Action Program) because of a contractual requirement with his lender.

1.2 Scope of Services

The scope of work was in accordance with our proposal dated August 28, 1997, and included the following tasks:

- Review plans of the basement-level parking structures, including plans for the pedestrian tunnel, elevator, and underground utilities.

- Drill five borings and install monitoring wells at four of the locations. The placement of the borings, which was previously discussed between the Hilton and Ecology, was to characterize the extent of soil and groundwater contamination near and upgradient, downgradient, and crossgradient from the tanks.
- Collect soil samples from each boring for visual classification and analytical testing.
- Develop each monitoring well and obtain measurements of the groundwater table elevations to determine groundwater flow direction. The thickness of product, encountered in monitoring well MW-5 only, was also obtained.
- Collect groundwater samples from the installed monitoring wells for analytical testing.
- Prepare this report.

2.0 BACKGROUND

The site occupies the southeast quarter of the city block bounded by Union and University Streets, and Fifth and Sixth Avenues. The property was purchased by Mr. Hedreen in 1968; Union 76 occupied the property for years prior to the purchase. Union 76 and Mr. Hedreen began construction of the Hilton Hotel around 1970, at which time two USTs were installed along the eastern property line of the parking structure beneath the hotel. No other fuel tanks are known to be present beneath the property. One of the gasoline tanks reportedly developed a leak after about two years of service, and it was repaired or replaced. The two tanks were later closed in place in late 1985 or early 1986 by filling with cement slurry. The tanks are located beneath the floor of the "B" parking level of the underground garage. The approximate location of the tanks is shown on Figure 1.

In the early 1990s, gasoline fumes were encountered during the excavation to extend the elevator shaft (located north of the tanks) to the depth of the pedestrian concourse. The pedestrian concourse, leading to Rainier Tower, is located north of the tanks. The floor of the concourse is about 20 feet below the floor of the "B" level. The proximity of this concourse to the tanks is shown on Figure 1.

Based on subsurface sampling performed by Environmental Associates, Inc. (EA), (Boring B-1, Figure 1) in 1994, gasoline contamination exists in soil at levels exceeding the Washington State Model Toxics Control Act (MTCA) Method A cleanup standards in the vicinity of the tanks.

Gasoline components (benzene and xylenes) above MTCA Method A cleanup levels were also detected in a water sample collected from the sump located immediately west of the elevator shaft (Table 1). The release was reported to Ecology.

Following the results of EA's investigation, we understand that a scope of work was discussed between the Hilton and Ecology in pursuit of an NFA designation at the site. The scope of this SA work is partially based on that scope of work.

3.0 GEOLOGIC AND HYDROGEOLOGIC SETTING

3.1 Regional and Site Geologic Conditions

The site is situated on the Seattle Drift Plain, a gently rolling, elevated plain which formed approximately 13,500 years ago during the last period of continental glaciation. Geologic maps for the site vicinity suggest that much of the material underlying the subject site has been modified extensively by excavation, filling, or construction (Liesch, 1963). The site is situated on a west-facing slope approximately 100 feet above mean sea level. An arbitrary site datum was established with the sidewalk on 6th Avenue at MW-5 at 108 feet in elevation.

The site (below the basement and sidewalk on 6th Avenue) is underlain by fill and then layers of silty sand, clayey silt, and silty sand. Below the fill, the soil is generally dense and hard, having been glacially overridden.

The fill thickness varies beneath the site, and the thickest encountered was at MW-3 and at the USTs. The fill layer is underlain by a silty sand/sandy silt layer that ranges from 1 foot to 12 feet thick. The gasoline USTs are resting in this layer at approximately elevation 80 feet, based on the arbitrary site datum. The garage floor on top of the tanks is at approximately 94 feet.

Beneath the basement, this layer is underlain by a hard, silty clay/clayey silt layer that is 3 to 15 feet thick. The clay/silt layer was absent within the depth of MW-5 but appears to be continuous beneath the basement and the UST area. The elevation of the top of the clay/silt layer is approximately 82 feet, and the bottom of the clay/silt layer is at approximately 77 feet, based on the arbitrary site datum.

The clay/silt layer is underlain by a very dense, silty, fine sand layer that was present to the bottoms of the borings drilled (elevation 46 feet); therefore, the thickness of this silty sand layer

exceeds 25 feet. The soils beneath the MW-5 area consisted of interbedded silty sand and silt. Appendix A contains boring logs with detailed soil descriptions encountered at each location.

3.2 Groundwater Conditions

Groundwater is present beneath the site in the lower silty sand layer, beneath the clay/silt layer. The elevation of the water table, as measured at the four monitoring wells on December 19, 1997, is shown on Figure 1. Based on these measurements, groundwater flows to the west with a gradient of 0.026 feet/foot. Elevations of the monitoring wells were determined by surveying using an arbitrary site datum. Based on the elevations, MW-2 is crossgradient from the USTs, MW-5 is upgradient, and MW-3 and MW-4 are downgradient.

Based on plan review and depth to groundwater measurements, it appears that the bottom of the pedestrian concourse is just above the top of the groundwater table. Groundwater contours, from measurements in December, indicate that the concourse does not appear to be serving as a conduit. However, if the water table rises, backfill under the floor of the pedestrian concourse may act as a conduit for groundwater flow. The top of the pedestrian concourse is approximately 8.5 feet below Level "B" of the parking garage (elevation 86.5 feet, based on our arbitrary datum); the floor of the concourse is approximately 20 feet below (elevation 74.9 feet).

4.0 SAMPLE LOCATIONS AND METHODOLOGY

4.1 Soil Boring and Monitoring Well Installation

To evaluate lateral and vertical extent, five borings were drilled in the approximate locations discussed between the Hilton and Ecology (Figure 1). Shannon & Wilson subcontracted Davies Drilling to advance borings using a limited access drill rig; the boreholes were advanced using a 4-inch inside diameter (I.D.), continuous-flight, hollow-stem auger. Boring SB-1 was placed to characterize the extent of contamination near the USTs. Boring MW-2 was placed crossgradient of the tanks, and MW-3 was placed downgradient of the tanks. Since indications of contamination were observed in SB-1 and MW-3, two additional borings were advanced in further upgradient (MW-5) and downgradient (MW-4) locations. The borings ranged in depth from 10 to 48.5 feet below ground surface (bgs). Monitoring wells were installed in borings MW-2, MW-3, MW-4, and MW-5. No well was installed at SB-1; the boring was abandoned at 10 feet because of odors.

All augers and downhole equipment were decontaminated using a steam cleaner before the initiation of drilling activities and between borings. Soil cuttings, decontamination water, and development/purge water were placed in 55-gallon drums, labeled appropriately, and temporarily stored in a corner of the garage, pending disposal.

4.2 Soil Sampling Procedures

Soil was collected from each boring at 2.5- or 5-foot intervals using a 2-inch outside diameter (O.D.) or 3-inch I.D. split-spoon sampler. An interpretation of soil density is summarized in the boring logs (Appendix A).

After performing each SPT, the split-spoon sampler was removed from the borehole, and selected soil intervals were collected for analytical testing. Analytical soil samples were obtained from the sampler using clean, disposable, stainless steel tools; placed in laboratory-supplied glassware; and immediately placed on ice until pickup by CCI Laboratories, following proper chain-of-custody procedures. Soil samples were selected based on one or more of the following: photoionization detector (PID) readings, odor, visual contamination, relative depth to the groundwater table, and the final (or deepest) sample collected from the boring.

Soil samples were classified and logged by an engineer or hydrogeologist and were field-screened, using a PID, for the presence of volatile organic compounds (VOCs) and for health and safety purposes. Sample collection data, including sample location, number, date of collection, and depth, are summarized in Table 1.

The split-spoon sampler was decontaminated between samples to reduce the potential for cross-contamination. All field sampling work was done in accordance with Shannon & Wilson's standard operating procedures.

Hydrocarbon odors were observed in all of the borings, with the exception of MW-4 (located downgradient of the tanks, on the other side of the pedestrian concourse). However, no visual indication of contamination was observed.

4.3 Monitoring Well Installation and Development

Monitoring wells were constructed of 2-inch-diameter, polyvinyl chloride (PVC) pipe with slotted (0.010-inch slots) PVC. An artificial filter pack consisting of silica sand was placed around and extended above the top of the screened pipe. A bentonite chip seal extended from the

top of the filter pack to approximately 6 inches from the top of the pavement. Diagrams of the monitoring well installations are shown on the boring logs (Appendix A).

Upon well completion and after at least 24 hours, each well was developed for approximately 4 hours using a surge block and a bailer to extract the sediment that was drawn in through the well screen during surging. Field parameters were also recorded during development (pH, temperature, specific conductance, and turbidity). Approximately 10 to 40 gallons were removed from each well and contained in 55-gallon drums. MW-5 was not developed because of the presence of free-phase hydrocarbons on the groundwater table.

4.4 Groundwater Sampling Procedures

At least 24 hours after well development and prior to groundwater sampling, each monitoring well was purged of approximately three well volumes using disposable bailers and nylon cord. Laboratory-supplied glassware were filled from the bailer using a clean, disposable, bottom-emptying device and were immediately capped. Samples were uniquely labeled to reflect the respective boring and sample number, immediately logged, stored on ice in a cooler, and transported under proper chain-of-custody procedures to the analytical laboratory. Purge water was collected and placed into the drum containing the well's development water. At MW-5, a product sample was collected in place of a groundwater sample, using the same sampling procedure as stated above.

5.0 ANALYTICAL RESULTS

As discussed, selected soil samples from each boring were submitted for laboratory analysis. Groundwater/product samples from each of the four monitoring wells were also submitted for analysis. A summary of the results is discussed in the following subsections and presented on Table 1. Complete laboratory reports are contained in Appendix B.

5.1 Soil

One to four soil samples were selected from each boring for analysis. Samples were analyzed for one or more of the following: gasoline-range petroleum hydrocarbons (WTPH-G), benzene, toluene, ethylbenzene, and xylenes (BTEX), hydrocarbon identification (WTPH-HCID), and total lead.

Almost all WTPH-G and BTEX concentrations in soil were well below the MTCA Method A cleanup levels and most were nondetect. Lead was not detected in any of the samples. Elevated petroleum was only detected in the samples collected from MW-5. Gasoline-range petroleum hydrocarbons were detected at 220 milligrams per kilogram (mg/kg), above the MTCA Method A cleanup level of 100 mg/kg. In a deeper sample from MW-5, benzene was detected at 0.5 mg/kg, at the MTCA Method A cleanup level.

One sample, collected from the bottom of MW-2 (47.5–48.5 bgs), that was analyzed for WTPH-HCID was nondetect.

5.2 Groundwater

One groundwater sample was collected from each of the three monitoring wells: MW-2, MW-3, and MW-4. The samples were analyzed for one or more of the following: WTPH-G, BTEX, and total and dissolved lead.

While contaminant concentrations were very low in soil, contaminant concentrations in groundwater were elevated. Gasoline-range petroleum hydrocarbons and associated constituents were detected at concentrations exceeding the MTCA Method A cleanup levels. WTPH-G, BTEX, and total lead concentration in MW-2 (located crossgradient from the tanks) were all above the MTCA Method A cleanup levels. The groundwater sample from MW-3 contained benzene concentrations above the cleanup level of 5 milligrams per liter (mg/L) and total lead concentrations above the cleanup level. Contaminant concentrations were not detected in the groundwater sample collected from MW-4.

5.3 Product

A product sample was collected from MW-5 and analyzed for fingerprinting, total lead, and methyl tert butyl ether (MTBE). The fingerprinting analysis was to determine the type of product and its approximate age. Analysis of MTBE was to determine if the fuel is oxygenated, which also would suggest the approximate age of the fuel. The thickness of the product in the well was approximately 1.22 feet.

Based on the analyses, the product is a gasoline-range petroleum hydrocarbon. Lead was detected at concentrations exceeding the soil and groundwater cleanup level for lead, indicating that the fuel is not a "new" fuel. Additionally, MTBE was not detected, indicating that the fuel is not oxygenated and that the fuel did not originate from a recent release. Fingerprinting analyses

also indicated that the fuel has exaggerated lighter ends, suggesting an old gasoline release or an aviation fuel.

6.0 CONCLUSIONS

Based on our studies and observations, Shannon & Wilson offers the following conclusions:

- Gasoline-range petroleum hydrocarbon and benzene concentrations in soil are present, exceeding the MTCA Method A cleanup levels at the MW-5 location.
- Gasoline-range petroleum hydrocarbons and BTEX are present in the groundwater at MW-2 and MW-3 at concentrations exceeding MTCA Method A cleanup levels.
- Based on the hydrocarbons encountered during drilling, hydrocarbons and odors may be present beneath the garage floor and sidewalk. Anyone doing work beneath the basement floor or sidewalk in the future should take note of these potential conditions and take appropriate actions.
- Contamination is not present at the downgradient MW-4 location.
- Approximately 1.2 feet of free product is present in MW-5 on the water table. Based on analytical results, the product is most likely an older, leaded gasoline-range fuel.
- Gasoline and BTEX concentrations were higher in MW-2 than in MW-3. This likely reflects the direct downgradient position of MW-2 relative to MW-5

No further action is recommended with respect to AMPCO's USTs at this time for the following reasons:

- The free product encountered in MW-5 appears to be originating from an off-site source, based on the steep groundwater gradient calculated from our site survey. MW-5 is located upgradient from the tanks, so it also seems unlikely that the product originated from the tanks.
- The extent of any contamination related to the two gasoline tanks would be difficult to determine because upgradient contamination will continue to migrate onto the site.
- Contamination does not appear to be migrating off the property, based on current conditions, field screening, and soil and groundwater analytical results collected from MW-4.

- As discussed previously, groundwater contours, from measurements in December, indicate that the concourse does not appear to be serving as a conduit.

7.0 INVESTIGATION-DERIVED WASTE

On December 24, 1997, Remedco, Inc., removed the 16 drums of investigation-derived waste (IDW) that were stored in the Hilton parking garage. The drums contained soil, groundwater, and decontamination water. The waste was treated by Remedco, Inc., at their facility on December 29, 1997. Disposal documentation is contained in Appendix C.

8.0 CLOSURE

Shannon & Wilson has prepared this report in a professional manner, using the level of skill and care normally exercised for similar projects under similar conditions by reputable and competent environmental consultants currently practicing in the area. Shannon & Wilson is not responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time the report was prepared. We also note that the facts and conditions referenced in this report may change over time, and that the conclusions and recommendations set forth here are applicable to the facts and conditions as described only at the time of the report. We believe that the conclusions stated here are factual, but no guarantee is made or implied.

This report is for the exclusive use of AMPCO System Parking and its representatives. Shannon & Wilson has prepared the Appendix C, "Important Information About Your Environmental Report," to help you and others understand the use and limitations of our reports.

SHANNON & WILSON, INC.

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ACT:KAT:JFZ/act

2-4-98/T1772-01-RPT/T1772-lkd/rcl

TABLE 1
SAMPLE ANALYTICAL RESULTS
SEATTLE HILTON HOTEL

Sample Number	Sample Location	Sample Date	Depth (feet)	SPH (feet)	PID (ppm)	WTPH-G	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Lead		WTPH-HCID		
												total	dissolved	gasoline	diesel	oil
SOIL SAMPLE RESULTS (mg/kg)																
MW1-S-2	MW-1/SB-1	9/17/97	7.5 - 9	--	632	7	<0.1	0.1	<0.1	0.8	NT	<8	NT	NT	NT	NT
MW2-S-4	MW-2	9/16/97	12.5 - 14	--	69.3	<5	<0.1	0.4	<0.1	<0.3	NT	NT	NT	NT	NT	NT
MW2-S-8		9/16/97	22.5 - 24	--	15.6	<5	0.4	<0.1	0.1	0.3	NT	<8	NT	NT	NT	NT
MW2-S-15		9/16/97	40 - 41.3	--	65	<5	0.3	<0.1	0.1	0.3	NT	<8	NT	NT	NT	NT
MW2-S-18		9/16/97	47.5 - 48.5	--	--	NT	NT	NT	NT	NT	NT	NT	NT	<20	<50	<100
MW3-S-5	MW-3	9/15/97	15 - 16.5	--	273	<5	<0.1	<0.1	0.1	0.6	NT	<8	NT	NT	NT	NT
MW3-S-7		9/15/97	20 - 21.5	--	44.1	<5	<0.1	<0.1	<0.1	<0.3	NT	<8	NT	NT	NT	NT
MW3-S-11		9/15/97	30 - 30.4	--	7	<5	0.2	<0.1	0.1	<0.3	NT	<8	NT	NT	NT	NT
MW4-4-S	MW-4	11/11/97	10 - 11.5	--	5	<5	<0.1	<0.1	<0.1	<0.3	NT	<8	NT	NT	NT	NT
MW4-5-S		11/11/97	12.5 - 14	--	13	<5	<0.1	<0.1	<0.1	<0.3	NT	<8	NT	NT	NT	NT
MW5-S-8	MW-5	11/10/97	27.5 - 29	--	300	220	<0.1	<0.1	1	2.9	NT	<8	NT	NT	NT	NT
MW5-S-10		11/10/97	32.5 - 34	--	5	24	<0.1	0.1	0.2	0.8	NT	<8	NT	NT	NT	NT
MW5-S-14		11/10/97	45 - 46.5	--	8.3	56	0.5	0.3	1.8	4.7	NT	<8	NT	NT	NT	NT
MTCA Soil Cleanup Levels (a)						100	0.5	40.0	20.0	20.0	--	250.0	--	--	--	--
PRODUCT SAMPLE RESULTS (µg/l)																
MW5-W-01 (b)	MW-5	11/14/97	33.47	1.22	--	NT	NT	NT	NT	NT	<50	680	NT	NT	NT	NT
GROUNDWATER SAMPLE RESULTS (µg/l)																
MW2-W-01	MW-2	9/25/97	21.36	--	--	4,700	6,700	210	670	590	NT	8	<4	NT	NT	NT
MW3-W-01	MW-3	9/25/97	20.49	--	--	700	7,200	10	74	97	NT	9	<4	NT	NT	NT
MW4-W-01	MW-4	11/14/97	15.31	--	--	<50	<1	<1	<1	<3	NT	<4	<4	NT	NT	NT
4327-Water	sump	11/23/94	21.58	--	--	760	240	7.3	14	47	NT	NT	NT	NT	NT	NT
MTCA Groundwater Cleanup Levels (a)						1,000	5.0	40.0	30.0	20.0	--	5.0	5.0	--	--	--

NOTES:

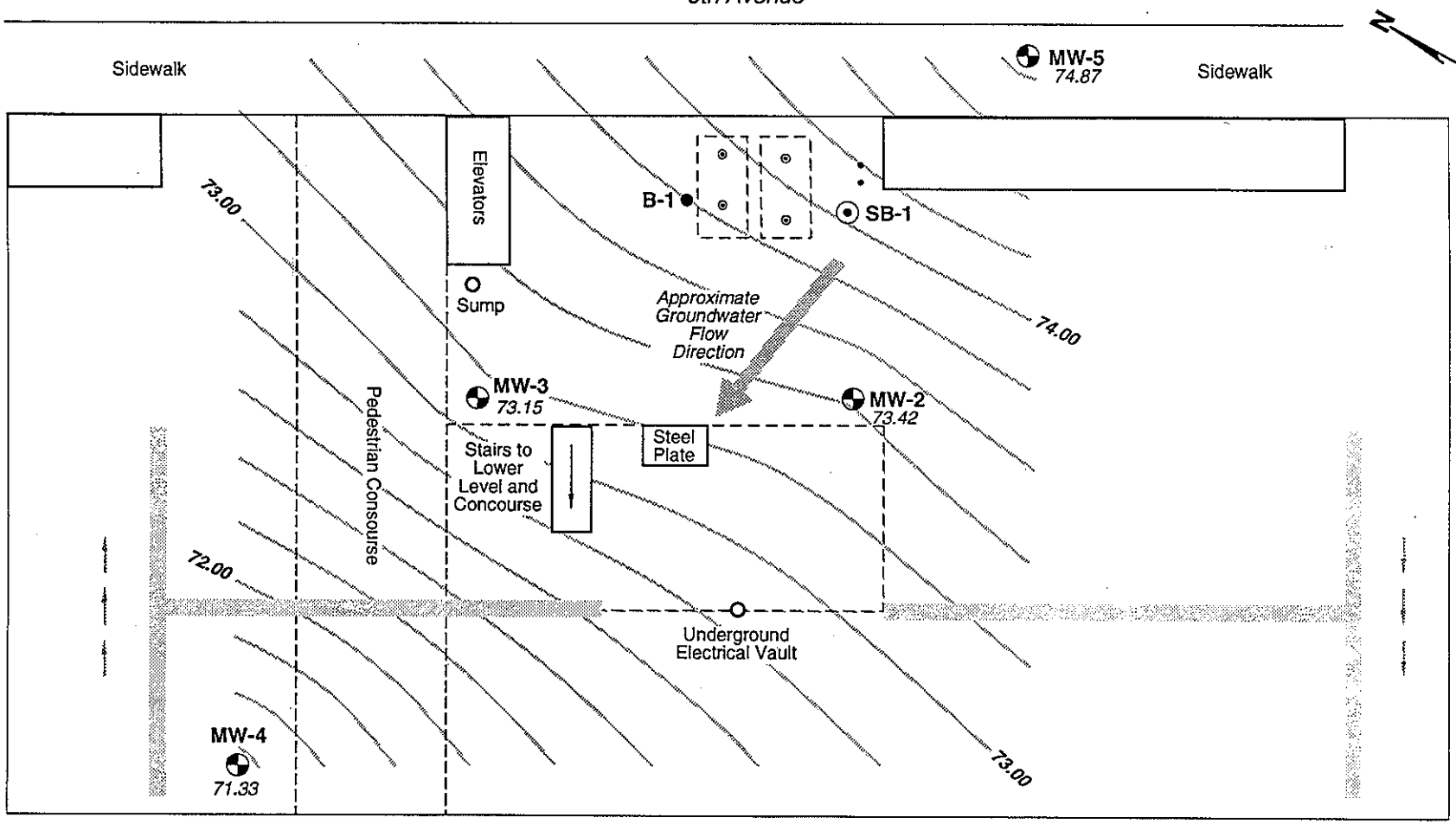
(a) Washington Model Toxics Control Act (MTCA) Method A.

(b) Product sample MW5-W-01 was also analyzed to determine the type/general age of the product. Results indicate that 90-100% of the product is gasoline-range petroleum hydrocarbon. Neither diesel- nor motor oil-range petroleum hydrocarbons were observed. The chromatograph suggests that the product is weathered gasoline or a mixture of gasoline and light solvents.

< = Below the indicated method reporting limit (MRL) or practical quantitation limit (PQL).

Shaded values indicate concentrations exceeding cleanup levels.

µg/l = micrograms per liter
mg/kg = milligrams per kilogram
MTBE = methyl tert butyl ether
NT = not tested
PID = photoionization detector
ppm = parts per million
SPH = separate phase hydrocarbons
WTPH-G = Washington Total Petroleum Hydrocarbons as Gasoline
WTPH-HCID = Washington Total Petroleum Hydrocarbons - Hydrocarbon Identification



LEGEND

MW-2 Monitoring Well Designation and Approximate Location

SB-1 Boring Designation and Approximate Location

B-1 Boring Designation and Approximate Location (by Environmental Associates, Inc., Nov. 1994)

74.87 Groundwater Elevation in Feet (based on arbitrary datum)

0 10 20 40

Scale in Feet

NOTE

Site plan is based on pacing, tape measure by Shannon & Wilson and should be considered approximate.

Seattle Hilton Hotel
6th Avenue and University Street
Seattle, Washington

SITE AND EXPLORATION PLAN

January 1998 T-1772-01

SHANNON & WILSON, INC.
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FIG. 1

FIG. 1

APPENDIX A

BORING LOGS

Shannon & Wilson, Inc. (S&W), uses a soil classification system modified from the Unified Soil Classification (USC) System. Elements of the USC and other definitions are provided on this and the following page. Soil descriptions are based on visual-manual procedures (ASTM D 2488-93) unless otherwise noted.

S&W CLASSIFICATION OF SOIL CONSTITUENTS

- MAJOR constituents compose more than 50 percent, by weight, of the soil. Major constituents are capitalized (SAND).
- Minor constituents compose 12 to 50 percent of the soil and precede the major constituents (silty SAND). Minor constituents preceded by "slightly" compose 5 to 12 percent of the soil (slightly silty SAND).
- Trace constituents compose 0 to 5 percent of the soil (slightly silty SAND, trace of gravel).

MOISTURE CONTENT DEFINITIONS

Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, from below water table

ABBREVIATIONS

ATD	At Time of Drilling
Elev.	Elevation
ft	feet
HSA	Hollow Stem Auger
ID	Inside Diameter
in	inches
lbs	pounds
Mon.	Monument cover
N	Blows for last two 6-inch increments
NA	Not Applicable or Not Available
OD	Outside Diameter
OVA	Organic Vapor Analyzer
PID	Photoionization Detector
ppm	parts per million
PVC	Polyvinyl Chloride
SS	Split Spoon sampler
SPT	Standard Penetration Test
USC	Unified Soil Classification
WLI	Water Level Indicator

GRAIN SIZE DEFINITIONS

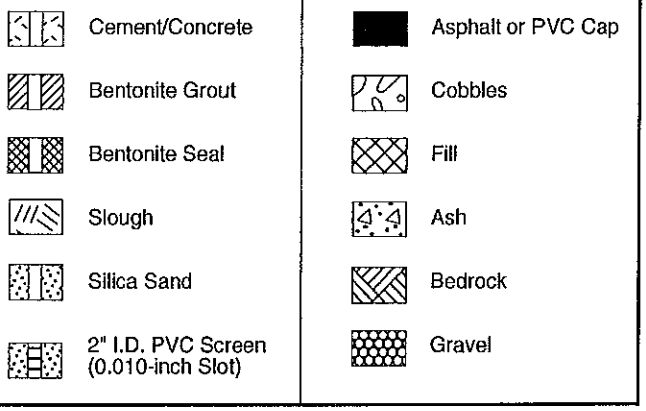
DESCRIPTION	SIEVE SIZE
FINES	< #200 (0.08 mm)
SAND*	
• Fine	• #200 - #40 (0.4 mm)
• Medium	• #40 - #10 (2 mm)
• Coarse	• #10 - #4 (5 mm)
GRAVEL*	
• Fine	• #4 - 3/4 inch
• Coarse	• 3/4 - 3 inches
COBBLES	3 - 12 inches
BOULDERS	> 12 inches

* Unless otherwise noted, sand and gravel, when present, range from fine to coarse in grain size.

RELATIVE DENSITY / CONSISTENCY

COARSE-GRAINED SOILS		FINE-GRAINED/COHESIVE SOILS	
N, SPT, BLOWS/FT.	RELATIVE DENSITY	N, SPT, BLOWS/FT.	RELATIVE CONSISTENCY
0 - 4	Very loose	<2	Very soft
4 - 10	Loose	2 - 4	Soft
10 - 30	Medium dense	4 - 8	Medium stiff
30 - 50	Dense	8 - 15	Stiff
Over 50	Very dense	15 - 30	Very stiff
		Over 30	Hard

WELL AND OTHER SYMBOLS



Seattle Hilton Hotel
6th Avenue and University Street
Seattle, Washington

SOIL CLASSIFICATION AND LOG KEY

January 1998 T-1772-01

SHANNON & WILSON, INC.
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FIG. A-1
Sheet 1 of 2

UNIFIED SOIL CLASSIFICATION SYSTEM
(From ASTM D 2488-93 & 2487-93)

MAJOR DIVISIONS			GROUP/GRAPHIC SYMBOL②		TYPICAL DESCRIPTION
Coarse-Grained Soils *(more than 50% retained on No. 200 sieve)* *[Use Dual Symbols for 5 - 12% Fines (i.e. GP-GM)]*①	Gravels *(more than 50% of coarse fraction retained on No. 4 sieve)*	Clean Gravels① *(less than 5% fines)*	GW		Well-Graded Gravels, Gravel-Sand Mixtures, Little or No Fines
			GP		Poorly Graded Gravels, Gravel-Sand Mixtures, Little or No Fines
		Gravels with① Fines *(more than 12% fines)*	GM		Silty Gravels, Gravel-Sand-Silt Mixtures
			GC		Clayey Gravels, Gravel-Sand-Clay Mixtures
	Sands *(50% or more of coarse fraction passes the No. 4 sieve)*	Clean Sands① *(less than 5% fines)*	SW		Well-Graded Sands, Gravelly Sands, Little or No Fines
			SP		Poorly Graded Sand, Gravelly Sands, Little or No Fines
		Sands with① Fines *(more than 12% fines)*	SM		Silty Sands, Sand-Silt Mixtures
			SC		Clayey Sands, Sand-Clay Mixtures
Fine-Grained Soils *(50% or more passes the No. 200 sieve)*	Silts and Clays *(liquid limit less than 50)*	Inorganic	ML		Inorganic Silts of Low to Medium Plasticity, Rock Flour, or Clayey Silts with Slight Plasticity
			CL		Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
		Organic	OL		Organic Silts and Organic Silty Clays of Low Plasticity
	Silts and Clays *(liquid limit 50 or more)*	Inorganic	CH		Inorganic Clays of Medium to High Plasticity, Sandy Fat Clay, Gravelly Fat Clay
			MH		Inorganic Silts, Micaceous or Diatomaceous Fine Sands or Silty Soils, Elastic Silt
		Organic	OH		Organic Clays of Medium to High Plasticity, Organic Silts
Highly Organic Soils	Primarily organic matter, dark in color, and organic odor		PT		Peat, Humus, Swamp Soils with High Organic Content (See D 4427-92)

NOTES

1. Dual symbols (symbols separated by a hyphen, i.e., SP-SM, slightly silty fine SAND) are used for soils with between 5% and 12% fines or when the liquid limit and plasticity index values plot in the CL-ML area of the plasticity chart.

2. Borderline symbols (symbols separated by a slash, i.e., CL/ML, silty CLAY/clayey SILT; GW/SW, sandy GRAVEL/gravelly SAND) indicated that the soil may fall into one of two possible basic groups.

Seattle Hilton Hotel
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Seattle, Washington

SOIL CLASSIFICATION AND LOG KEY

January 1998 T-1772-01

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. A-1
Sheet 2 of 2

ENVIRONMENTAL BOREHOLE LOG

Date Started 9/17/97	Location Adjacent to USTs	Depth Water First Encountered (Ft)
Date Completed 9/17/97	Drilling Company Davies Drilling	Drilling Method Hollow-stem Auger
Total Depth (Ft) 10.0	Sampling Method 3-inch I.D. Split-spoon	Hammer: Weight (lbs) 140 Drop (In) 30
Borehole Diam. (In) 6	Ground Elev. (ft) NA / Monument Elev. (ft) NA	PVC Elev. (ft) NA

Depth (Ft)	Sample Number	Interval	Blow Counts/6 In	Recovery(%)	PID (ppm)	Time	Depth (Ft)	Lithologic Description	USCS* Symbol	Soil Log	Well Log	Depth (Ft)
								Ground Surface				
							0.5	Concrete.	CONC			
								Grayish-brown, slightly gravelly, silty SAND; moist; strong hydrocarbon odor.	SM			
							3.0	Loose to medium dense, grayish-brown, silty, fine SAND and slightly silty, fine to medium SAND; moist to dry; very strong hydrocarbon odor.	SM			
5	1		8-9-14	100	45	1131						
	2		5-17-19	100	632	1147						
10							10.0	BOTTOM OF BORING 10 FEET				
15												

Remarks: Refer to key for explanation of terminology and symbols.

* USC soil descriptions are based on visual classification, unless otherwise noted. Contacts between soil layers are approximate and may be gradual.

LEGEND

- 2" O.D. Split-Spoon Sample
- 3" O.D. Split-Spoon Sample
- Water Level and Date Measured
- Water Level at Time of Drilling

Seattle Hilton Hotel
6th Avenue and University Street
Seattle, Washington

LOG OF BORING SB-1

January 1998 T-1772-01

Logged By	Reviewed By		
ACT	KAT	SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	FIG. A-2

ENVIRONMENTAL BOREHOLE LOG

Date Started 9/16/97	Location West of USTs	Depth Water First Encountered (Ft) 22.0
Date Completed 9/16/97	Drilling Company Davies Drilling	Drilling Method Hollow-stem Auger
Total Depth (Ft) 48.5	Sampling Method 3-inch I.D. Split-spoon	Hammer: Weight (lbs) 140 Drop (In) 30
Borehole Diam. (In) 6	Ground Elev. (ft) NA	Monument Elev. (ft) NA / PVC Elev. (ft) 94.90

Depth (Ft)	Sample Number	Interval	Blow Counts/6 In	Recovery(%)	PID (ppm)	Time	Depth (Ft)	Lithologic Description	USCS* Symbol	Soil Log	Well Log	Depth (Ft)
								Ground Surface				
							0.5	Concrete.	CONC			0.5
								Gray and brown, silty, sandy GRAVEL and sandy SILT; moist; pieces of bricks and asphalt; (Fill).	GM			
							2.0	Very stiff, grayish-brown, slightly clayey to clayey SILT, trace fine sand and fine gravel; moist; occasional slickensides; blocky.	ML			
5	1		14-15-29	100	0.3	0856						
	2		11-11-19	100	0	0911						
10	3		6-9-19	61	0	0932						12.0
	4		16-22-30	100	69.3	0948	13.0	Very stiff, gray, clayey SILT and fine SAND grading to SILT; dry to moist; slight hydrocarbon odor.	ML			
15	5		6-11-22	100	4.7	1001	14.5	Very stiff, gray, silty CLAY; moist; numerous partings of fine sand, blocky, slickensided, slight hydrocarbon odor.	CL			15.0
	6		22-27-30	100	2.5	1018	17.5	Very stiff and medium dense, gray and brown, clayey SILT and fine SAND; moist to dry; slight hydrocarbon odor.	ML			

Remarks: Refer to key for explanation of terminology and symbols.

* USC soil descriptions are based on visual classification, unless otherwise noted. Contacts between soil layers are approximate and may be gradual.

LEGEND

- 2" O.D. Split-Spoon Sample
- 3" O.D. Split-Spoon Sample
- Water Level and Date Measured
- Water Level at Time of Drilling

Seattle Hilton Hotel
6th Avenue and University Street
Seattle, Washington

LOG OF BORING MW-2

January 1998 T-1772-01

Logged By	Reviewed By		
ACT	KAT	SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	FIG. A-3 Sheet 1 of 3

ENVIRONMENTAL BOREHOLE LOG

Date Started 9/16/97	Location West of USTs	Depth Water First Encountered (Ft) 22.0	
Date Completed 9/16/97	Drilling Company Davies Drilling	Drilling Method Hollow-stem Auger	
Total Depth (Ft) 48.5	Sampling Method 3-inch I.D. Split-spoon	Hammer: Weight (lbs) 140	Drop (In) 30
Borehole Diam. (In) 6	Ground Elev. (ft) NA	Monitoring Elev. (ft) NA	PVC Elev. (ft) 94.90

Depth (Ft)	Sample Number	Interval	Blow Counts/6 In	Recovery(%)	PID (ppm)	Time	Depth (Ft)	Lithologic Description	USCS* Symbol	Soil Log	Well Log	Depth (Ft)
	7		11-22-32	100	29	1031	20.0	Very stiff and medium dense, gray and brown, clayey SILT and fine SAND; moist to dry; slight hydrocarbon odor.	ML			
							22.0	Dense to very dense, gray, fine SAND, clean to trace silt; wet; hydrocarbon odor.	SP		ATD 12/19/97	
	8		24-33-41	67	15.6	1047						
25	9		18-31-45	100	2.3	1059						
	10		27-45-50/4"	100	13.7	1119						
30	11		22-50/5"	100	5.4	1138						
	12		27-50/3"	100	14	1202	33.0	Very dense, gray, slightly clayey, slightly fine sandy SILT; moist; blocky.	ML			
							34.5	Very dense, gray, fine SAND, clean to trace silt; wet; hydrocarbon odor.	SP			35.0
35	13		25-50/6"	100	15.5	1225						
	14		40-50-5.5"	67	24.8	1330						

Remarks: Refer to key for explanation of terminology and symbols.

* USC soil descriptions are based on visual classification, unless otherwise noted. Contacts between soil layers are approximate and may be gradual.

LEGEND

- 2" O.D. Split-Spoon Sample
- 3" O.D. Split-Spoon Sample
- Water Level and Date Measured
- Water Level at Time of Drilling

Seattle Hilton Hotel
6th Avenue and University Street
Seattle, Washington

LOG OF BORING MW-2

January 1998 T-1772-01

Logged By	Reviewed By		
ACT	KAT	SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	FIG. A-3 Sheet 2 of 3

ENVLOG2 1/27/98

ENVIRONMENTAL BOREHOLE LOG

Date Started 9/16/97	Location West of USTs	Depth Water First Encountered (Ft) 22.0
Date Completed 9/16/97	Drilling Company Davies Drilling	Drilling Method Hollow-stem Auger
Total Depth (Ft) 48.5	Sampling Method 3-inch I.D. Split-spoon	Hammer: Weight (lbs) 140 Drop (In) 30
Borehole Diam. (In) 6	Ground Elev. (ft) NA / Monitoring Elev. (ft) NA	PVC Elev. (ft) 94.90

Depth (Ft)	Sample Number	Interval	Blow Counts/6 In	Recovery(%)	PID (ppm)	Time	Depth (Ft)	Lithologic Description	USCS* Symbol	Soil Log	Well Log	Depth (Ft)
	15		27-41-50/4"	67	65	1400	40.0	Very dense, gray, fine SAND, clean to trace silt; wet; hydrocarbon odor.	SP			
	16		50/6"-50/4"	44	---	1445						
45	17		18-45-50/3"	100	---	1555						
	18		30-50/6"	100	---	1620	47.8	Hard, slightly clayey to clayey SILT, trace fine sand; moist; blocky.	ML			48.5
							48.5	BOTTOM OF BORING 48.5 FEET				
50												
55												

NOTE: PVC elevation is relative to arbitrary site datum.

Remarks: Refer to key for explanation of terminology and symbols.

* USC soil descriptions are based on visual classification, unless otherwise noted. Contacts between soil layers are approximate and may be gradual.

LEGEND

- 2" O.D. Split-Spoon Sample
- 3" O.D. Split-Spoon Sample
- Water Level and Date Measured
- Water Level at Time of Drilling

Seattle Hilton Hotel
6th Avenue and University Street
Seattle, Washington

LOG OF BORING MW-2

January 1998 T-1772-01

Logged By	Reviewed By		
ACT	KAT	SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	FIG. A-3 Sheet 3 of 3

ENVLOG2 1/27/98

ENVIRONMENTAL BOREHOLE LOG

Date Started 9/15/97	Location Northwest of USTs	Depth Water First Encountered (Ft) 22.0
Date Completed 9/15/97	Drilling Company Davies Drilling	Drilling Method Hollow-stem Auger
Total Depth (Ft) 32.5	Sampling Method 3-inch I.D. Split-spoon	Hammer: Weight (lbs) 140 Drop (In) 30
Borehole Diam. (In) 6	Ground Elev. (ft) NA	Monument Elev. (ft) NA / PVC Elev. (ft) 93.75

Depth (Ft)	Sample Number	Interval	Blow Counts/6 In	Recovery(%)	PID (ppm)	Time	Depth (Ft)	Lithologic Description	USCS* Symbol
								Ground Surface	
							0.5	Concrete.	CONC
								Loose to very dense, brownish-gray, slightly silty fine SAND and fine sandy SILT; dry to moist; occasional gravel and concrete pieces (6 inches - 3 feet); (Fill).	SP-SM
5	1		7-10-12	100	0	1133			
	2		50/2"	33	0	1151			
							9.5	Medium dense, gray, fine SAND; moist.	SP
10	3		11-17-27	100	0	1204			
							12.0	Very stiff, gray and brown, slightly clayey to clayey SILT; moist; hydrocarbon odor.	ML
	4		12-24-30	100	156	1233			
15	5		12-19-31	100	273	1238			
							17.0	Medium dense, brownish-gray, slightly silty to silty fine SAND; moist to wet; hydrocarbon odor.	SP-SM
	6		25-29-36	67	64.8	1343			

Soil Log / Well Log

Depth (Ft)
0.5
12.0
15.0

Remarks: Refer to key for explanation of terminology and symbols.

* USC soil descriptions are based on visual classification, unless otherwise noted. Contacts between soil layers are approximate and may be gradual.

LEGEND

- 2" O.D. Split-Spoon Sample
- 3" O.D. Split-Spoon Sample
- Water Level and Date Measured
- Water Level at Time of Drilling

Seattle Hilton Hotel
6th Avenue and University Street
Seattle, Washington

LOG OF BORING MW-3

January 1998 T-1772-01

Logged By	Reviewed By		
ACT	KAT	SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	FIG. A-4 Sheet 1 of 2

ENVIRONMENTAL BOREHOLE LOG

Date Started 9/15/97	Location Northwest of USTs	Depth Water First Encountered (Ft) 22.0
Date Completed 9/15/97	Drilling Company Davies Drilling	Drilling Method Hollow-stem Auger
Total Depth (Ft) 32.5	Sampling Method 3-inch I.D. Split-spoon	Hammer: Weight (lbs) 140 Drop (In) 30
Borehole Diam. (In) 6	Ground Elev. (ft) NA	Monitoring Elev. (ft) NA / PVC Elev. (ft) 93.75

Depth (Ft)	Sample Number	Interval	Blow Counts/6 In	Recovery(%)	PID (ppm)	Time	Depth (Ft)	Lithologic Description	USCS* Symbol	Soil Log	Well Log	Depth (Ft)
	7		19-33-50/6"	72	44.1	1358	20.0	Very dense, brownish-gray, slightly silty to silty, fine SAND; moist to wet; hydrocarbon odor.	SP-SM		ATD 12/19/97	
	8		35-41-50/5"	67	10.1	1416						23.0
25	9		30-50/5.5"	78	61.2	1439						
	10		41-50/4.5"	100	6.4	1503						
30	11		50/5"	100	6.5	1537						30.0
							32.5	BOTTOM OF BORING 32.5 FEET				32.5
35								NOTE: PVC elevation is relative to arbitrary site datum.				

Remarks: Refer to key for explanation of terminology and symbols.

* USC soil descriptions are based on visual classification, unless otherwise noted. Contacts between soil layers are approximate and may be gradual.

LEGEND

- 2" O.D. Split-Spoon Sample
- 3" O.D. Split-Spoon Sample
- Water Level and Date Measured
- Water Level at Time of Drilling

Seattle Hilton Hotel
6th Avenue and University Street
Seattle, Washington

LOG OF BORING MW-3

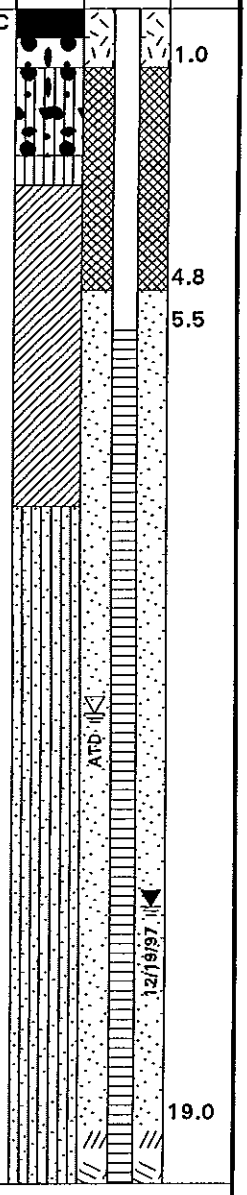
January 1998 T-1772-01

Logged By	Reviewed By		
ACT	KAT	SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	FIG. A-4 Sheet 2 of 2

ENVIRONMENTAL BOREHOLE LOG

Date Started 11/11/97	Location Northwest of USTs Level C	Depth Water First Encountered (Ft) 12.0
Date Completed 11/11/97	Drilling Company Davies Drilling	Drilling Method Hollow-stem Auger
Total Depth (Ft) 21.5	Sampling Method 2-inch O.D. Split-spoon	Hammer: Weight (lbs) 140 Drop (In) 30
Borehole Diam. (In) 6	Ground Elev. (ft) NA / Monument Elev. (ft) NA	PVC Elev. (ft) 86.60

Depth (Ft)	Sample Number	Interval	Blow Counts/6 In	Recovery(%)	PID (ppm)	Time	Depth (Ft)	Lithologic Description	USCS* Symbol
								Ground Surface	
							0.5	Concrete.	CONC
							1.0	Gray, sandy, fine GRAVEL; moist; (Subgrade).	GP
								Medium dense, brown, silty, sandy, fine GRAVEL; moist; (Fill).	GM
							2.5		
	1		4-5-8	100	23	1108	3.0	Medium dense, brown, sandy SILT, trace of fine gravel; moist.	ML
								Stiff, gray, silty CLAY; moist; blocky, occasional slickensides.	CL
5	2		2-4-6	100	30.1	1125			
								Very stiff below 7 feet.	
	3		8-9-14	100	12.2	1130	8.5		
								Medium dense, gray, silty, fine SAND; moist.	SM
10								Dense below 10 feet.	
	4		13-16-15	78	5.4	1140			
	5		19-19-24	78	12.7	1151			
15									
	6		14-19-17	89	28.8	1200			
								Very dense below 17 feet.	
	7		18-23-29	83	40.4	1213			



Remarks: Refer to key for explanation of terminology and symbols.

* USC soil descriptions are based on visual classification, unless otherwise noted. Contacts between soil layers are approximate and may be gradual.

LEGEND

- 2" O.D. Split-Spoon Sample
- 3" O.D. Split-Spoon Sample
- Water Level and Date Measured
- Water Level at Time of Drilling

Seattle Hilton Hotel
6th Avenue and University Street
Seattle, Washington

LOG OF BORING MW-4

January 1998 T-1772-01

Logged By	Reviewed By		
PVH	KAT	SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	FIG. A-5 Sheet 1 of 2

ENVIRONMENTAL BOREHOLE LOG

Date Started 11/11/97	Location Northwest of USTs Level C		Depth Water First Encountered (Ft) 12.0
Date Completed 11/11/97	Drilling Company Davies Drilling		Drilling Method Hollow-stem Auger
Total Depth (Ft) 21.5	Sampling Method 2-inch O.D. Split-spoon		Hammer: Weight (lbs) 140 Drop (In) 30
Borehole Diam. (In) 6	Ground Elev. (ft) NA	Monitoring Elev. (ft) NA	PVC Elev. (ft) 86.60

Depth (Ft)	Sample Number	Interval	Blow Counts/6 In	Recovery(%)	PID (ppm)	Time	Depth (Ft)	Lithologic Description	USCS* Symbol	Soil Log	Well Log	Depth (Ft)
	8		13-17	100	46	1236		Medium dense below 20 feet.				20.5
							21.5	BOTTOM OF BORING 21.5 FEET				21.5
25								NOTE: PVC elevation is relative to arbitrary site datum.				
30												
35												

Remarks: Refer to key for explanation of terminology and symbols.

* USC soil descriptions are based on visual classification, unless otherwise noted. Contacts between soil layers are approximate and may be gradual.

LEGEND

- 2" O.D. Split-Spoon Sample
- 3" O.D. Split-Spoon Sample
- Water Level and Date Measured
- Water Level at Time of Drilling

Seattle Hilton Hotel
6th Avenue and University Street
Seattle, Washington

LOG OF BORING MW-4

January 1998 T-1772-01

Logged By	Reviewed By	
PVH	KAT	SHANNON & WILSON, INC. Geotechnical and Environmental Consultants

FIG. A-5
Sheet 2 of 2

ENVIRONMENTAL BOREHOLE LOG

Date Started 11/10/97	Location Outside of Garage in Sidewalk	Depth Water First Encountered (Ft) 32.0
Date Completed 11/10/97	Drilling Company Davies Drilling	Drilling Method Hollow-stem Auger
Total Depth (Ft) 46.5	Sampling Method 2-inch O.D. Split-spoon	Hammer: Weight (lbs) 140 Drop (In) 30
Borehole Diam. (In) 6	Ground Elev. (ft) NA / Monument Elev. (ft) NA	PVC Elev. (ft) 107.66

Depth (Ft)	Sample Number	Interval	Blow Counts/6 in	Recovery(%)	PID (ppm)	Time	Depth (Ft)	Lithologic Description	USCS* Symbol	Soil Log	Well Log	Depth (Ft)
								Ground Surface				
							0.3	Concrete.	CONC			
								Brownish-gray, silty, sandy GRAVEL; moist; large concrete pieces; (Fill).	GM			0.8
							4.0					
5	1		2-1-1	67	3.1	1006		Very loose, brownish-gray, slightly fine gravelly, fine to medium SAND; dry; organic odor.	SP			
							7.5					
								Loose to medium dense, brownish-gray, slightly fine gravelly, fine sandy SILT, trace coarse gravel and clay; moist.	ML			
10	2		3-5-8	100	0.5	1019						
15	3		5-6-5	67	4.1	1027	15.8	Loose, gray, fine SAND; moist to wet; hydrocarbon odor.	SP			16.0
	4		3-2-2	67	13.1	1034	18.0	Soft, gray, iron-stained SILT; moist; hydrocarbon odor.	ML			20.0

Remarks: Refer to key for explanation of terminology and symbols.

* USC soil descriptions are based on visual classification, unless otherwise noted. Contacts between soil layers are approximate and may be gradual.

LEGEND

- 2" O.D. Split-Spoon Sample
- 3" O.D. Split-Spoon Sample
- Water Level and Date Measured
- Water Level at Time of Drilling

Seattle Hilton Hotel
6th Avenue and University Street
Seattle, Washington

LOG OF BORING MW-5

January 1998 T-1772-01

Logged By	Reviewed By		
ACT	KAT	SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	FIG. A-6 Sheet 1 of 3

ENVIRONMENTAL BOREHOLE LOG

Date Started 11/10/97	Location Outside of Garage in Sidewalk	Depth Water First Encountered (Ft) 32.0
Date Completed 11/10/97	Drilling Company Davies Drilling	Drilling Method Hollow-stem Auger
Total Depth (Ft) 46.5	Sampling Method 2-inch O.D. Split-spoon	Hammer: Weight (lbs) 140 Drop (In) 30
Borehole Diam. (In) 6	Ground Elev. (ft) NA / Monitoring Elev. (ft) NA	PVC Elev. (ft) 107.66

Depth (Ft)	Sample Number	Interval	Blow Counts/6 In	Recovery(%)	PID (ppm)	Time	Depth (Ft)	Lithologic Description	USCS* Symbol	Soil Log	Well Log	Depth (Ft)
	5		2-1-2	67	130	1041	20.0	Very loose, gray, fine SAND, trace silt; dry to moist; hydrocarbon odor.	SP			
							22.0	Medium stiff, gray SILT; dry to moist; blocky; hydrocarbon odor.	ML			
	6		4-3-2	78	25.2	1050						
25							24.5	Very loose, fine gravelly SAND; dry to moist; hydrocarbon odor.	SW			
	7		1-1-2	100	21.7	1057						
							26.5	Medium dense, light gray, fine SAND; dry to moist; hydrocarbon odor.	SP			
	8		4-4-6	67	300	1104						
30												
	9		2-5-6	0	--	1111						31.0
							32.0	Medium dense, gray, slightly silty to silty, fine SAND; moist to wet.	SP-SM			
	10		8-8-8	67	5	1120					2/19/98	
35												
	11		7-6-6	78	3.0	1129						
	12		7-8-8	56	15.6	1142						39.5

Remarks: Refer to key for explanation of terminology and symbols.

* USC soil descriptions are based on visual classification, unless otherwise noted. Contacts between soil layers are approximate and may be gradual.

LEGEND

- 2" O.D. Split-Spoon Sample
- 3" O.D. Split-Spoon Sample
- Water Level and Date Measured
- Water Level at Time of Drilling

Seattle Hilton Hotel
6th Avenue and University Street
Seattle, Washington

LOG OF BORING MW-5

January 1998 T-1772-01

Logged By	Reviewed By		
ACT	KAT	SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	FIG. A-6 Sheet 2 of 3

ENVIRONMENTAL BOREHOLE LOG

Date Started 11/10/97	Location Outside of Garage in Sidewalk	Depth Water First Encountered (Ft) 32.0
Date Completed 11/10/97	Drilling Company Davies Drilling	Drilling Method Hollow-stem Auger
Total Depth (Ft) 46.5	Sampling Method 2-inch O.D. Split-spoon	Hammer: Weight (lbs) 140 Drop (In) 30
Borehole Diam. (In) 6	Ground Elev. (ft) NA / Monitoring Elev. (ft) NA	PVC Elev. (ft) 107.66

Depth (Ft)	Sample Number	Interval	Blow Counts/6 in	Recovery(%)	PID (ppm)	Time	Depth (Ft)	Lithologic Description	USCS* Symbol	Soil Log	Well Log	Depth (Ft)
	13		9-7-8	67	10.6	1153	40.0	Medium dense, gray, slightly silty to silty, fine SAND; moist to wet; layer of gray sand at 45 feet.	SP-SM			
45	14		5-7-9	100	8.3	1215	46.5	BOTTOM OF BORING 46.5 FEET				46.5
50								NOTE: PVC elevation is relative to arbitrary site datum. Depth to water measurement (32.79 feet) is the adjusted depth to water, given that product was encountered in this well.				
55												

Remarks: Refer to key for explanation of terminology and symbols.

* USC soil descriptions are based on visual classification, unless otherwise noted. Contacts between soil layers are approximate and may be gradual.

LEGEND

- 2" O.D. Split-Spoon Sample
- 3" O.D. Split-Spoon Sample
- Water Level and Date Measured
- Water Level at Time of Drilling

Seattle Hilton Hotel
6th Avenue and University Street
Seattle, Washington

LOG OF BORING MW-5

January 1998 T-1772-01

Logged By	Reviewed By		
ACT	KAT	SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	FIG. A-6 Sheet 3 of 3

APPENDIX B

ANALYTICAL LABORATORY REPORTS

CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 11/26/97
CCIL JOB #: 711046
CCIL SAMPLE #: 4
DATE RECEIVED: 11/12/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: KATHY TROOST

CLIENT PROJECT ID: T-1772-01
CLIENT SAMPLE ID: MW4-4-S 11/11/97 1140

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	ND(<5)	MG/KG	100MG/KG	11/25/97	AMR
BENZENE	EPA-8020	ND(<0.1)	MG/KG	.5MG/KG	11/25/97	AMR
TOLUENE	EPA-8020	ND(<0.1)	MG/KG	40MG/KG	11/25/97	AMR
ETHYLBENZENE	EPA-8020	ND(<0.1)	MG/KG	20MG/KG	11/25/97	AMR
XYLENES	EPA-8020	ND(<0.3)	MG/KG	20MG/KG	11/25/97	AMR
TOTAL LEAD	EPA-7421	ND(<8)	MG/KG		11/24/97	JLB

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

*** ACTIONS LEVELS ARE PROVIDED ONLY WHEN PARAMETER DATA IS USED FOR A GENERALLY CONSISTENT APPLICATION. WHEN PROVIDED, THEY SHOULD BE USED AS GUIDELINES ONLY. THE APPROPRIATE REGULATORY DOCUMENT SHOULD BE CONSULTED BEFORE MAKING ANY DECISIONS BASED ON ANALYTICAL DATA

APPROVED BY: 

3229 Pine St. • Everett, WA 98201 • 425 258-4548 • FAX 425 259-6289 • Seattle 206 292-9059

CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 11/26/97
CCIL JOB #: 711046
CCIL SAMPLE #: 5
DATE RECEIVED: 11/12/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: KATHY TROOST

CLIENT PROJECT ID: T-1772-01
CLIENT SAMPLE ID: MW4-5-S 11/11/97 1151

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	ND(<5)	MG/KG	100MG/KG	11/18/97	AMR
BENZENE	EPA-8020	ND(<0.1)	MG/KG	.5MG/KG	11/18/97	AMR
TOLUENE	EPA-8020	ND(<0.1)	MG/KG	40MG/KG	11/18/97	AMR
ETHYLBENZENE	EPA-8020	ND(<0.1)	MG/KG	20MG/KG	11/18/97	AMR
XYLENES	EPA-8020	ND(<0.3)	MG/KG	20MG/KG	11/18/97	AMR
TOTAL LEAD	EPA-7421	ND(<8)	MG/KG		11/24/97	JLB

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

*** ACTIONS LEVELS ARE PROVIDED ONLY WHEN PARAMETER DATA IS USED FOR A GENERALLY CONSISTENT APPLICATION. WHEN PROVIDED, THEY SHOULD BE USED AS GUIDELINES ONLY. THE APPROPRIATE REGULATORY DOCUMENT SHOULD BE CONSULTED BEFORE MAKING ANY DECISIONS BASED ON ANALYTICAL DATA

APPROVED BY: 

3229 Pine St. • Everett, WA 98201 • 425 258-4548 • FAX 425 259-6289 • Seattle 206 292-9059

CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 11/26/97
CCIL JOB #: 711046

DATE RECEIVED: 11/12/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: KATHY TROOST

CLIENT PROJECT ID: T-1772-01

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

CCIL SAMPLE ID	ANALYTE	SUR ID	% RECV
711046-04	WTPH-G	TFT	107
711046-04	EPA-8020	TFT	84
711046-05	WTPH-G	TFT	108
711046-05	EPA-8020	TFT	89

* SURROGATE DILUTED OUT OF CALIBRATION RANGE

APPROVED BY: _____

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Cl[illegible]lytica[illegible]orator[illegible].
3229 Pine Street
Everett, WA 98201
Phone (425) 258-4548
(206) 292-9059 Seattle
(425) 259-6289 Fax

Chain of Custody / Laboratory Analysis Request

CC [illegible]rator[illegible] Only)

Date 11/12/97 Page 1 Of 1

REPORT TO COMPANY: Shannon & Wilson, Inc.
PROJECT MANAGER: Kathy Troost
ADDRESS: 400 N. 34th St., Suite 100
Seattle WA 98103
PHONE 206-632-8020 FAX 206-633-6777

INVOICE TO COMPANY: Same
ATTENTION: Agnes Tirao
ADDRESS:

P.O. NUMBER: T-1772-01 CCI QUOTE:

ANALYSIS REQUESTED

OTHER (Specify)

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	WTPH-G ☐	WTPH-D ☐ 8015 MODIFIED ☐	WTPH-418.1	BTEX	WTPH-HCID	EPA 8020 ☐ 602 ☐	EPA 8010 ☐ 601 ☐	EPA 8240 ☐ 624 ☐ 8260 ☐	EPA 8270 ☐ 625 ☐	EPA 8080 ☐ 608 ☐ PCB only ☐ Pest only ☐	Metals Priority Pollutant ☐ RCRA ☐ TAL ☐	Metals Other (Specify) Lead only	TCLP Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herb ☐	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. MW4-1-S	11/11/97	1108	Soil															3	
2. MW4-2-S		1125																3	
3. MW4-3-S		1130																3	
4. MW4-4-S		1140			/			/								/		3	
5. MW4-5-S		1151			/			/								/		3	
6. MW4-6-S		1200																3	
7. MW4-7-S		1213																3	
8. MW4-8-S	↓	1236	↓															2	
9.																			
10.																			

SPECIAL INSTRUCTIONS Hold pending call From Kathy Troost.

SIGNATURES (Name, Company, Date, and Time):

1. Relinquished By: Paul L. VanHomme, Shannon & Wilson, 11/12/97 1006
Received By: [signature] CCIK 11/12/97 1006

2. Relinquished By:
Received By:

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis
10 Standard | 5 | 3 | 2 | 1 | Same Day

Fuels & Hydrocarbon Analysis
5 Standard | 3 | 1 | Same Day

OTHER:
Specify: 10-day T.A.T.

* Turnaround Requests less than standard may incur Rush Charges.

CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 11/26/97
CCIL JOB #: 711045
CCIL SAMPLE #: 6
DATE RECEIVED: 11/12/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: KATHY TROOST

CLIENT PROJECT ID: T-1772-01
CLIENT SAMPLE ID: MW5-S-8 11/10/97 1104

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	220	MG/KG	1000 UG/L	11/25/97	AMR
BENZENE	EPA-8020	ND(<0.1)	MG/KG	.5MG/KG	11/25/97	AMR
TOLUENE	EPA-8020	ND(<0.1)	MG/KG	40MG/KG	11/25/97	AMR
ETHYLBENZENE	EPA-8020	1	MG/KG	20MG/KG	11/25/97	AMR
XYLENES	EPA-8020	2.9	MG/KG	20MG/KG	11/25/97	AMR
TOTAL LEAD	EPA-7421	ND(<8)	MG/KG		11/24/97	JLB

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

*** ACTIONS LEVELS ARE PROVIDED ONLY WHEN PARAMETER DATA IS USED FOR A GENERALLY CONSISTENT APPLICATION. WHEN PROVIDED, THEY SHOULD BE USED AS GUIDELINES ONLY. THE APPROPRIATE REGULATORY DOCUMENT SHOULD BE CONSULTED BEFORE MAKING ANY DECISIONS BASED ON ANALYTICAL DATA

APPROVED BY: _____

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CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 11/26/97
CCIL JOB #: 711045
CCIL SAMPLE #: 7
DATE RECEIVED: 11/12/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: KATHY TROOST

CLIENT PROJECT ID: T-1772-01
CLIENT SAMPLE ID: MW5-S-10 11/10/97 1120

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	24	MG/KG	1000 UG/L	11/25/97	AMR
BENZENE	EPA-8020	ND(<0.1)	MG/KG	.5MG/KG	11/25/97	AMR
TOLUENE	EPA-8020	0.1	MG/KG	40MG/KG	11/25/97	AMR
ETHYLBENZENE	EPA-8020	0.2	MG/KG	20MG/KG	11/25/97	AMR
XYLENES	EPA-8020	0.8	MG/KG	20MG/KG	11/25/97	AMR
TOTAL LEAD	EPA-7421	ND(<8)	MG/KG		11/24/97	JLB

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

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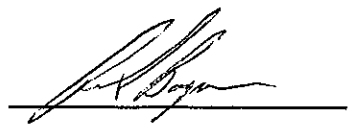
APPROVED BY: 

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CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 11/26/97
CCIL JOB #: 711045
CCIL SAMPLE #: 9
DATE RECEIVED: 11/12/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: KATHY TROOST

CLIENT PROJECT ID: T-1772-01
CLIENT SAMPLE ID: MW5-S-14 11/10/97 1215

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	56	MG/KG	1000 UG/L	11/25/97	AMR
BENZENE	EPA-8020	0.5	MG/KG	.5MG/KG	11/25/97	AMR
TOLUENE	EPA-8020	0.3	MG/KG	40MG/KG	11/25/97	AMR
ETHYLBENZENE	EPA-8020	1.8	MG/KG	20MG/KG	11/25/97	AMR
XYLENES	EPA-8020	4.7	MG/KG	20MG/KG	11/25/97	AMR
TOTAL LEAD	EPA-7421	ND(<8)	MG/KG		11/24/97	JLB

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

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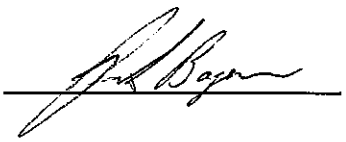
APPROVED BY: 

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ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 11/26/97
CCIL JOB #: 711045

DATE RECEIVED: 11/12/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: KATHY TROOST

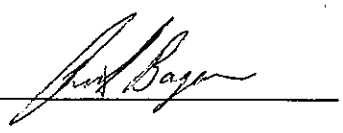
CLIENT PROJECT ID: T-1772-01

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

CCIL SAMPLE ID	ANALYTE	SUR ID	% RECV
711045-06	WTPH-G	TFT	*
711045-06	EPA-8020	TFT	90
711045-07	WTPH-G	TFT	107
711045-07	EPA-8020	TFT	86
711045-09	WTPH-G	TFT	105
711045-09	EPA-8020	TFT	85

* SURROGATE DILUTED OUT OF CALIBRATION RANGE

APPROVED BY: 

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Cascade Analytical Laboratory, Inc.
3229 Pine Street
Everett, WA 98201
Phone (425) 258-4548
(206) 292-9059 Seattle
(425) 259-6289 Fax

Chain of Custody, Laboratory Analysis Request

CCI Job # (Laboratory Use Only)

Date 11/10/97 Page 1 Of 1

PUH 1.2

REPORT TO COMPANY:	SHANNON & WILSON, INC.
PROJECT MANAGER:	KATHY TROOST
ADDRESS:	400 NORTH 34th ST SUITE 100
	SEATTLE WA 98103
PHONE:	206-632-8020 FAX: 206-633-6777
INVOICE TO COMPANY:	SAME AS ABOVE
ATTENTION:	NONES TIRADO
ADDRESS:	
P.O. NUMBER:	T-1772-01 CCI QUOTE:

ANALYSIS REQUESTED

OTHER (Specify)

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	WTPH-G	WTPH-D ☐ 8015 MODIFIED ☐	WTPH-418.1	BTEX	WTPH-HCID	EPA 8020 ☐ 602 ☐	EPA 8010 ☐ 601 ☐	EPA 8240 ☐ 624 ☐ 8260 ☐	EPA 8270 ☐ 625 ☐	EPA 8080 ☐ 608 ☐ PCB only ☐ Pest only ☐	Metals Priority Pollutant ☐ RCRA ☐ TAL ☐	Metals Other (Specify) LEAD only	TCLP Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herb ☐									NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. MW5-S-3	11/10/97	1027			X	X HOLD		X	HOLD							X HOLD									2	
2. MW5-S-4	"	1034				X HOLD			HOLD							HOLD									1	
3. MW5-S-5		1041																								
4. MW5-S-6		1050																								
5. MW5-S-7		1057																								
6. MW5-S-8		1104			/			//							//	//										
7. MW5-S-10		1120			/			//							//	//										
8. MW5-S-11		1179						//																		
9. MW5-S-14	↓	125			/			//							//	//										
10.																										

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, and Time):

1. Relinquished By: [signature] S&W, 11-12-97 1000

Received By: [signature] CCAL 11/12/97 10:06

2. Relinquished By: _____

Received By: _____

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis

10 Standard | 5 | 3 | 2 | 1 | Same Day

Fuels & Hydrocarbon Analysis

5 Standard | 3 | 1 | Same Day

OTHER:

Specify: 10-day TAT
HOLD ALL ANALYSES
UNTIL DIRECTED BY
KATHY TROOST

* Turnaround Requests less than standard may incur Rush Charges.

CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 10/8/97
CCIL JOB #: 709124
CCIL SAMPLE #: 1
DATE RECEIVED: 9/25/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: AGNES TIRAO

CLIENT PROJECT ID: T-1772-01
CLIENT SAMPLE ID: MW2-W-01 9/25/97 945

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	4700	UG/L	1000 UG/L	10/7/97	AMR
BENZENE	EPA-8020	6700	UG/L	5 UG/L	10/6/97	AMR
TOLUENE	EPA-8020	210	UG/L	40 UG/L	10/7/97	AMR
ETHYLBENZENE	EPA-8020	670	UG/L	30 UG/L	10/7/97	AMR
XYLENES	EPA-8020	590	UG/L	20 UG/L	10/7/97	AMR
TOTAL LEAD	EPA-7421	0.008	MG/L		9/30/97	JLB
DISSOLVED LEAD	EPA-7421	ND(<0.004)	MG/L		9/30/97	JLB

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

*** ACTIONS LEVELS ARE PROVIDED ONLY WHEN PARAMETER DATA IS USED FOR A GENERALLY CONSISTENT APPLICATION. WHEN PROVIDED, THEY SHOULD BE USED AS GUIDELINES ONLY. THE APPROPRIATE REGULATORY DOCUMENT SHOULD BE CONSULTED BEFORE MAKING ANY DECISIONS BASED ON ANALYTICAL DATA

APPROVED BY: _____

3229 Pine St. • Everett, WA 98201 • 425 258-4548 • FAX 425 259-6289 • Seattle 206 292-9059

CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 10/8/97
CCIL JOB #: 709124
CCIL SAMPLE #: 2
DATE RECEIVED: 9/25/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: AGNES TIRAO

CLIENT PROJECT ID: T-1772-01
CLIENT SAMPLE ID: MW3-W-01 9/25/97 1045

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	700	UG/L	1000 UG/L	9/29/97	AMR
BENZENE	EPA-8020	7200	UG/L	5 UG/L	10/6/97	AMR
TOLUENE	EPA-8020	10	UG/L	40 UG/L	9/29/97	AMR
ETHYLBENZENE	EPA-8020	74	UG/L	30 UG/L	9/29/97	AMR
XYLENES	EPA-8020	97	UG/L	20 UG/L	9/29/97	AMR
TOTAL LEAD	EPA-7421	0.009	MG/L		9/30/97	JLB
DISSOLVED LEAD	EPA-7421	ND(<0.004)	MG/L		9/30/97	JLB

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

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APPROVED BY: _____

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CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 10/8/97
CCIL JOB #: 709124

DATE RECEIVED: 9/25/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: AGNES TIRAO

CLIENT PROJECT ID: T-1772-01

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

CCIL SAMPLE ID	ANALYTE	SUR ID	% RECV
709124-01	WTPH-G	TFT	118
709124-01(BENZENE)	EPA-8020	TFT	121
709124-01(TOL,ETHYLBENZ, XYLENE)	EPA-8020	TFT	126
709124-02	WTPH-G	TFT	106
709124-02(BENZENE)	EPA-8020	TFT	121
709124-02(TOL,ETHYLBENZ, XYLENE)	EPA-8020	TFT	86

APPROVED BY: _____

3229 Pine St. • Everett, WA 98201 • 425 258-4548 • FAX 425 259-6289 • Seattle 206 292-9059

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

CHAIN OF CUSTODY RECORD

Page 1 of 1
Laboratory CCI
Attn:

400 N. 34th Street, Suite 100
Seattle, WA 98103
(206) 632-8020

11500 Olive Blvd., Suite 276
St. Louis, MO 63141
(314) 872-8170

1354 N. Grandridge Blvd.
Kennewick, WA 99336
(509) 735-1280

2055 Hill Road
Fairbanks, AK 99709
(907) 479-0600

5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
(907) 561-2120

2412 N. 30th St., Suite 201
Tacoma, WA 98407
(206) 759-0156

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	NWPH-G/BTEX	VPH *	EPH	TOTAL/DISSOLVED LEAD **			Total Number of Containers	Remarks/Matrix
MW2-W-01		0945	9/25/11		X	9/26			9/26			6	WATER
MW3-W-01		1045	↓		X	9/26			9/26			6	↓

Project Information		Sample Receipt	
Project Number:	T-1772-01	Total Number of Containers	
Project Name:	SEATTLE HILTON	COC Seals/Intact? Y/N/NA	
Contact:	AGNES TIRAO	Received Good Cond./Cold	
Ongoing Project?	Yes ☒ No ☐	Delivery Method:	
Sampler:	LAW	(attach shipping bill, if any)	

Instructions

Requested Turn Around Time: STANDARD (10-DAY)

Special Instructions:
→ PER CCI QUOTE
⇒ HOLD ALL ANALYSES UNTIL

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1315	Signature: Time:	Signature: Time:
Printed Name: AGNES TIRAO Date: 9/25/11	Printed Name: Date:	Printed Name: Date:
Company: SHW	Company:	Company:
Received By: 1.	**Received By: 2.**	**Received By: 3.**
Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Company:	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ Laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

* PLEASE INCLUDE MTBE & NAPHTHALENE → DIRECTED BY AGNES T. OR KATHY T.

** PLEASE FILTER FOR DISSOLVED Pb

No.

CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 9/24/97
CCIL JOB #: 709074
CCIL SAMPLE #: 2
DATE RECEIVED: 9/17/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: AGNES TIRAO

CLIENT PROJECT ID: T-1772-01
CLIENT SAMPLE ID: MW3-S-5 9/15/97 1238

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	ND(<5)	MG/KG	100MG/KG	9/23/97	AMR
BENZENE	EPA-8020	ND(<0.1)	MG/KG	.5MG/KG	9/23/97	AMR
TOLUENE	EPA-8020	ND(<0.1)	MG/KG	40MG/KG	9/23/97	AMR
ETHYLBENZENE	EPA-8020	0.1	MG/KG	20MG/KG	9/23/97	AMR
XYLENES	EPA-8020	0.6	MG/KG	20MG/KG	9/23/97	AMR
LEAD	EPA-7420	ND(<8)	MG/KG		9/18/97	JLB

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

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APPROVED BY: CNP

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CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 9/24/97
CCIL JOB #: 709074
CCIL SAMPLE #: 3
DATE RECEIVED: 9/17/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: AGNES TIRAO

CLIENT PROJECT ID: T-1772-01
CLIENT SAMPLE ID: MW3-S-7 9/15/97 1358

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	ND(<5)	MG/KG	100MG/KG	9/23/97	AMR
BENZENE	EPA-8020	ND(<0.1)	MG/KG	.5MG/KG	9/23/97	AMR
TOLUENE	EPA-8020	ND(<0.1)	MG/KG	40MG/KG	9/23/97	AMR
ETHYLBENZENE	EPA-8020	ND(<0.1)	MG/KG	20MG/KG	9/23/97	AMR
XYLENES	EPA-8020	ND(<0.3)	MG/KG	20MG/KG	9/23/97	AMR
LEAD	EPA-7420	ND(<8)	MG/KG		9/18/97	JLB

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

*** ACTIONS LEVELS ARE PROVIDED ONLY WHEN PARAMETER DATA IS USED FOR A GENERALLY CONSISTENT APPLICATION. WHEN PROVIDED, THEY SHOULD BE USED AS GUIDELINES ONLY. THE APPROPRIATE REGULATORY DOCUMENT SHOULD BE CONSULTED BEFORE MAKING ANY DECISIONS BASED ON ANALYTICAL DATA

APPROVED BY: _____

3229 Pine St. • Everett, WA 98201 • 425 258-4548 • FAX 425 259-6289 • Seattle 206 292-9059

CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 9/24/97
CCIL JOB #: 709074
CCIL SAMPLE #: 4
DATE RECEIVED: 9/17/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: AGNES TIRAO

CLIENT PROJECT ID: T-1772-01
CLIENT SAMPLE ID: MW3-S-11 9/15/97 1537

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	ND(<5)	MG/KG	100MG/KG	9/23/97	AMR
BENZENE	EPA-8020	0.2	MG/KG	.5MG/KG	9/23/97	AMR
TOLUENE	EPA-8020	ND(<0.1)	MG/KG	40MG/KG	9/23/97	AMR
ETHYLBENZENE	EPA-8020	0.1	MG/KG	20MG/KG	9/23/97	AMR
XYLENES	EPA-8020	ND(<0.3)	MG/KG	20MG/KG	9/23/97	AMR
LEAD	EPA-7420	ND(<8)	MG/KG		9/18/97	JLB

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

*** ACTIONS LEVELS ARE PROVIDED ONLY WHEN PARAMETER DATA IS USED FOR A GENERALLY CONSISTENT APPLICATION. WHEN PROVIDED, THEY SHOULD BE USED AS GUIDELINES ONLY. THE APPROPRIATE REGULATORY DOCUMENT SHOULD BE CONSULTED BEFORE MAKING ANY DECISIONS BASED ON ANALYTICAL DATA

APPROVED BY: _____

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LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 9/24/97
CCIL JOB #: 709074
CCIL SAMPLE #: 7
DATE RECEIVED: 9/17/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: AGNES TIRAO

CLIENT PROJECT ID: T-1772-01
CLIENT SAMPLE ID: MW2-S-8 9/16/97 1047

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	ND(<5)	MG/KG	100MG/KG	9/23/97	AMR
BENZENE	EPA-8020	0.4	MG/KG	.5MG/KG	9/23/97	AMR
TOLUENE	EPA-8020	ND(<0.1)	MG/KG	40MG/KG	9/23/97	AMR
ETHYLBENZENE	EPA-8020	0.1	MG/KG	20MG/KG	9/23/97	AMR
XYLENES	EPA-8020	0.3	MG/KG	20MG/KG	9/23/97	AMR
LEAD	EPA-7420	ND(<8)	MG/KG		9/18/97	JLB

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

*** ACTIONS LEVELS ARE PROVIDED ONLY WHEN PARAMETER DATA IS USED FOR A GENERALLY CONSISTENT APPLICATION. WHEN PROVIDED, THEY SHOULD BE USED AS GUIDELINES ONLY. THE APPROPRIATE REGULATORY DOCUMENT SHOULD BE CONSULTED BEFORE MAKING ANY DECISIONS BASED ON ANALYTICAL DATA

APPROVED BY: _____

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CCI
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LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 9/24/97
CCIL JOB #: 709074
CCIL SAMPLE #: 12
DATE RECEIVED: 9/17/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: AGNES TIRAO

CLIENT PROJECT ID: T-1772-01
CLIENT SAMPLE ID: MW2-S-15 9/16/97 1400

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	ND(<5)	MG/KG	100MG/KG	9/23/97	AMR
BENZENE	EPA-8020	0.3	MG/KG	.5MG/KG	9/23/97	AMR
TOLUENE	EPA-8020	ND(<0.1)	MG/KG	40MG/KG	9/23/97	AMR
ETHYLBENZENE	EPA-8020	0.1	MG/KG	20MG/KG	9/23/97	AMR
XYLENES	EPA-8020	0.3	MG/KG	20MG/KG	9/23/97	AMR
LEAD	EPA-7420	ND(<8)	MG/KG		9/18/97	JLB

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

*** ACTIONS LEVELS ARE PROVIDED ONLY WHEN PARAMETER DATA IS USED FOR A GENERALLY CONSISTENT APPLICATION. WHEN PROVIDED, THEY SHOULD BE USED AS GUIDELINES ONLY. THE APPROPRIATE REGULATORY DOCUMENT SHOULD BE CONSULTED BEFORE MAKING ANY DECISIONS BASED ON ANALYTICAL DATA

APPROVED BY: _____

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CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 9/26/97
CCIL JOB #: 709074
CCIL SAMPLE #: 15
DATE RECEIVED: 9/17/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: AGNES TIRAO

CLIENT PROJECT ID: T-1772-01
CLIENT SAMPLE ID: MW2-S-18 9/16/97 1620

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
HCID-GAS RANGE	WTPH-HCID	ND(<20)	MG/KG GAS	100MG/KG	9/26/97	AMR
HCID-DIESEL RANGE	WTPH-HCID	ND(<50)	MG/KG DSL	.5MG/KG	9/26/97	AMR
HCID-OIL RANGE	WTPH-HCID	ND(<100)	MG/KG OIL	40MG/KG	9/26/97	AMR

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

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APPROVED BY: _____

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ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 9/26/97
CCIL JOB #: 709074

DATE RECEIVED: 9/17/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: AGNES TIRAO

CLIENT PROJECT ID: T-1772-01

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

CCIL SAMPLE ID	ANALYTE	SUR ID	% RECV
709074-02	WTPH-G	TFT	107
709074-02	EPA-8020	TFT	90
709074-03	WTPH-G	TFT	90
709074-03	EPA-8020	TFT	78
709074-04	WTPH-G	TFT	95
709074-04	EPA-8020	TFT	81
709074-07	WTPH-G	TFT	94
709074-07	EPA-8020	TFT	79
709074-12	WTPH-G	TFT	92
709074-12	EPA-8020	TFT	78
709074-15	WTPH-HCID	BCB	100
709074-15	WTPH-HCID	C25	108
709074-15(4 TO 1)	WTPH-HCID	C25	73

APPROVED BY: CPL

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CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 9/24/97
CCIL JOB #: 709080
CCIL SAMPLE #: 2
DATE RECEIVED: 9/18/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: AGNES TIRAO

CLIENT PROJECT ID: T-1772-01
CLIENT SAMPLE ID: MW1-S-2 9/17/97 1147

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	7	MG/KG	100MG/KG	9/23/97	AMR
BENZENE	EPA-8020	ND(<0.1)	MG/KG	.5MG/KG	9/23/97	AMR
TOLUENE	EPA-8020	0.1	MG/KG	40MG/KG	9/23/97	AMR
ETHYLBENZENE	EPA-8020	ND(<0.1)	MG/KG	20MG/KG	9/23/97	AMR
XYLENES	EPA-8020	0.8	MG/KG	20MG/KG	9/23/97	AMR
LEAD	EPA-7420	ND(<8)	MG/KG		9/23/97	JLB

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

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APPROVED BY: _____

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LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 9/24/97
CCIL JOB #: 709080

DATE RECEIVED: 9/18/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: AGNES TIRAO

CLIENT PROJECT ID: T-1772-01

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

CCIL SAMPLE ID	ANALYTE	SUR ID	% RECV
709080-02	WTPH-G	TFT	123
709080-02	EPA-8020	TFT	100

APPROVED BY: _____

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CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 9/30/97
CCIL JOB #: 709074
CCIL SAMPLE #: 5
DATE RECEIVED: 9/17/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: AGNES TIRAO

CLIENT PROJECT ID: T-1772-01
CLIENT SAMPLE ID: MW2-S-4 9/16/97 0948

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	ND(<5)	MG/KG	100MG/KG	9/30/97	AMR
BENZENE	EPA-8020	ND(<0.1)	MG/KG	.5MG/KG	9/30/97	AMR
TOLUENE	EPA-8020	0.4	MG/KG	40MG/KG	9/30/97	AMR
ETHYLBENZENE	EPA-8020	ND(<0.1)	MG/KG	20MG/KG	9/30/97	AMR
XYLENES	EPA-8020	ND(<0.3)	MG/KG	20MG/KG	9/30/97	AMR

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

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APPROVED BY: _____

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ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 9/30/97
CCIL JOB #: 709074

DATE RECEIVED: 9/17/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: AGNES TIRAO

CLIENT PROJECT ID: T-1772-01

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

CCIL SAMPLE ID	ANALYTE	SUR ID	% RECV
709074-02	WTPH-G	TFT	107
709074-02	EPA-8020	TFT	90
709074-03	WTPH-G	TFT	90
709074-03	EPA-8020	TFT	78
709074-04	WTPH-G	TFT	95
709074-04	EPA-8020	TFT	81
709074-05	WTPH-G	TFT	102
709074-05	EPA-8020	TFT	86
709074-07	WTPH-G	TFT	94
709074-07	EPA-8020	TFT	79
709074-12	WTPH-G	TFT	92
709074-12	EPA-8020	TFT	78
709074-15	WTPH-HCID	BCB	100
709074-15	WTPH-HCID	C25	108
709074-15(4 TO 1)	WTPH-HCID	C25	73

APPROVED BY: _____

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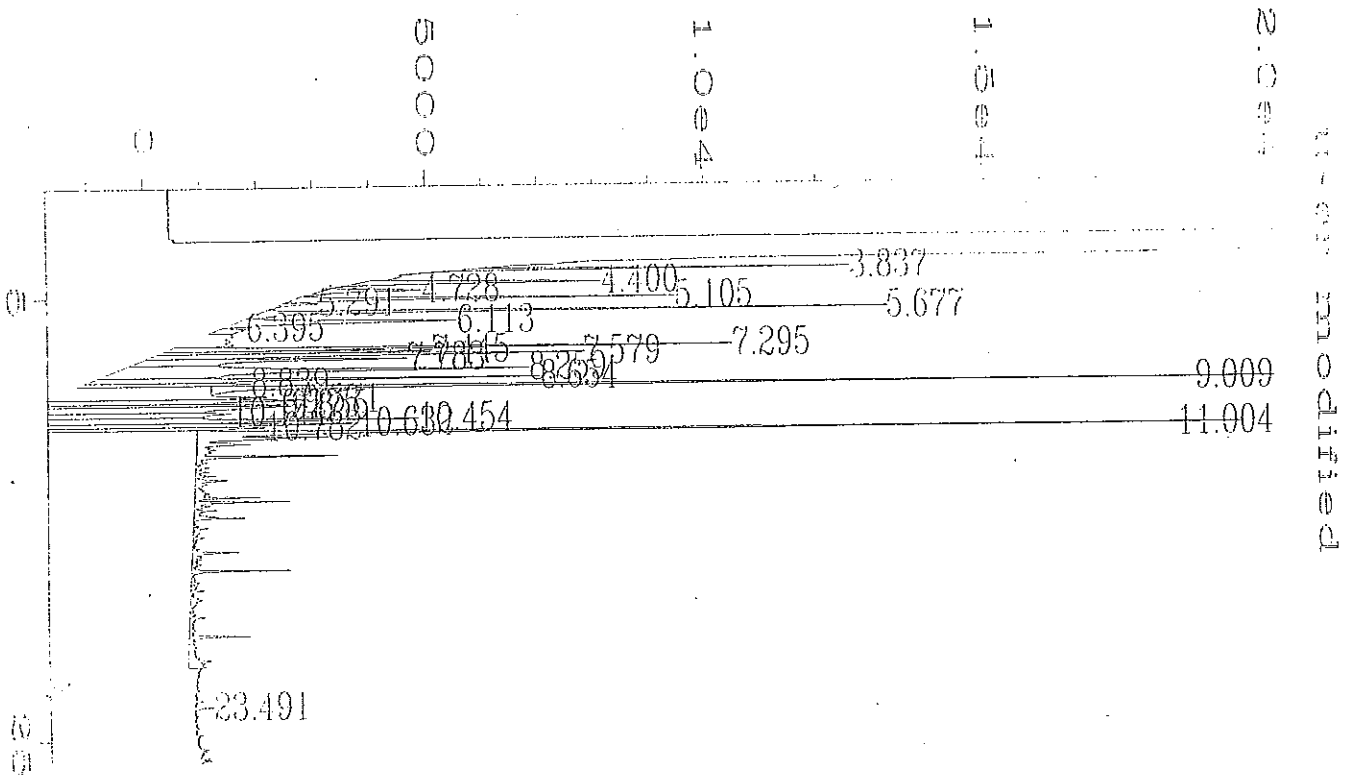


External Standard Report

Data File Name	: D:\HPCHEM\2\DATA\27093001\004F0401.D		
Operator	: AMR	Page Number	: 1
Instrument	: GC SYS 2	Vial Number	: 4
Sample Name	: 709074-5	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 4
Acquired on	: 30 Sep 97 11:56 AM	Instrument Method	: TPHG0310.MTH
Report Created on	: 30 Sep 97 12:51 PM	Analysis Method	: TPHG0310.MTH
Last Recalib on	: 11 MAR 97 02:12 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\HPCHEM\2\DATA\27093001\004F0401.D

Ret Time	Area	Type	Width	Ref#	ug/l	Name
9.009	94064	MM	0.074	1-R	10.186	TFT-surrogate 110-102%
11.004	207480	MM	0.184	1	20.188	gasoline envelop

Time Reference Peak	Expected RT	Actual RT	Difference
1	8.934	9.009	0.8%

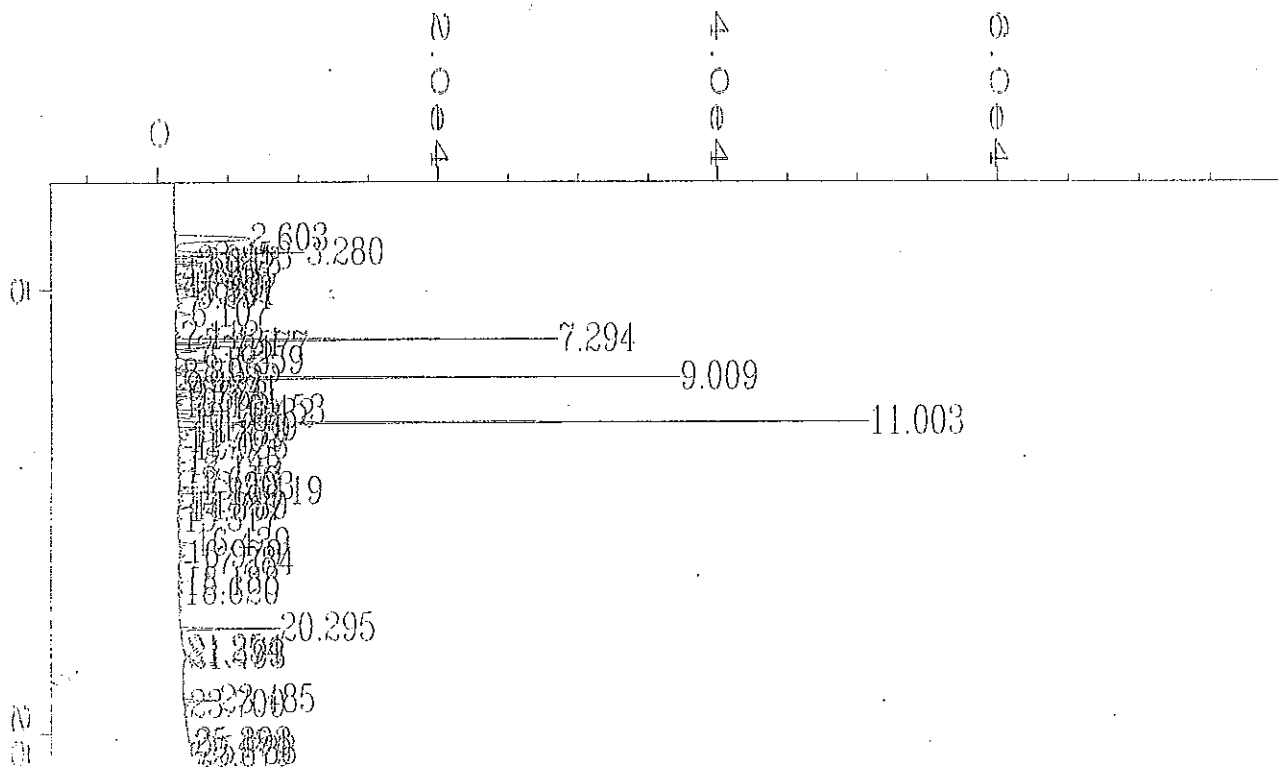
User Modified

4.97g

gas = 4.97 mg/kg

REVIEWED BY 9-30-97 DATE

Am 93097



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External Standard Report

==========

Data File Name : D:\HPCHEM\2\DATA\27093001\004R0401.D
Operator : AMR
Instrument : GC SYS 2
Sample Name : 709074-5
Run Time Bar Code:
Acquired on : 30 Sep 97 11:56 AM
Report Created on: 30 Sep 97 12:22 PM
Last Recalib on : 11 APR 97 07:12 AM
Multiplier : 1

Page Number : 1
Vial Number : 4
Injection Number : 1
Sequence Line : 4
Instrument Method: TPHG0310.MTH
Analysis Method : BTEX0310.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\HPCHEM\2\DATA\27093001\004R0401.D

Ret Time	Area	Type	Width	Ref#	ug/l	Name
7.431	9013	VV	0.074	1	0.134	Benzene
9.009	164949	VV	0.069	1	8.596	TFT surrogate/10=86%
11.003	196083	VV	0.059	1	3.518	Toluene
13.903	4805	BV	0.055	1	0.0877	Ethylbenzene
14.119	13201	PV	0.059	1	0.156	M+P-Xylene
14.857	2115	VV	0.053	1	0.0356	O-Xylene

4.97g

==========

B, E = NDL 0.1 mg/kg

T = 0.4 mg/kg

X = NDL 0.3 mg/kg

REVIEWED BY & DATE 10/30/97

Anu#93097

Cc lytica rator
3229 Pine Street
Everett, WA 98201
Phone (425) 258-4548
(206) 292-9059 Seattle
(425) 259-6289 Fax

Chain of Custody / Laboratory Analysis Request

CCI (laboratory only)

Date 9/15 - 9/16/97 Page 1 Of 2

REPORT TO COMPANY: SHANNON & WILSON, INC.
PROJECT MANAGER: KATHY TROOST
ADDRESS: 400 N. 34th ST, STE 100
SEATTLE WA 98103
PHONE: 206-632-8020 FAX: 206-633-6777
INVOICE TO COMPANY: ↑ ↑
ATTENTION: AGNES TIRAO
ADDRESS: ↑ ↑
P.O. NUMBER: T-1772-01 CCI QUOTE:

ANALYSIS REQUESTED / OTHER (Specify)

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	WTPH-G	WTPH-D ☐ 8015 MODIFIED ☐	WTPH-418.1	BTEX	WTPH-HCID	EPA 8020 ☐ 602 ☐	EPA 8010 ☐ 601 ☐	EPA 8240 ☐ 624 ☐ 8260 ☐	EPA 8270 ☐ 625 ☐	EPA 8080 ☐ 608 ☐ PCB only ☐ Pest only ☐	Metals Priority Pollutant ☐ RCRA ☐ TAL ☐	Metals Other (Specify) Lead only	TCLP Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herb ☐	HOLD per Kathy Troost/Agnes T. authorization	EPH/VPH - HOLD	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. MW3-S-4	9/15/97	1233															X			1	
2. MW3-S-5	"	1238			/			/								/			HOLD	2	
3. MW3-S-7	"	1358			/			/								/				1	
4. MW3-S-11	↓	1537			/			/								/				1	
5. MW2-S-4	9/16/97	0948			X add 9/29/97			X add 9/29/97												1	
6. MW2-S-6	"	1018																		1	
7. MW2-S-8	"	1047			/			/								/				1	
8. MW2-S-11	"	1138																		1	
9. MW2-S-12	"	1202																		1	
10. MW2-S-13	↓	1225																		1	

SPECIAL INSTRUCTIONS FAX prelims to AGNES TIRAO

SIGNATURES (Name, Company, Date, and Time):

1. Relinquished By: Agnes Tirao ; S&W; 9/16/97; 1955
   Received By: John Bagan CCI 9/17/97 12:25
2. Relinquished By: _____
   Received By: _____

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis: (10 Standard) 5 3 2 1 Same Day

Fuels & Hydrocarbon Analysis: (5 Standard) 3 1 Same Day

OTHER: Specify: per Kathy Troost/Agnes Tirao

FAX RESULTS ASAP

* Turnaround Requests less than standard may incur Rush Charges.

CC... ...lytica... ...rator...
3229 Pine Street
Everett, WA 98201
Phone (425) 258-4548
(206) 292-9059 Seattle
(425) 259-6289 Fax

Chain of Custody / Laboratory Analysis Request

CCI (...tory ...nly)

Date 9/15-9/16/1997 Page 2 Of 2

REPORT TO COMPANY: SHANNON & WILSON INC
PROJECT MANAGER: KATHY TROOST
ADDRESS: 400 N 34th ST STE 100
SEATTLE WA 98103
PHONE: 206-632-8020 FAX: 206-633-6777
INVOICE TO COMPANY: ↑ ↑
ATTENTION: AGNES TIRAO
ADDRESS: ↑ ↑
P.O. NUMBER: T-1772-01 CCI QUOTE:

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	WTPH-G	WTPH-D ☐ 8015 MODIFIED ☐	WTPH-418.1	BTEX	WTPH-HCID	EPA 8020 ☐ 602 ☐	EPA 8010 ☐ 601 ☐	EPA 8240 ☐ 624 ☐ 8260 ☐	EPA 8270 ☐ 625 ☐	EPA 8080 ☐ 608 ☐ PCB only ☐ Pest only ☐	Metals Priority Pollutant ☐ RCRA ☐ TAL ☐	Metals Other (Specify) Lead only	TCLP Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herb ☐	OTHER (Specify)								NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. MW2-S-14	9/16/97	1330																X								1	
2. MW2-S-15	↓	1400			/			/								/		↓								1	
3. MW2-S-16		1445																X								1	
4. MW2-S-17		1555																X								1	
5. MW2-S-18	↓	1620			HOLD /			HOLD /	/						HOLD /			X								1	
6.																											
7.																											
8.																											
9.																											
10.																											

ANALYSIS REQUESTED / OTHER (Specify)

HOLD per Kathy Troost / Agnes Tirao authorization

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, and Time):

1. Relinquished By: [illegible] S&W 9/16/97 1955
Received By: [illegible] CCAL 9-17-97 12:25

2. Relinquished By: _____
Received By: _____

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis: (10 Standard) 5 3 2 1 Same Day

Fuels & Hydrocarbon Analysis: (5 Standard) 3 1 Same Day

OTHER:
Specify: Do HCID 1st for MW2-S-18, if G or D or O, do follow-up

* Turnaround Requests less than standard may incur Rush Charges.

C alytica orator
3229 Pine Street
Everett, WA 98201
Phone (425) 258-4548
(206) 292-9059 Seattle
(425) 259-6289 Fax

Chain of Custody / Laboratory Analysis Request

CCI [illegible] atory Only) 30

Date 9/17/97 Page 1 Of 1

REPORT TO COMPANY: SHANNON & WILSON, INC.
PROJECT MANAGER: KATHY TROOST
ADDRESS: 400 NORTH 34th ST, STE 100
SEATTLE WA 98103
PHONE: 206-632-8020 FAX: 206-633-6777
INVOICE TO COMPANY: ↑ ↑
ATTENTION: AGNES TIRAO
ADDRESS: ↑ ↑
P.O. NUMBER: T-1772-01 CCI QUOTE:

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	WTPH-G	WTPH-D ☐ 8015 MODIFIED ☐	WTPH-418.1	BTEX	WTPH-HCID	EPA 8020 ☐ 602 ☐	EPA 8010 ☐ 601 ☐	EPA 8240 ☐ 624 ☐ 8260 ☐	EPA 8270 ☐ 625 ☐	EPA 8080 ☐ 608 ☐ PCB only ☐ Pest only ☐	Metals Priority Pollutant ☐ RCRA ☐ TAL ☐	Metals Other (Specify) Pb only	TCLP Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herb ☐	HOLD		EPH/VPH-(HOLD)						NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. MW1-S-1	9/17/97	1131																X								2	
2. MW1-S-2	↓	1147			X			X								X				HOLD X						2	
3.																											
4.																											
5.																											
6.																											
7.																											
8.																											
9.																											
10.																											

SPECIAL INSTRUCTIONS FAX prelims to AGNES TIRAO

SIGNATURES (Name, Company, Date, and Time):

1. Relinquished By: Agnes Tir S:W 9/18/97 1230
Received By: ORL CCI/L 9-18-97 12:30
2. Relinquished By: _____
Received By: _____

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis
10 Standard | 5 | 3 | 2 | 1 | Same Day

Fuels & Hydrocarbon Analysis
5 Standard | 3 | 1 | Same Day

OTHER:
Specify: PER KATHY TROOST / AGNES TIRAO
3-4 days per 9/10 phone conversation w/ P BAGAN

* Turnaround Requests less than standard may incur Rush Charges.

CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 12/5/97
CCIL JOB #: 711057
CCIL SAMPLE #: 1
DATE RECEIVED: 11/14/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: KATHY TROOST

CLIENT PROJECT ID: T-1772-01 HILTON GARAGE
CLIENT SAMPLE ID: MW5-W-01 11/14/97 0910

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TOTAL LEAD	EPA-6020	680	MG/KG		11/26/97	SAS
MTBE	GC-PID	ND(<50)	MG/KG		12/3/97	AMR

PRODUCT DESCRIPTION: CHROMATOGRAPHIC ANALYSES INDICATES PRODUCT IS 90-100% GASOLINE RANGE HYDROCARBON. NO DETECTABLE PRESENCE OF DIESEL OR MOTOR OIL RANGE PRODUCT WAS OBSERVED. GASOLINE RANGE PRODUCT SHOWS PREDOMINANCE OF LIGHTER RANGE HYDROCARBONS. CHROMATOGRAPHIC PATTERN SUGGESTS SAMPLE CONTAINS WEATHERED GASOLINE OR MIXTURE OF GASOLINE AND LIGHT SOLVENTS.

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

*** ACTIONS LEVELS ARE PROVIDED ONLY WHEN PARAMETER DATA IS USED FOR A GENERALLY CONSISTENT APPLICATION. WHEN PROVIDED, THEY SHOULD BE USED AS GUIDELINES ONLY. THE APPROPRIATE REGULATORY DOCUMENT SHOULD BE CONSULTED BEFORE MAKING ANY DECISIONS BASED ON ANALYTICAL DATA

APPROVED BY: CJH

3229 Pine St. • Everett, WA 98201 • 425 258-4548 • FAX 425 259-6289 • Seattle 206 292-9059

CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 12/3/97
CCIL JOB #: 711057
CCIL SAMPLE #: 2
DATE RECEIVED: 11/14/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: KATHY TROOST

CLIENT PROJECT ID: T-1772-01 HILTON GARAGE
CLIENT SAMPLE ID: MW4-W-01 11/14/97 1035

DATA RESULTS

ANALYTE	METHOD	RESULTS*	UNITS**	ACTION LEVEL***	ANALYSIS DATE	ANALYSIS BY
TPH-GASOLINE	WTPH-G	ND(<50)	UG/L	1000 UG/L	12/1/97	AMR
BENZENE	EPA-8020	ND(<1)	UG/L	5 UG/L	12/1/97	AMR
TOLUENE	EPA-8020	ND(<1)	UG/L	40 UG/L	12/1/97	AMR
ETHYLBENZENE	EPA-8020	ND(<1)	UG/L	30 UG/L	12/1/97	AMR
XYLENES	EPA-8020	ND(<3)	UG/L	20 UG/L	12/1/97	AMR
TOTAL LEAD	EPA-7421	ND(<0.004)	MG/L		11/21/97	JLB
DISSOLVED LEAD	EPA-7421	ND(<0.004)	MG/L		11/21/97	JLB

* "ND" INDICATES ANALYTE NOT DETECTED. REPORTING LIMIT IS GIVEN IN PARENTHESES

** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

*** ACTIONS LEVELS ARE PROVIDED ONLY WHEN PARAMETER DATA IS USED FOR A GENERALLY CONSISTENT APPLICATION. WHEN PROVIDED, THEY SHOULD BE USED AS GUIDELINES ONLY. THE APPROPRIATE REGULATORY DOCUMENT SHOULD BE CONSULTED BEFORE MAKING ANY DECISIONS BASED ON ANALYTICAL DATA

APPROVED BY: 

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CCI
ANALYTICAL
LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

CLIENT: SHANNON & WILSON
400 N. 34TH ST, STE 100
SEATTLE, WA 98103

DATE: 12/3/97
CCIL JOB #: 711057

DATE RECEIVED: 11/14/97
WDOE ACCREDITATION #: C142

CLIENT CONTACT: KATHY TROOST

CLIENT PROJECT ID: T-1772-01 HILTON GARAGE

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

CCIL SAMPLE ID	ANALYTE	SUR ID	% RECV
711057-02	WTPH-G	TFT	101
711057-02	EPA-8020	TFT	110

APPROVED BY: _____

3229 Pine St. • Everett, WA 98201 • 425 258-4548 • FAX 425 259-6289 • Seattle 206 292-9059

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

CHAIN OF CUSTODY RECORD

Page 1 of 1
Laboratory CCI
Attn:

400 N. 34th Street, Suite 100
Seattle, WA 98103
(206) 632-8020

11500 Olive Blvd., Suite 276
St. Louis, MO 63141
(314) 872-8170

2055 Hill Road
Fairbanks, AK 99709
(907) 479-0600

5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
(907) 561-2120

303 Wellsian Way
Richland, WA 99352
(509) 946-6309

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	WTPH-G/BTEX	Lead- Total + Dissolved	EPH/VPH				Total Number of Containers	Remarks/Matrix
MW5-W-01		0910	11/14/97		X				Hold			3	Free Product: Hold For analysis per KAT
MW4-W-01		1035	11/14/97		X	X	X	Hold				6	water

Project Information	Sample Receipt
Project Number: T-1772-01	Total Number of Containers
Project Name: Hilton Garage	COC Seals/Intact? Y/N/NA
Contact: Kathy Troost	Received Good Cond./Cold
Ongoing Project? Yes ☐ No ☐	Delivery Method:
Sampler: LAW	(attach shipping bill, if any)

Instructions

Requested Turn Around Time: 10 Day TAT

Special Instructions: please filter for lead in lab, preserve liter bottle for extended extraction time.

Distribution: White - w/shipment - returned to Shannon & Wilson w/ Laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: L A. Withrow Time: 1145	Signature: Time:	Signature: Time:
Printed Name: Larry A. Withrow Date: 11/17/97	Printed Name: Date:	Printed Name: Date:
Company: SAW	Company:	Company:
Received By: 1.	**Received By: 2.**	**Received By: 3.**
Signature: Time: 12:11	Signature: Time:	Signature: Time:
Printed Name: Date: 11-17-97	Printed Name: Date:	Printed Name: Date:
Company: CCIAL	Company:	Company:

F-19-91/UR

No. 26200

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

400 N. 34th Street, Suite 100
Seattle, WA 98103
(206) 632-8020

11500 Olive Blvd., Suite 276
St. Louis, MO 63141
(314) 872-8170

2055 Hill Road
Fairbanks, AK 99709
(907) 479-0600

5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
(907) 561-2120

303 Wellsian Way
Richland, WA 99352
(509) 946-6309

CHAIN OF CUSTODY RECORD

Page 1 of 1
Laboratory CCI
Attn:

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	WTPH-G/BTEX	Lead-Total + Dissolved	EPH/VPH			Total Number of Containers	Remarks/Matrix
MW5-W-01		0910	11/14/97		X				Hold		3	Free Product: Hold For analysis per KAI
MW4-W-01		1035	11/14/97		X	X	X	Hold			6	water
	11/18	LEAD	MTBE (VPH)			FINGERPRINTING						

Project Information	
Project Number:	T-1772-01
Project Name:	Hilton Garage
Contact:	Kathy Troost
Ongoing Project?	Yes ☐ No ☐
Sampler:	LAW

Sample Receipt	
Total Number of Containers	
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Delivery Method: (attach shipping bill, if any)	

Instructions

Requested Turn Around Time: 10 Day TAT

Special Instructions: please filter for lead in lab. preserve liter bottle for extended extraction time.

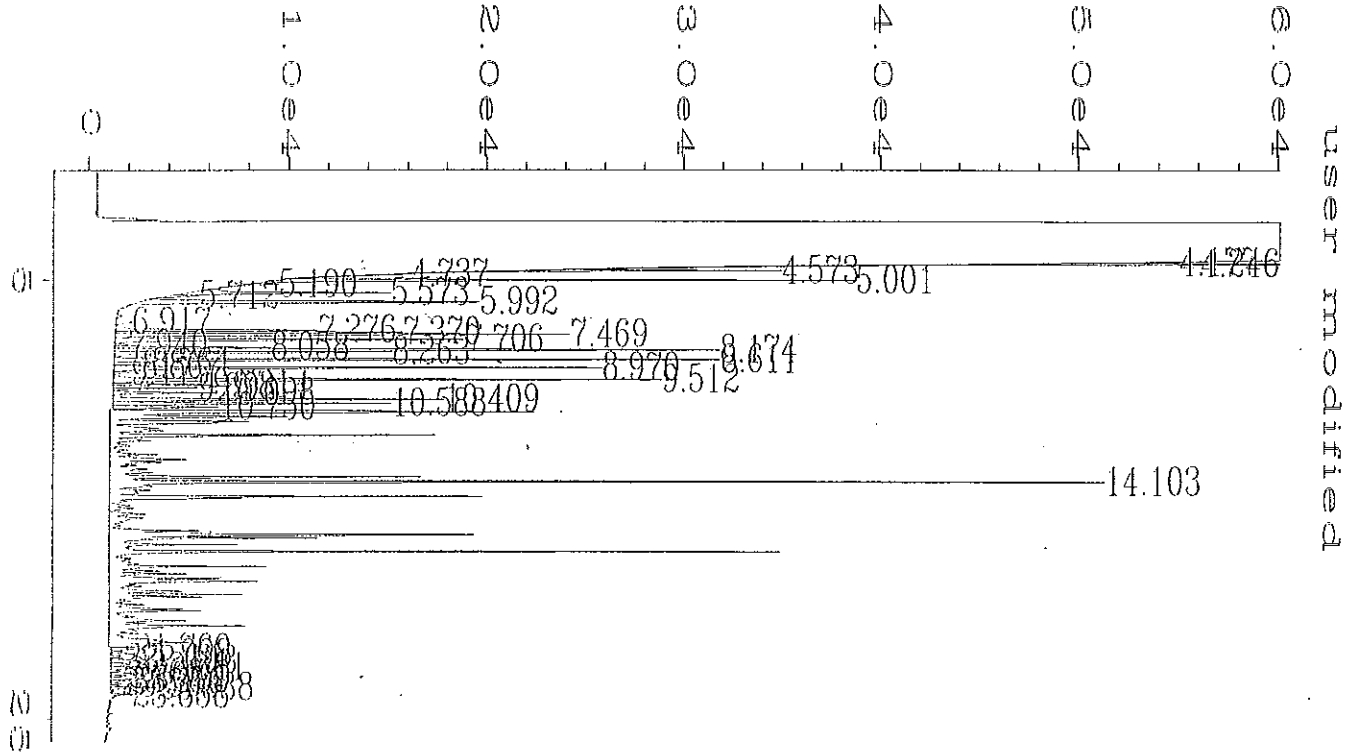
Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: L A. Withrow Time:	Signature: Time:	Signature: Time:
Printed Name: Larry A. Withrow Date: 11/14/97	Printed Name: Date:	Printed Name: Date:
Company: SAW	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Company:	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ Laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

No. 26200



External Standard Report

Data File Name	: D:\HPCHEM\2\DATA\27120301\004F0201.D		
Operator	: AMR	Page Number	: 1
Instrument	: GC SYS 2	Vial Number	: 4
Sample Name	: 711057-1 id Gasoline	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 03 Dec 97 02:58 PM	Instrument Method	: TPHG0310.MTH
Report Created on	: 03 Dec 97 04:10 PM	Analysis Method	: TPHG0310.MTH
Last Recalib on	: 11 MAR 97 02:12 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sample shows no signs of Diesel or motor oil.

Sig. 1 in D:\HPCHEM\2\DATA\27120301\004F0201.D

Ret Time	Area	Type	Width	Ref#	ug/l	Name
8.970	108636	VV	0.067	1-R	11.846	TFT-surrogate (10–118%)
14.103	1678303	MM	0.552	1	200.820	gasoline envelop

AMR 12/3/97

Should be $\frac{.11\text{g}}{10\text{ml}} \times \frac{.1\text{ml}}{10\text{ml}} \times \frac{.01\text{ml}}{5\text{ml}} \times \frac{1000000\text{ug}}{1\text{g}} \times \frac{1000\text{ml}}{1\text{L}} = 220\text{ug/L}$

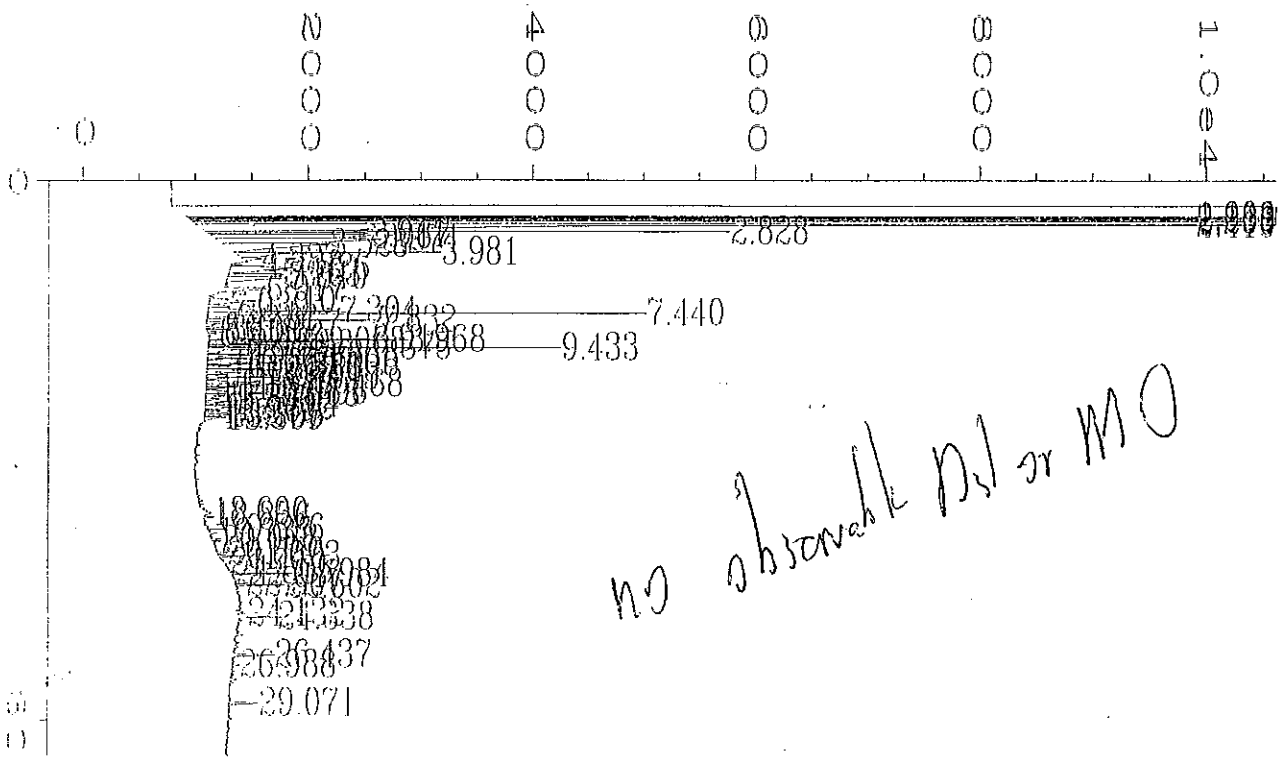
Time Reference Peak	Expected RT	Actual RT	Difference
1	8.934	8.970	0.4%

User Modified

Should be – 220 ug/L = 91% recovery 12-5-97

0.11g/10ml meoH, 100ul : 10ml meoH = 110ug/ml,

~~100~~ 110.0 in 5ml purge.



no observable PCB or MO

==========

External Standard Report

==========

Data File Name	: D:\HPCHEM\1\DATA\17120401\008F0201.D		
Operator	: AMR	Page Number	: 1
Instrument	: GC SYS 1	Vial Number	: 8
Sample Name	: 711057-1 ID	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 05 Dec 97 09:12 AM	Instrument Method:	NWTPHCID.MTH
Report Created on:	05 Dec 97 09:54 AM	Analysis Method	: NWTPHCID.MTH
Last Recalib on	: 04 DEC 97 08:58 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\HPCHEM\1\DATA\17120401\008F0201.D

Ret Time	Area	Type	Width	Ref#	ug/ml	Name
10.808	863	VV	0.040	1-R	0.441	Bromochlorobenzene
21.984	1022	VV	0.027	1	0.214	Pentacosane

Time Reference Peak	Expected RT	Actual RT	Difference
1	10.828	10.808	-0.020

==========

G_o $320\ mg/ml \times \frac{10\ ml}{.1\ g} \times \frac{10\ ml}{.11} \Rightarrow 180{,}000$

< 50

< 100

12-5-97

AMR 12/4/97

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LABORATORIES, INC.

CCI ANALYTICAL LABORATORIES, INC

FAX TRANSMITAL

TO: **AGNES TIRAO** 381

COMPANY: **SHANNON & WILSON**
1-206-633-6777

FROM: **CHUCK RANCATTI**

SUBJECT: **C'GRAMS**

DATE/TIME: 9/29/1997 1540 TOTAL PGS: 13

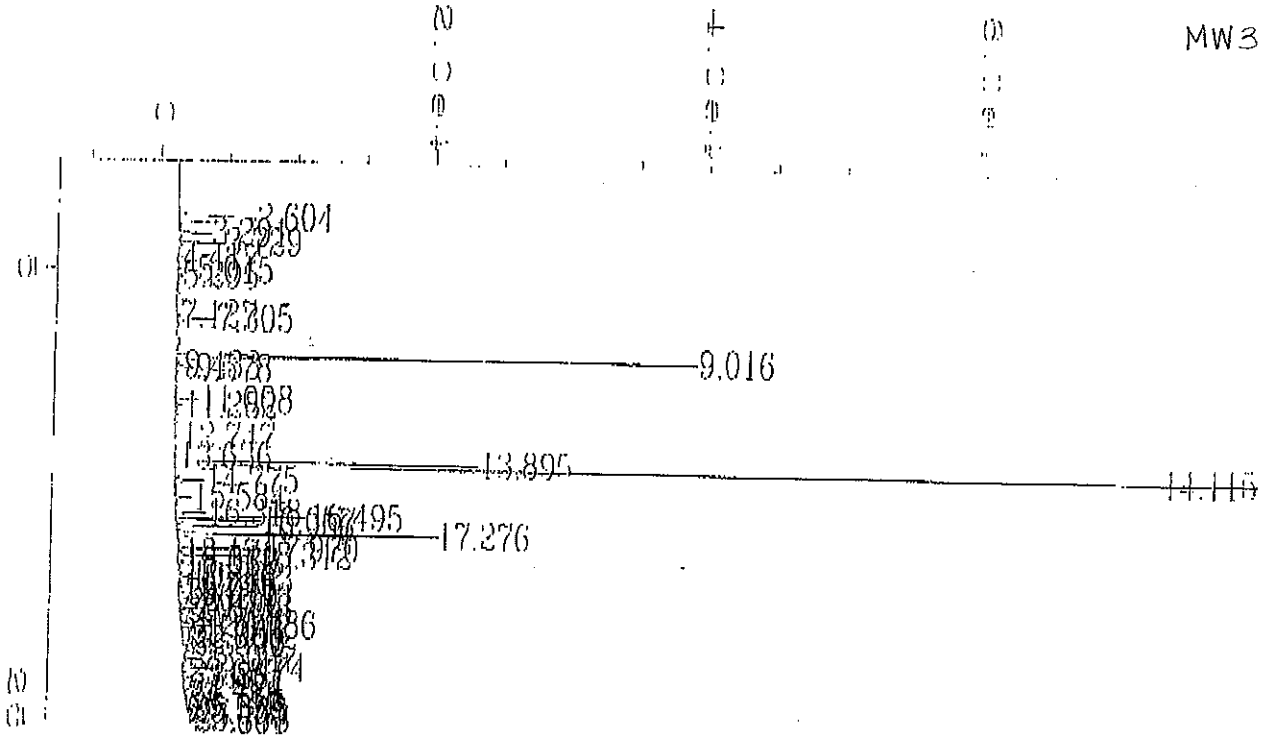
MESSAGE: AGNES - HERE ARE THE CHROMATOGRAMS YOU REQUESTED.

IF YOU DO NOT RECEIVE ALL PAGES IN GOOD CONDITION, PLEASE CALL SENDER AT (206) 258-4548

3229 Pine St. • Everett, WA 98201 • 425 258-4548 • FAX 425 259-6289 • Seattle 206 292-9059

09/29/97 16:02 FAX 001/013
09/29 17:01 1997 FROM:
TO: 206 633 6777 PAGE: 1

MW3-S-5



External Standard Report

Data File Name : D:\HPCHEM\2\DATA\27092301\005R0201.D
Operator : AMR
Instrument : GC SYS 2
Sample Name : 709074-2
Run Time Bar Code:
Acquired on : 23 Sep 97 02:28 PM
Report Created on: 23 Sep 97 03:00 PM
Last Recalib on : 11 APR 97 07:12 AM
Multiplier : 1

Page Number : 1
Vial Number : 5
Injection Number : 1
Sequence Line : 2
Instrument Method: TPHG0310.MTH
Analysis Method : BTEX0310.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\HPCHEM\2\DATA\27092301\005R0201.D

Ret Time	Area	Type	Width	Ref#	ug/l	Name
7.305	14919	PV	0.078	1	0.222	Benzene
9.016	172178	PV	0.069	1	8.965	TFT surrogate
11.008	6896	PV	0.060	1	0.106	Toluene
13.895	76206	BV	0.052	1	1.495	Ethylbenzene
14.115	369173	VV	0.060	1	5.796	M+P-Xylene
14.775	9536	VV	0.063	1	0.161	O-Xylene
					5.977	

$10 = 90\%$

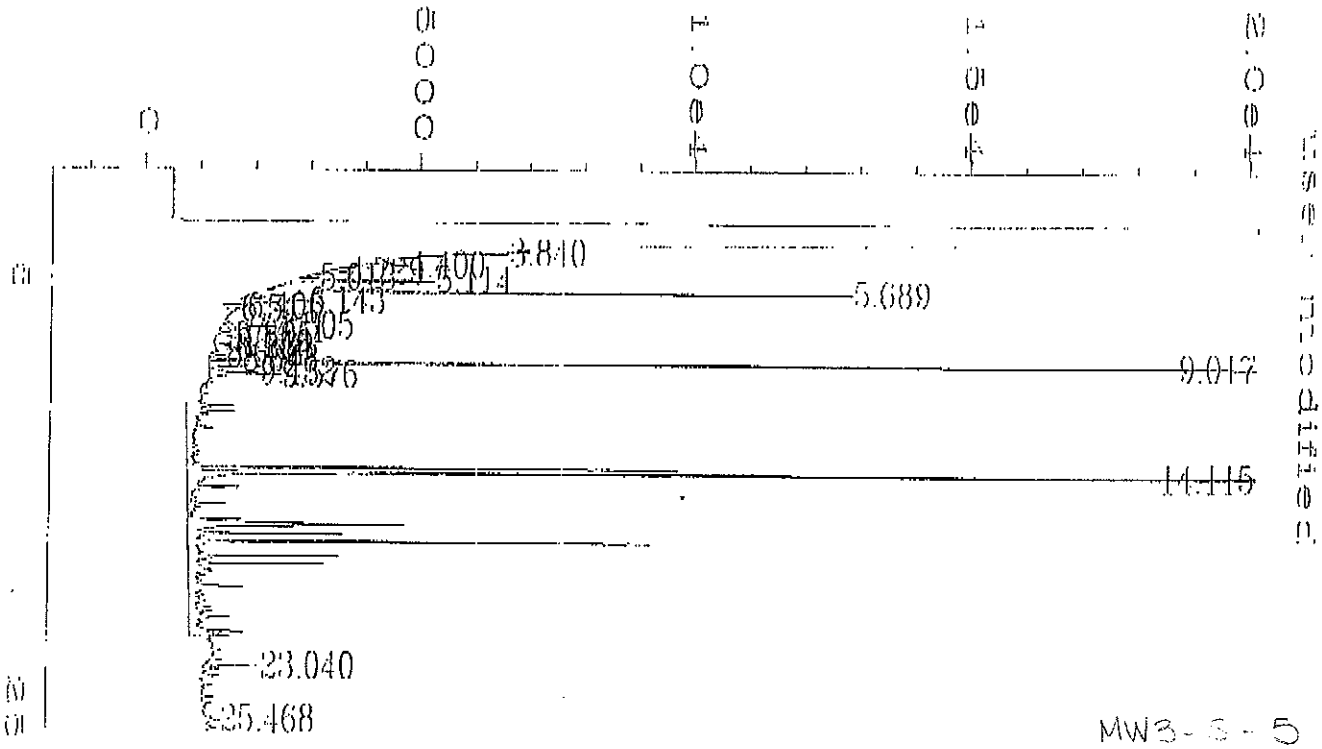
B, T ≤ ND < 0.1 mg/kg

$C = 1.49 \frac{ug}{L} \times \frac{5 ml}{1 ml} \times \frac{.01 L}{5.01 g} = 0.1 mg/kg$

$X = 0.6 mg/kg$

REVIEWED BY & DATE 9.24.97

9.24.97



MW3-S-5

External Standard Report

Data File Name	: D:\HPCHEM\2\DATA\27092301\005F0201.D		
Operator	: AMR	Page Number	: 1
Instrument	: GC SYS 2	Vial Number	: 5
Sample Name	: 709074-2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 23 Sep 97 02:28 PM	Instrument Method	: TPHG0310.MTH
Report Created on	: 24 Sep 97 08:47 AM	Analysis Method	: TPHG0310.MTH
Last Recalib on	: 11 MAR 97 02:12 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:

Sig. 1 in D:\HPCHEM\2\DATA\27092301\005F0201.D

Ret Time	Area	Type	Width	Ref#	ug/l	Name
9.017	98428	VV	0.068	1-R	10.683	TFT-surrogate / 107%
14.115	380366	MM	0.202	1	37.010	gasoline envelop

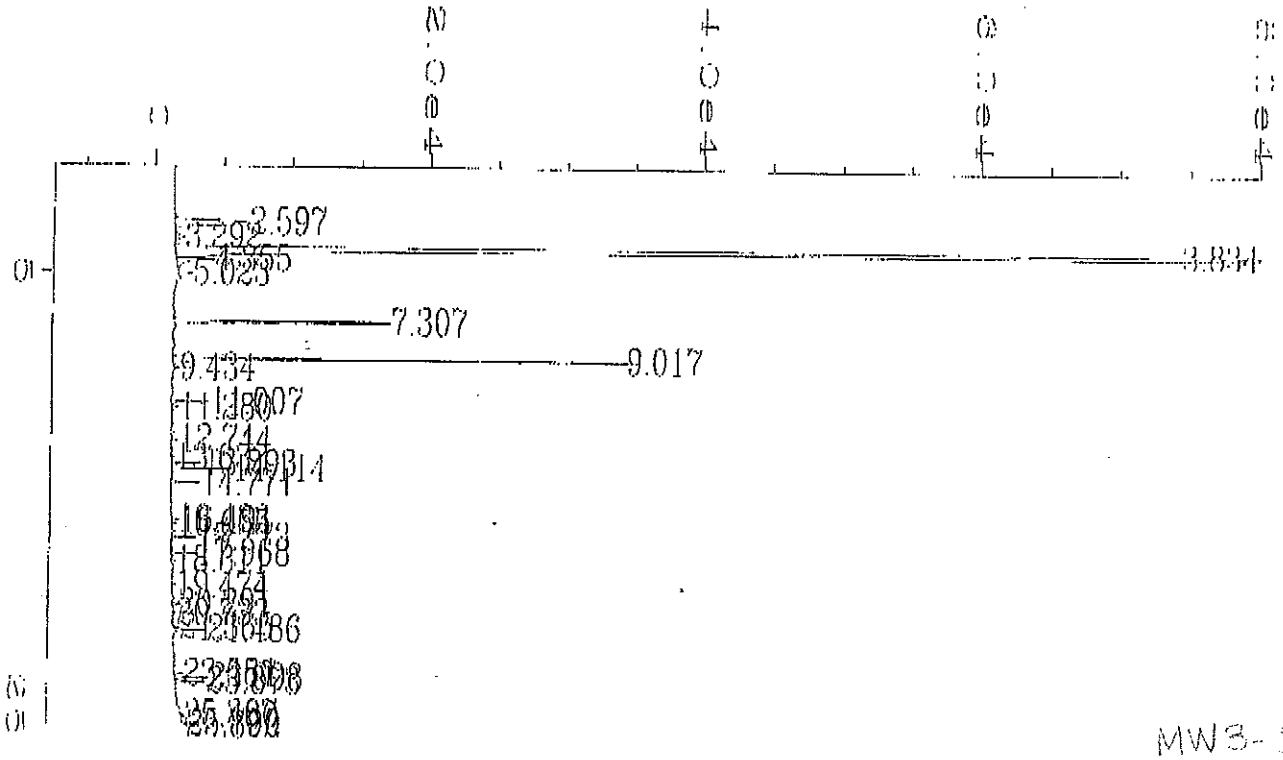
Time Reference Peak	Expected RT	Actual RT	Difference
1	8.934	9.017	0.9%

User Modified

REVIEWED BY & DATE 9-24-97

gas = ND<5mg/kg

AMR 92497



MW3-S-7

External Standard Report

Data File Name : D:\HPCHEM\2\DATA\27092301\006R0201.D
Operator : AMR
Instrument : GC SYS 2
Sample Name : 709074-3
Run Time Bar Code:
Acquired on : 23 Sep 97 03:04 PM
Report Created on: 24 Sep 97 07:54 AM
Last Recalib on : 11 APR 97 07:12 AM
Multiplier : 1

Page Number : 1
Vial Number : 6
Injection Number : 1
Sequence Line : 2
Instrument Method: TPHG0310.MTH
Analysis Method : BTEX0310.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\HPCHEM\2\DATA\27092301\006R0201.D

Ret Time	Area	Type	Width	Ref#	ug/l	Name
7.307	73459	PV	0.071	1	1.115	Benzene
9.017	148429	BV	0.068	1	7.754	TFT surrogate
11.007	10820	BV	0.059	1	0.166	Toluene
13.893	7750	BV	0.052	1	0.141	Ethylbenzene
14.114	16624	PB	0.058	1	0.197	M+P-Xylene
14.771	8397	BB	0.057	1	0.141	O-Xylene

10 = 78%

B = 1.1 ug/L x 5 mL / 1 mL x .01 L / 5.54 g = ND<0.1 mg/kg

TE = ND 0.1 mg/kg

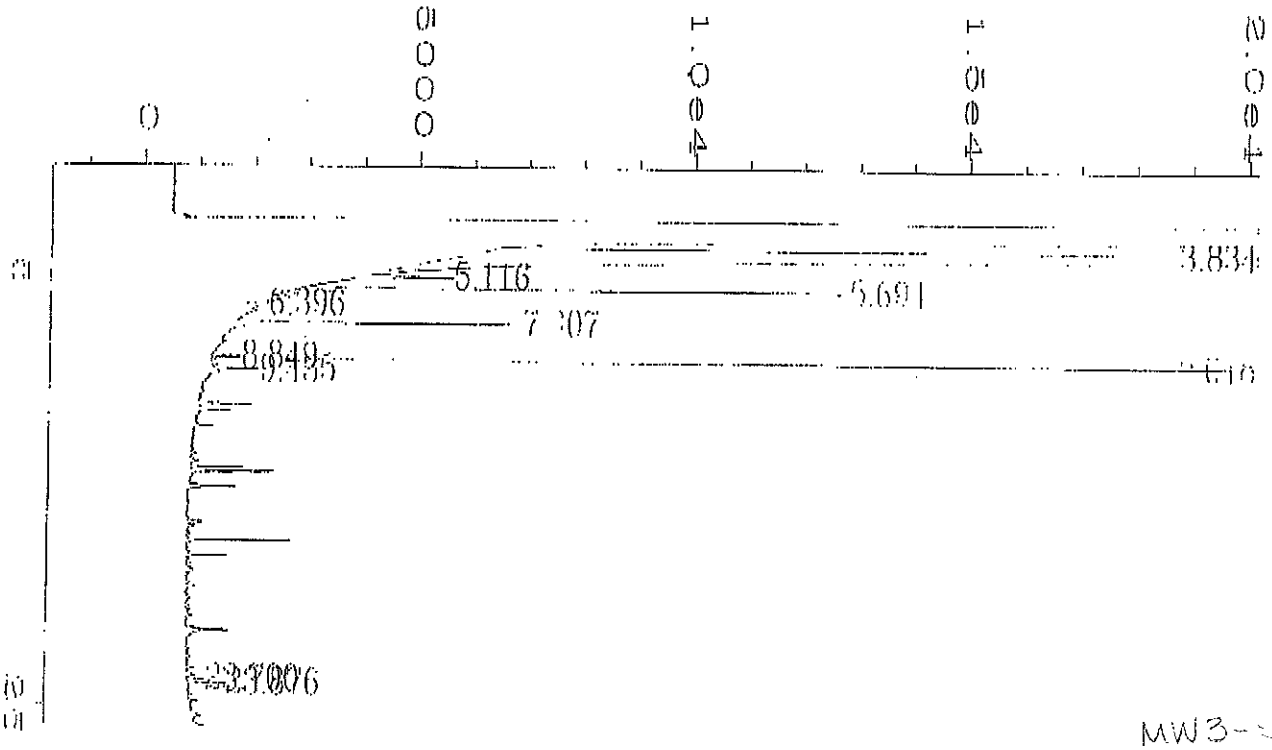
X = ND 0.3 mg/kg

REVIEWED BY & DATE 9-24-97

09/29 17:02 1997 FROM: 09/29/97 16:03 FAX

TO: 206 633 6777 PAGE: 4

004/013



MW3-S-7

External Standard Report

Data File Name : D:\HPCHEM\2\DATA\27092301\006F0201.D
Operator : AMR
Instrument : GC SYS 2
Sample Name : 709074-3
Run Time Bar Code:
Acquired on : 23 Sep 97 03:04 PM
Report Created on: 24 Sep 97 08:47 AM
Last Recalib on : 11 MAR 97 02:12 PM
Multiplier : 1

Page Number : 1
Vial Number : 6
Injection Number : 1
Sequence Line : 2
Instrument Method: TPHG0310.MTH
Analysis Method : TPHG0310.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\2\DATA\27092301\006F0201.D

Ret Time	Area	Type	Width	Ref#	ug/l	Name
9.018	83597	VV	0.068	1-R	8.994	TFT-surrogate 10-90%
14.100 * not found *				1		gasoline envelop

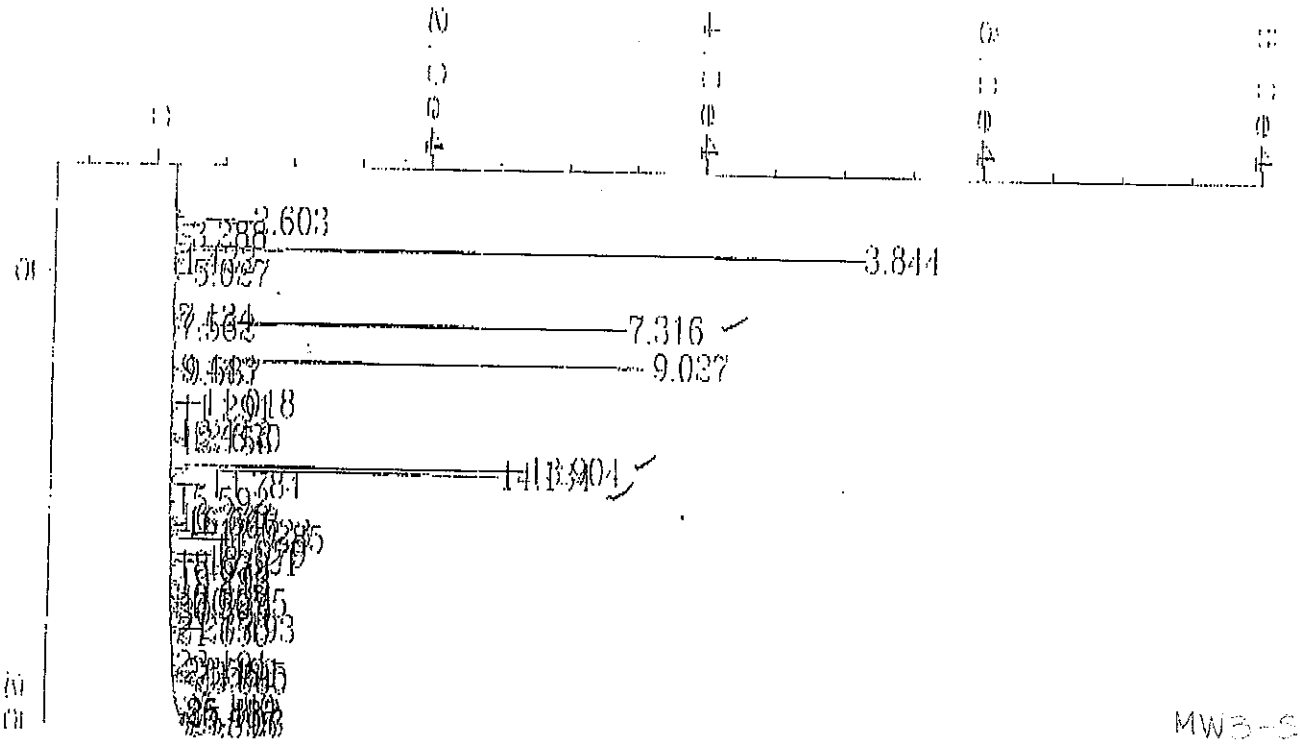
Time Reference Peak	Expected RT	Actual RT	Difference
1	8.934	9.018	0.9%

REVIEWED BY & DATE 9-24-97

Not all calibrated peaks were found

GRO = 1.025 mg/kg

9/24/97



MW3-S-11

External Standard Report

Data File Name : D:\HPCHEM\2\DATA\27092301\007R0201.D
Operator : AMR
Instrument : GC SYS 2
Sample Name : 709074-4
Run Time Bar Code:
Acquired on : 23 Sep 97 03:37 PM
Report Created on: 24 Sep 97 07:54 AM
Last Recalib on : 11 APR 97 07:12 AM
Multiplier : 1

Page Number : 1
Vial Number : 7
Injection Number : 1
Sequence Line : 2
Instrument Method: TPHG0310.MTH
Analysis Method : BTEX0310.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\HPCHEM\2\DATA\27092301\007R0201.D

Ret Time	Area	Type	Width	Ref#	ug/l	Name
7.316	154958	VV	0.071	1	2.621	Benzene
9.027	154780	BV	0.068	1	8.077	TFT surrogate 110-81%
11.018	8359	BV	0.058	1	0.128	Toluene
13.904	89312	BV	0.052	1	1.799	Ethylbenzene
14.134	90085	VV	0.056	1	1.066	M+P-Xylene
14.784	10409	VB	0.055	1	0.175	O-Xylene

T=13

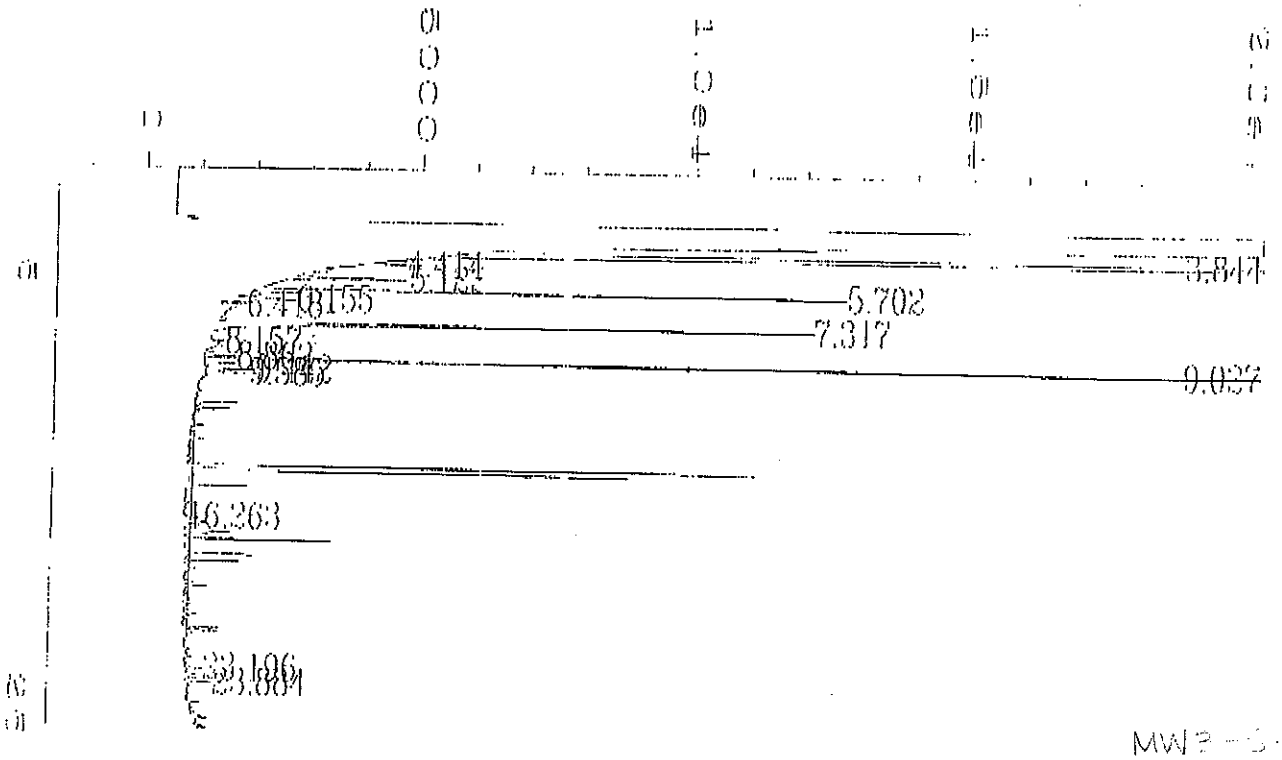
$B = 2.6 \frac{ug}{L} \times \frac{5ml}{1ml} \times \frac{10L}{5 \text{ [illegible]}} = 0.2 mg/kg$

REVIEWED BY & DATE 9-24-97

T = ND<0.1 mg/kg

E = 0.1 mg/kg X = ND<0.3 mg/kg

09/29/97 16:04 FAX TO: 206 633 6777 PAGE: 6
09/29 17:03 1997 FROM:
006/013



MW2-S-11

External Standard Report

Data File Name : D:\HPCHEM\2\DATA\27092301\007F0201.D
Operator : AMR
Instrument : GC SYS 2
Sample Name : 709074-4
Run Time Bar Code:
Acquired on : 23 Sep 97 03:37 PM
Report Created on: 24 Sep 97 08:48 AM
Last Recalib on : 11 MAR 97 02:12 PM
Multiplier : 1

Page Number : 1
Vial Number : 7
Injection Number : 1
Sequence Line : 2
Instrument Method: TPHG0310.MTH
Analysis Method : TPHG0310.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\2\DATA\27092301\007F0201.D

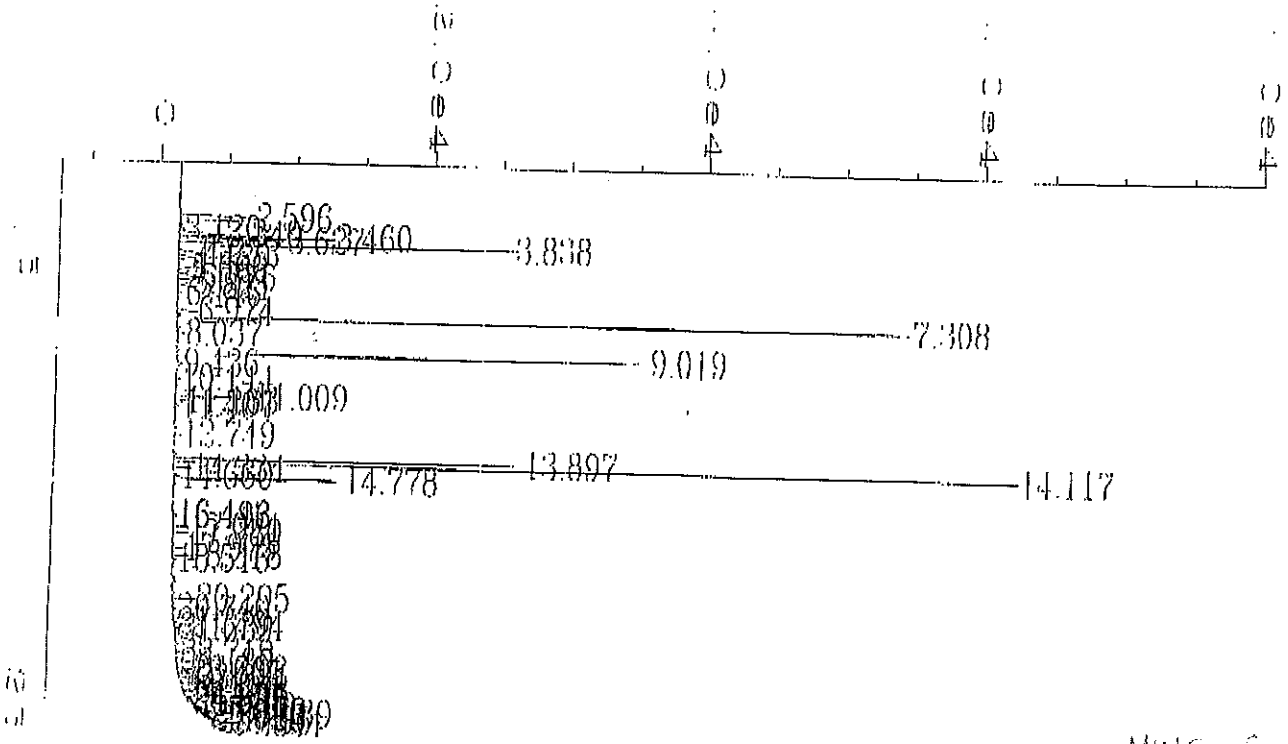
Ret Time	Area	Type	Width	Ref#	ug/l	Name
9.027	88282	VV	0.067	1-R	9.527	TFT-surrogate
16.263	73039	BB +	0.000	1	7.107	gasoline envelop

10-95%

Time Reference Peak	Expected RT	Actual RT	Difference
1	8.934	9.027	1.0%

REVIEWED BY 9-24-97
DATE

gas: MDL 5mg/kg Amp 9 24 97



MW2-3-8

External Standard Report

Data File Name : D:\HPCHEM\2\DATA\27092301\008R0201.D
Operator : AMR
Instrument : GC SYS 2
Sample Name : 709074-7
Run Time Bar Code:
Acquired on : 23 Sep 97 04:09 PM
Report Created on: 24 Sep 97 07:55 AM
Last Recalib on : 11 APR 97 07:12 AM
Multiplier : 1

Page Number : 1
Vial Number : 8
Injection Number : 1
Sequence Line : 2
Instrument Method: TPHG0310.MTH
Analysis Method : BTEX0310.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\HPCHEM\2\DATA\27092301\008R0201.D

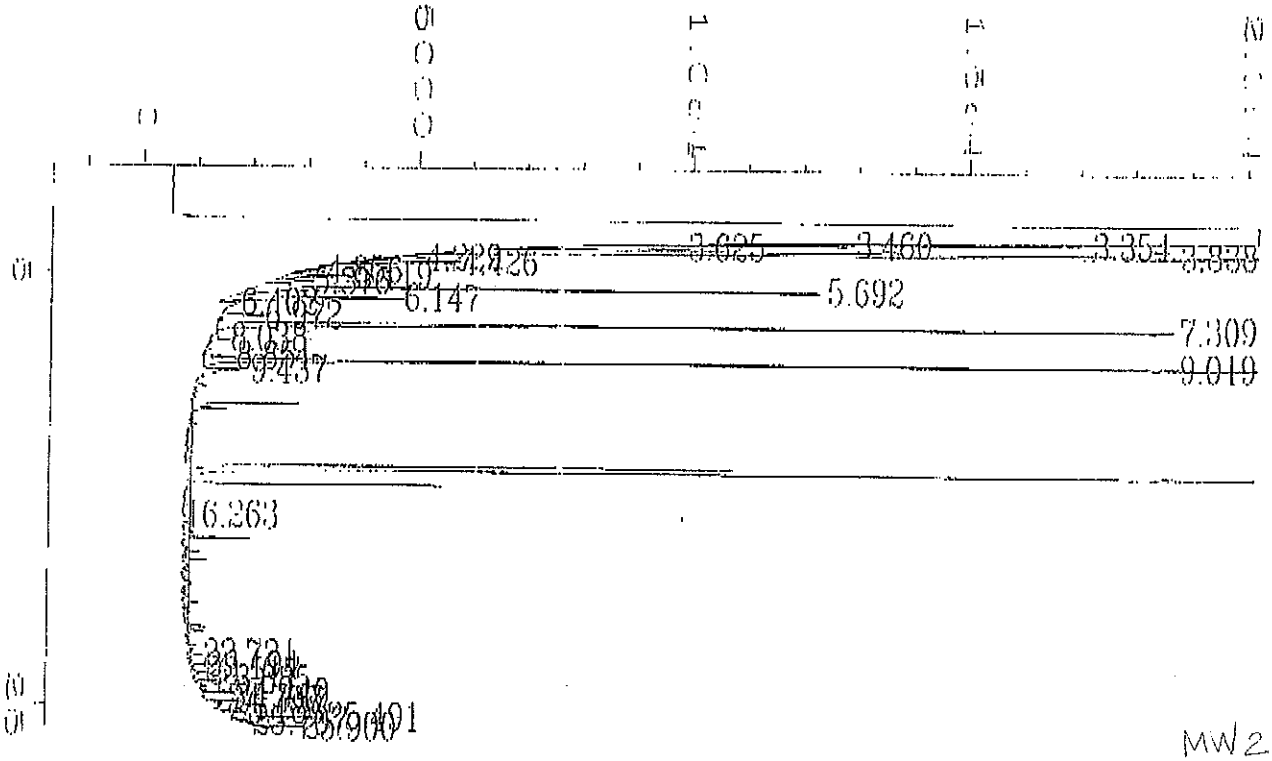
REVIEWED BY & DATE 9.24.97

Ret Time	Area	Type	Width	Ref#	ug/l	Name
7.308	264013	VV	0.074	1	4.637	Benzene
9.019	150626	PV	0.067	1	7.866	TFT surrogate 110-79%
11.009	21573	BV	0.057	1	0.330	Toluene
13.897	88216	BV	0.053	1	1.773	Ethylbenzene
14.117	232933	VV	0.058	1	3.213	M+P-Xylene
14.778	42460	VV	0.052	1	+ 0.715	O-Xylene
					3.928	

B = 4.6 ug/L x 5ml/1ml x .01L/5.95g = 0.4 mg/kg

T = ND < 0.1 mg/kg

E = 0.1 mg/kg x = 0.3 mg/kg AMP#2497



MW2-5-3

External Standard Report

Data File Name : D:\HPCHEM\2\DATA\27092301\008F0201.D
Operator : AMR
Instrument : GC SYS 2
Sample Name : 709074-7
Run Time Bar Code:
Acquired on : 23 Sep 97 04:09 PM
Report Created on: 24 Sep 97 08:49 AM
Last Recalib on : 11 MAR 97 02:12 PM
Multiplier : 1

Page Number : 1
Vial Number : 8
Injection Number : 1
Sequence Line : 2
Instrument Method: TPHG0310.MTH
Analysis Method : TPHG0310.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\2\DATA\27092301\008F0201.D

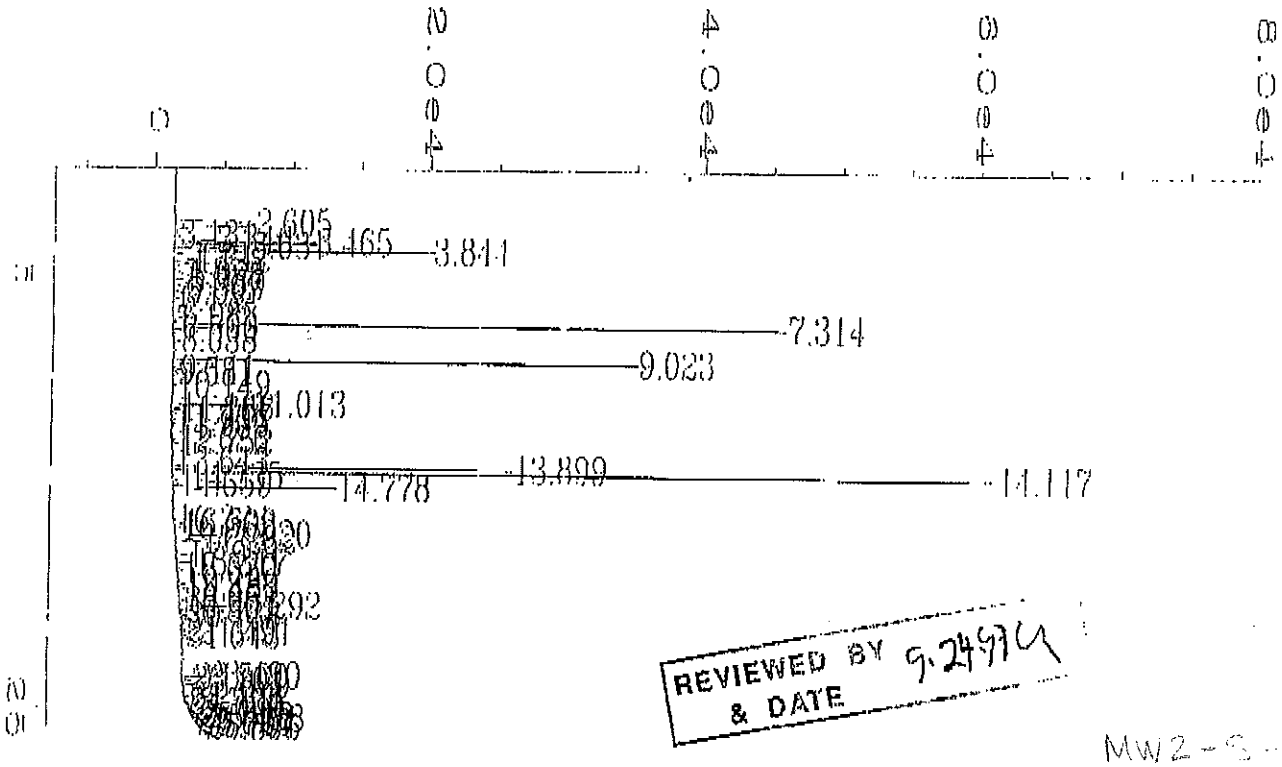
Ret Time	Area	Type	Width	Ref#	ug/l	Name
9.019	87423	VV	0.067	1-R	9.430	TFT-surrogate 10=94%
16.263	106341	BV +	0.000	1	10.347	gasoline envelop

Time Reference Peak	Expected RT	Actual RT	Difference
1	8.934	9.019	1.0%

gas = 1025 mg/kg

REVIEWED BY & DATE 9/24/97

AMB 92497



REVIEWED BY & DATE 9.24.97

MW2-3-15

External Standard Report

Data File Name : D:\HPCHEM\2\DATA\27092301\009R0201.D
Operator : AMR
Instrument : GC SYS 2
Sample Name : 709074-12
Run Time Bar Code:
Acquired on : 23 Sep 97 04:42 PM
Report Created on: 24 Sep 97 07:55 AM
Last Recalib on : 11 APR 97 07:12 AM
Multiplier : 1

Page Number : 1
Vial Number : 9
Injection Number : 1
Sequence Line : 2
Instrument Method: TPHG0310.MTH
Analysis Method : BTEX0310.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\HPCHEM\2\DATA\27092301\009R0201.D

Ret Time	Area	Type	Width	Ref#	ug/l	Name
7.314	217466	VV	0.074	1	3.777	Benzene
9.023	149370	PV	0.067	1	7.801	TFT surrogate
11.013	22123	PV	0.058	1	0.339	Toluene
13.899	85087	PV	0.053	1	1.701	Ethylbenzene
14.117	227089	VV	0.058	1	3.103	M+P-Xylene
14.778	41728	VV	0.053	1	+ 0.702	O-Xylene
					3.805	

ID = 78%

$B = 3.7 \frac{ug}{L} \times \frac{5ml}{.1ml} \times \frac{.01L}{5.73g} = 0.3$ mg/kg

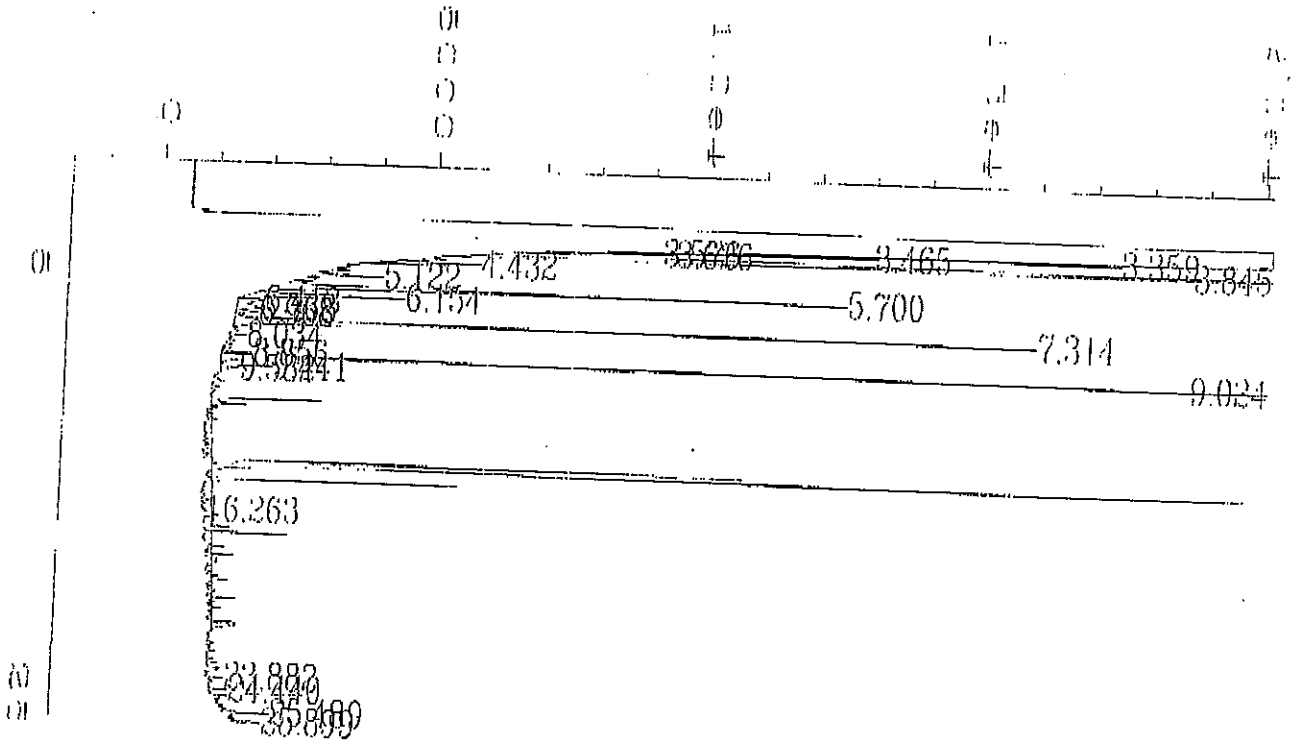
T = ND<0.1 mg/kg

E = 0.1 mg/kg x = 0.3 mg/kg

09/29 17:04 1997 FROM: 09/29/97 16:05 FAX

TO: 206 633 6777 PAGE: 10

010/013



MW2 - [illegible] - 16

External Standard Report

Data File Name : D:\HPCHEM\2\DATA\27092301\009F0201.D
Operator : AMR
Instrument : GC SYS 2
Sample Name : 709074-12
Run Time Bar Code:
Acquired on : 23 Sep 97 04:42 PM
Report Created on: 24 Sep 97 08:49 AM
Last Recalib on : 11 MAR 97 02:12 PM
Multiplier : 1

Page Number : 1
Vial Number : 9
Injection Number : 1
Sequence Line : 2
Instrument Method: TPHG0310.MTH
Analysis Method : TPHG0310.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\2\DATA\27092301\009F0201.D

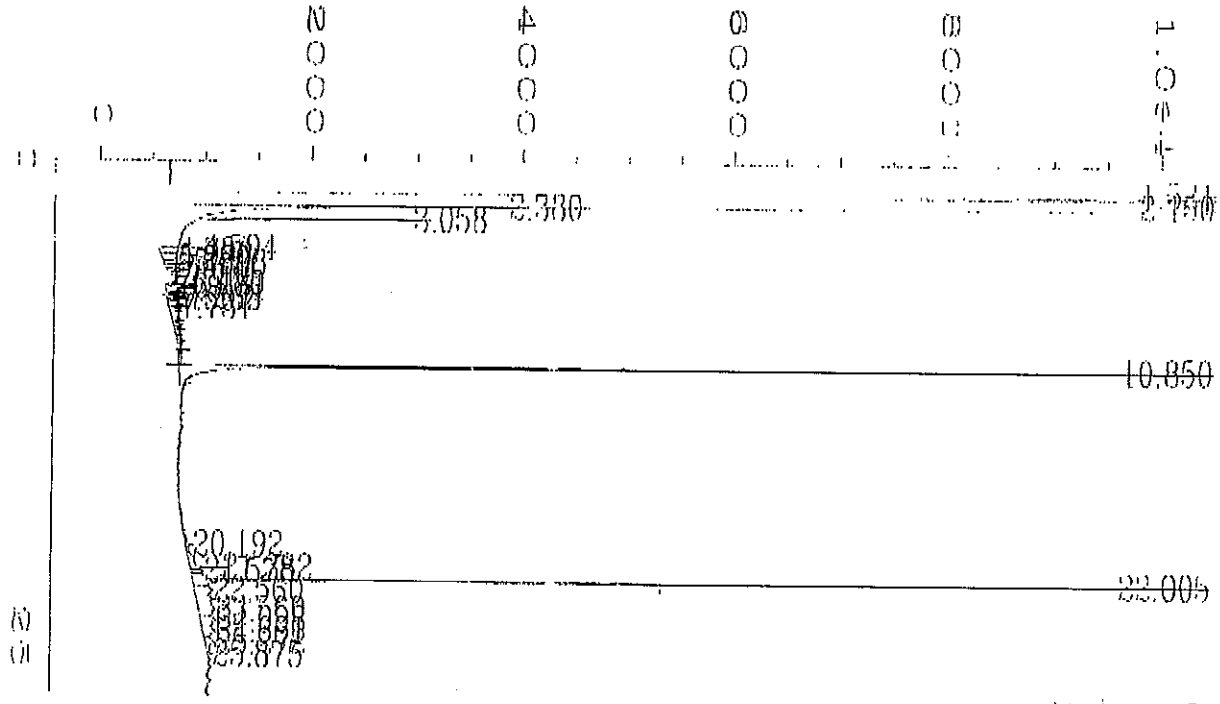
Ret Time	Area	Type	Width	Ref#	ug/l	Name
9.024	85001	VV	0.067	1-R	9.154	TFT-surrogate 10-92%
16.263	102227	BV +	0.000	1	9.947	gasoline envelop

Time Reference Peak

REVIEWED BY & DATE 9.24.97

Expected RT	Actual RT	Difference
8.934	9.024	1.0%

gas = ND<5mg/kg
AMR 92457



MW2-S-18

External Standard Report

Data File Name : D:\HPCHEM\1\DATA\17092501\007F0601.D
Operator : amr
Instrument : GC SYS 1
Sample Name : 709074-15
Run Time Bar Code:
Acquired on : 26 Sep 97 05:16 AM
Report Created on: 26 Sep 97 05:57 AM
Last Recalib on : 20 MAY 97 07:39 AM
Multiplier : 1

Page Number : 1
Vial Number : 7
Injection Number : 1
Sequence Line : 6
Instrument Method: TPHHCID.MTH
Analysis Method : TPHHCID.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\1\DATA\17092501\007F0601.D

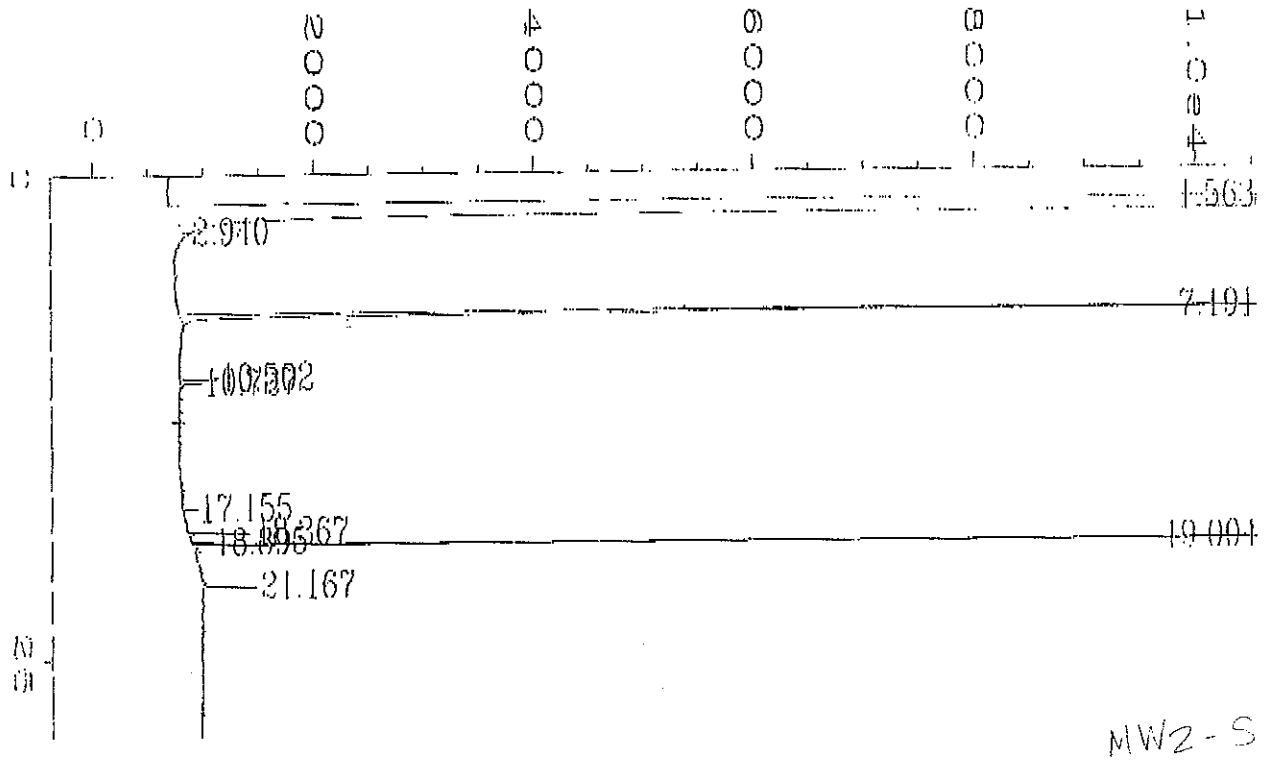
Ret Time	Area	Type	Width	Ref#	ug/ml	Name
10.850	44285	BB	0.135	1-R	25.104	Bromochlorobenzene
22.005	22700	VV	0.110	1	5.424	Pentacosane

25 = 100%
5 = 108%

Time Reference Peak	Expected RT	Actual RT	Difference
1	10.854	10.850	-0.004

REVIEWED BY & DATE 9-26-97

gas = NDL 20 mg/kg
Diesel = NDL 50 mg/kg
9-26-97



MW2-S-18

External Standard Report

Data File Name : D:\HPCHEM\1\DATA\17092501\010F0701.D
Operator : amr
Instrument : GC SYS 1
Sample Name : 709074-15 x4
Run Time Bar Code:
Acquired on : 26 Sep 97 07:10 AM
Report Created on: 26 Sep 97 07:43 AM
Last Recalib on : 20 MAY 97 07:42 AM
Multiplier : 1

Page Number : 1
Vial Number : 10
Injection Number : 1
Sequence Line : 7
Instrument Method: TPHHCID2.MTH
Analysis Method : TPHHCID2.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\1\DATA\17092501\010F0701.D

Ret Time	Area	Type	Width	Ref#	ug/ml	Name
7.191	136005	BB	0.058	1	77.087	Bromochlorobenzene
19.004	62395	PB	0.024	1	14.554	Pentacosane

/20 = 73%

REVIEWED BY & DATE 9/26/97

MD = MD2100 mg/kg

9/26/97

CCI
ANALYTICAL
LABORATORIES, INC.

CCI ANALYTICAL LABORATORIES, INC

FAX TRANSMITAL

TO: AGNES TIRAO

COMPANY: SHANNON & WILSON

FROM: CHUCK RANCATTI

SUBJECT: REPORT

DATE/TIME: 9/30/1997 0730

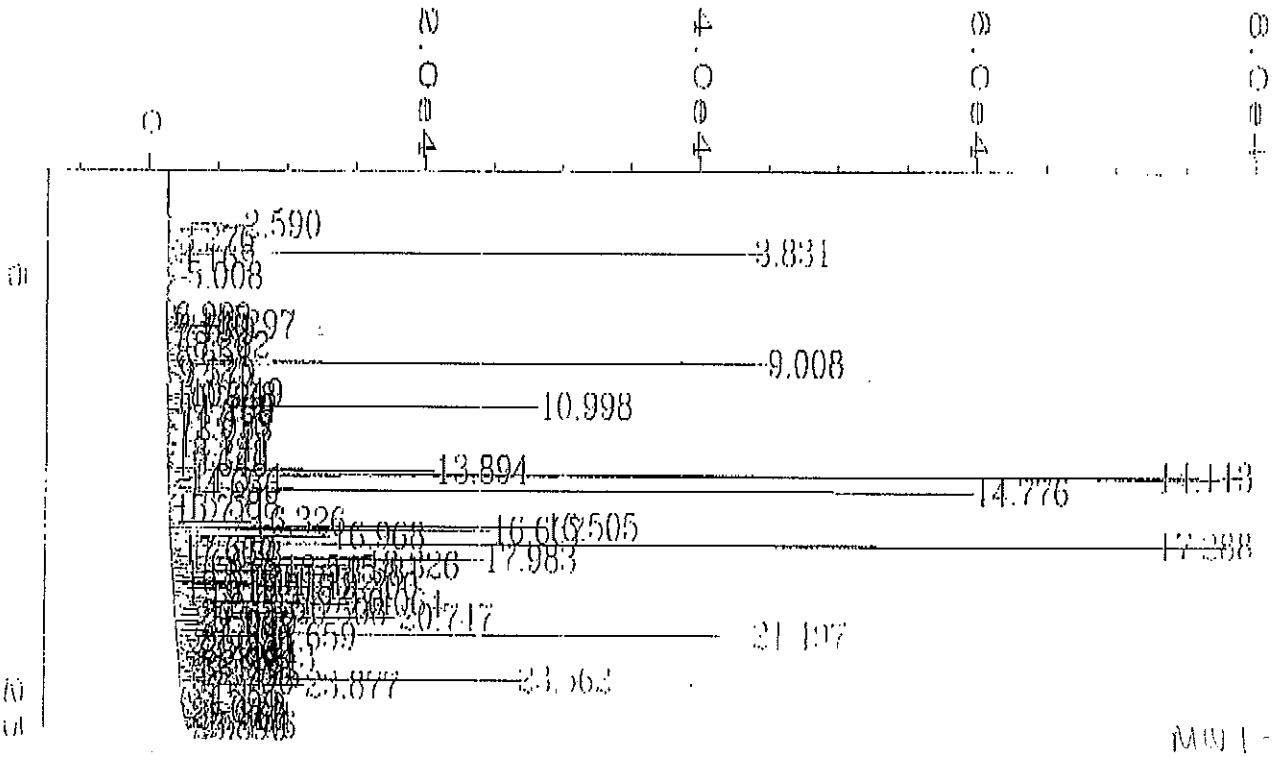
TOTAL PGS: 3

MESSAGE: AGNES - HERE ARE COPIES OF THE LATEST CHROMATOGRAMS REQUESTED.

IF YOU DO NOT RECEIVE ALL PAGES IN GOOD CONDITION, PLEASE CALL SENDER AT (206) 258-4548

3229 Pine St. • Everett, WA 98201 • 425 258-4548 • FAX 425 259-6289 • Seattle 206 292-9059

09/30 08:46 1997 FROM:
TO: 206 633 6777 PAGE: 1
09/30/97 07:47 FAX 001/003



MW1-S-2

External Standard Report

Data File Name : D:\HPCHEM\2\DATA\27092301\012R0201.D
Operator : AMR
Instrument : GC SYS 2
Sample Name : 709080-2
Run Time Bar Code:
Acquired on : 23 Sep 97 06:19 PM
Report Created on: 24 Sep 97 07:56 AM
Last Recalib on : 11 APR 97 07:12 AM
Multiplier : 1

Page Number : 1
Vial Number : 12
Injection Number : 1
Sequence Line : 2
Instrument Method: TPHG0310.MTH
Analysis Method : BTEX0310.MTH
Sample Amount : 0
ISTD Amount :

Sig. 2 in D:\HPCHEM\2\DATA\27092301\012R0201.D

Ret Time	Area	Type	Width	Ref#	ug/l	Name
7.430	1851	VV	0.069	1	0.0275	Benzene
9.008	191781	PV	0.067	1	9.964	TFT surrogate 10-100%
10.998	103542	VV	0.058	1	1.737	Toluene
13.894	67979	VV	0.053	1	1.305	Ethylbenzene
14.113	397120	VV	0.057	1	6.326	M+P-Xylene
14.776	206623	VV	0.053	1	4.149	O-Xylene
					10.475	

REVIEWED BY & DATE 9.24.97

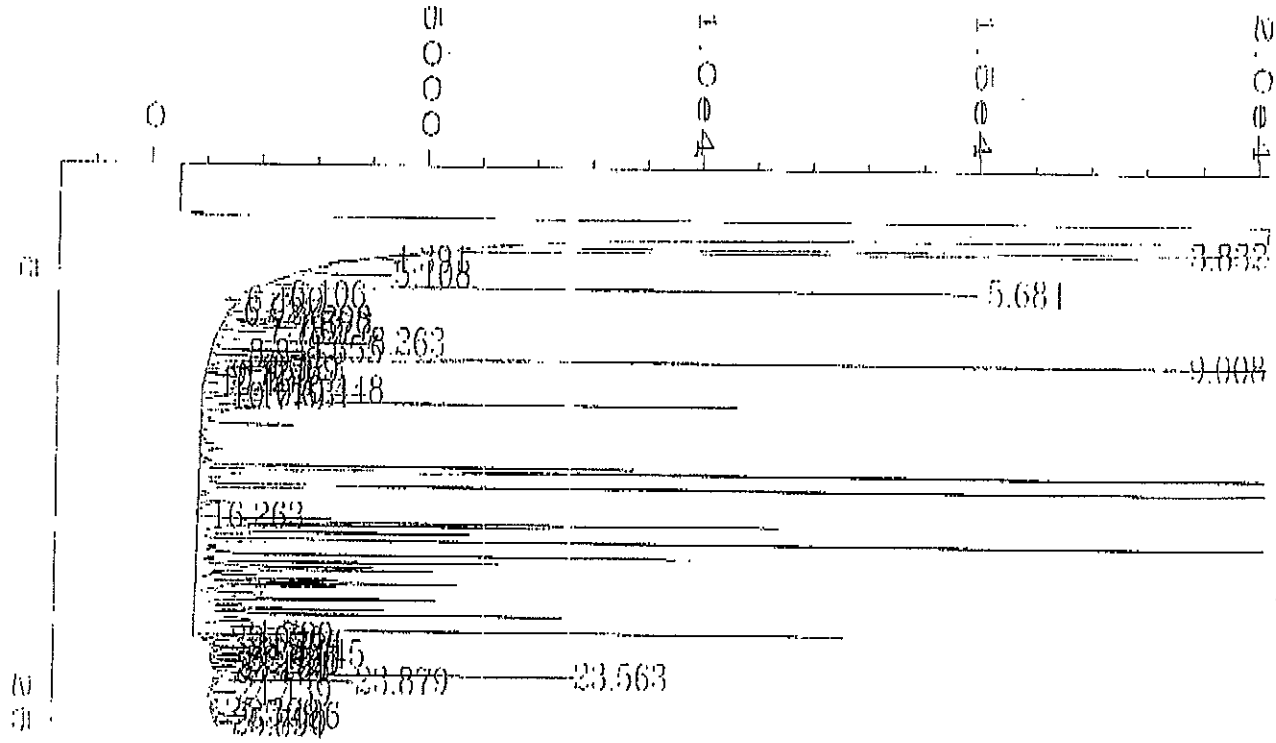
B = ND 20.1 mg/kg

$T = 1.7 \frac{ug}{L} \times \frac{5 mL}{1 mL} \times \frac{.01 L}{6.685} = 0.1 mg/kg$

E = ND 20.1 mg/kg

X = 0.8 mg/kg

AMB092497



External Standard Report

Data File Name : D:\HPCHEM\2\DATA\27092301\012F0201.D
Operator : AMR
Instrument : GC SYS 2
Sample Name : 709080-2
Run Time Bar Code:
Acquired on : 23 Sep 97 06:19 PM
Report Created on: 24 Sep 97 08:50 AM
Last Recalib on : 11 MAR 97 02:12 PM
Multiplier : 1

Page Number : 1
Vial Number : 12
Injection Number : 1
Sequence Line : 2
Instrument Method: TPHG0310.MTH
Analysis Method : TPHG0310.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in D:\HPCHEM\2\DATA\27092301\012F0201.D

Ret Time	Area	Type	Width	Ref#	ug/l	Name
9.008	112760	VV	0.067	1-R	12.316	TFT-surrogate 110-123%
16.263	860288	VV +	0.000	1	94.869	gasoline envelop

Time Reference Peak	Expected RT	Actual RT	Difference
1	8.934	9.008	0.8%

REVIEWED BY & DATE 9-24-97

gas = 94.869 µg/L × 5 mL / 1 mL × 10 L / 6.68 g = 7 mg/kg

AMP 9/24/97

APPENDIX C

DISPOSAL DOCUMENTATION

REMEDCO, INC.
Environmental Services
Contaminated Soil & Water Treatment

BILL OF LADING
PETROLEUM CONTAMINATED SOIL

REMEDCO, INC.
7201 E. MARGINAL WAY S.
SEATTLE, WASHINGTON 98108
Telephone: (206) 762-2606 Fax: (206)762-2587

This Bill of Lading and the Master Service Agreement entered into by SHANNON & WILSON ("Customer") and Remedco, Inc. on 12/24 (date). The terms herein are made a part of the agreement. In the event of conflict between this Bill of Landing and the Agreement, the terms of the Agreement prevail.

Remedco hereby authorize the Wastes ("waste") described in Certification No. 1224-01 signed by Customer on 12/24 (date), for disposal at Remedco's Seattle Facility. Customer shall present a copy of this Bill of Lading with each shipment delivered.

Location of Waste: 10th Ave & UNIVERSITY

Method of Shipment: Remedco, Inc.

Additional Fees(e.g. laboratory fees, transportation fees, special handling fees, etc... If none, so state):

PERFORMANCE DATE

Remedco shall transport the Waste no later than 12/24 (date), unless Remedco notifies the Customer in writing that Waste transport shall be suspended or canceled due to Remedco's exercise of its right to inspect or analyze the Waste (as provided in the Agreement)

FOR CUSTOMER TRANSPORTATION: Customer shall begin delivery of the Waste at our Seattle Facility.

Waste delivery shall begin no later than 12/24 (date), and shall complete delivery of the Waste no later than 12/24 (date), unless Remedco notifies Customer in writing to suspend or cancel the waste delivery due to Remedco's exercise of its right to inspect or analyze the Waste (As provided in the Agreement).

CUSTOMER	REMEDCO, INC.
* Agnes Tirao	Ronda Fulmore
Signature	Signature
AGNES TIRAO, ENGINEER	RONDA FULMORE OFFICE MANAGER
Printed Name and Title	Printed Name and Title
12/24/97	1-5-98
Date	Date

ALL TRUCKS MUST HAVE A COPY OF THIS BILL OF LADING WHEN DELIVERING WASTE TO OUR SEATTLE FACILITY.

REMEDCO, INC.
7201 E. Marginal Way S.
Seattle Washington 98108
(206) 762-2606 Fax (206)762-2587
Certification No. 1224-01

REMEDCO, INC.
Environmental Services
Contaminated Soil & Water Treatment

PETROLEUM CONTAMINATED SOIL WASTE INFORMATION SHEET

The following information is required to provide sufficient information for Remedco, Inc. to determine whether your petroleum contaminated waste is acceptable for treatment at our Seattle Facility. Please ensure you provide the laboratory analyses. Please call Darren Pickering if you have any questions.

(1) Generator's Name: AMPCO SYSTEM Telephone: 206 624-1870
Address: 1305 4TH AVE STE 810 SEATTLE WA 98101-2514 Fax: 206 628-0605
STREET CITY STATE ZIP

(2) Property Owner Name: SEATTLE UNION Telephone: ( )
(If different from #1)
Address: LOW & UNIVERSITY Fax: ( )
STREET CITY STATE ZIP

(3) Consultant Name: SHANNON & WILSON Telephone: 206 632-8020
Address: 400 NORTH 34TH ST STE 100 SEATTLE WA 98103 Fax 206 633-6777

(4) Amount of Waste: 15 DRUMS (5) Waste's Current Location: LOW & 8TH

(6) Please check appropriate item describing type of petroleum contamination:
a. Pure Gasoline ___ d. Pure Lubrication Oil or Hydraulic Fluids ___
b. Pure Diesel X e. Other Hydrocarbon Contaminants ___
c. Pure Bunker C (Heavy Oil) ___

(7) Apparent source of contamination (spill, leaking tank, poor housekeeping, etc. Please explain): H2O + SOIL

PETROLEUM CONTAMINATED SOIL ANALYSIS

By submitting this information, the generator acknowledges completion of the following:

1. Lab performing the analysis is certified by the Washington State Dept. of Ecology or equivalent state or provincial agency.
2. Waste has been analyzed in accordance with Remedco's latest Analytical Requirements for Petroleum Contaminated Soil.
3. Chain of custody and lab analytical data for required waste analysis is attached.

Generator Certifies that:

1. The Waste sampled and intended for disposal under this Certification is neither Dangerous nor Extremely Hazardous Waste as determined by Ch. 173-303 WAC
2. The Waste has no free liquids per WAC 173-303-110(3)(c)(i).
3. Generator further certifies that to the best of its knowledge, there have been no alterations to the Waste that would affect the accuracy of the analysis performed

Authorized Generator Signature/ Title

12/24/97
Date

REMEDCO, INC.
Environmental Services
Contaminated Soil & Water Treatment

December 30, 1997

Shannon & Wilson
Attn: Agnes Tirao
Po Box 300303
Seattle, Washington 98103

CERTIFICATE OF REMEDIATION

The following materials have been received and analyzed according to the Remedco, Inc. Remediation and Treatment Plan. Remediation and Treatment of the material was in keeping with all applicable federal, state and local government regulations and guidelines.

SOLID WASTE PERMIT
#HB-48351

Certification Number	Shipment Date	Remediation/Treatment Date
1224-01	12/24/97	12/29/97

If you have any questions concerning this matter, please contact me at (206) 762-2606.

Sincerely,

Ronda Fulmore
Office Manager
Remedco, Inc.

APPENDIX D

IMPORTANT INFORMATION ABOUT YOUR ENVIRONMENTAL REPORT

Dated: February 4, 1998

To: Mr. Steve Long
Seattle, Washington

Important Information About Your Geotechnical/Environmental Report

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors which were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.