South Seattle Auto Auction
Kent
LUST 3983

Professional Service Industries, Inc.

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April 27, 1995

Washington Department of Ecology
Toxics Cleanup Program
3190 160th Avenue, S.E.
Bellevue, Washington 98808-5452

RE: Submittal of Quarterly Groundwater Monitoring Report
South Seattle Auto Auction
19443 77th Avenue South
Kent, Washington
PSI Project No. 513-4J006

On behalf of the South Seattle Auto Auction and it's owner Manheim Auctions, Inc., PSI hereby submits the enclosed quarterly groundwater monitoring report for the December 1994 sampling event.

If you have any questions, please contact me at (404) 988-8891.

Sincerely,

ENTERED
1-30
2006

PSI

Daniel N. Huff
Project Engineer

2030 Powers Ferry Road • Suite 460 • Atlanta, GA 30339 • Phone: 404/988-8891 • Fax: 404/988-9188

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REPORT OF FINDINGS:
Quarterly Groundwater Monitoring
December 1994

South Seattle Auto Auction
19443 77th Avenue South
Kent, Washington

Conducted for:

South Seattle Auto Auction
19443 77th Avenue South
Kent, Washington

Project Number: 572-5H002

March 21, 1995

Professional Service Industries, Inc.
12812 Northeast Marx Street, Portland, Oregon 97230
Phone (503) 254-8418 Fax (503) 252-5608

INTRODUCTION

General

This report presents the findings of PSI Project # 572-5H002. This project provides for groundwater monitoring services relating to the previous release from the former underground storage tank (UST) system at the South Seattle Auto Auction facility located at 19443 77th Avenue South in Kent, Washington. This report presents the results of the quarterly monitoring event conducted in December 1994.

Authorization

Authorization to perform the work was given in the form of a signed PSI proposal (572-5H002), dated October 6, 1994 between Professional Service Industries, Inc. and Ms. Linda P. Morris of Manheim Auctions, Inc.

Purpose/Scope of Services

The purpose of the investigation was to perform quarterly groundwater monitoring, sample collection and analysis, and report preparation associated with the previous release of petroleum hydrocarbons to groundwater at the South Seattle Auto Auction facility.

Quality Assurance/Quality Control (QA/QC)

All sampling and testing was performed in general accordance with EPA and State of Washington Department of Ecology approved methodologies. These methods are described in the PSI environmental analytical QA/QC program. This program is in compliance with various environmental regulatory agency policies and guidelines.

Project Background

The Washington Department of Ecology requires periodic monitoring of sites at which groundwater has been impacted by a release of petroleum hydrocarbons from underground storage tanks (USTs). A release of petroleum hydrocarbons was documented in October 1992 during the decommissioning of the former UST system at the South Seattle Auto Auction facility in Kent, Washington. Refer to the UST Closure Report dated February 19, 1993 prepared by PSI for details of UST closure.

The South Seattle Auto Auction site has twelve groundwater monitoring wells located adjacent to the auto shop complex at the southern end of the auto auction site. Quarterly groundwater monitoring was performed to assess the current status of hydrocarbon migration, dispersion, and possible decomposition of dissolved-phase petroleum hydrocarbons. A preliminary groundwater monitoring event was conducted in April 1993, immediately following installation of the first seven (7) groundwater monitoring wells. The results of the initial groundwater monitoring event indicated that impacts to groundwater had occurred at the site; petroleum hydrocarbons were detected in all of the seven site wells present on site at that time. Accordingly, three additional monitoring wells were installed in October 1993 to completely define the extent of the hydrocarbon plume. Details of monitoring well installation and initial groundwater monitoring were presented in the Site Characterization Report of Findings dated December 31, 1993.

Two additional monitoring wells (MW-11 and MW-12) were installed at the site on July 24, 1994 for use during a pump test and soil vacuum extraction test. The information collected during the pump test and SVE test will be used for design of a remedial system for the site. No samples were collected from MW-11 or MW-12 as part of the December 1994 sampling event, however, the location of those wells is shown in Figure 1 for reference.

DECEMBER 1994 GROUNDWATER MONITORING EVENT

Groundwater Sampling and Analysis

On December 28-29, 1994, a representative of PSI obtained fluid-level measurements and collected representative groundwater samples from the ten monitoring wells at the site. Monitoring wells were purged of three well volumes prior to collecting groundwater samples. Water samples were collected with disposable PVC bailers and transferred into zero-headspace 40-ml VOA vials with Teflon septums for benzene, toluene, ethylbenzene and xylene (BTEX) analysis by EPA Method 8020 and Total Petroleum Hydrocarbons - Gasoline Range (TPH-G) using Washington DOE prescribed methods. Plastic bottles were used for collection of water samples for total dissolved lead analysis using EPA Method 7421. The remaining samples were collected in glass samples containers and preserved with hydrochloric acid, chilled, and transported via overnight delivery, accompanied by attendant Chain-of-Custody forms, to PSI's Environmental Laboratory in Lawrence, Kansas. The results of the groundwater analysis are summarized in Table 1 below. Refer to the attached Laboratory Reports and Chain-of-Custody Records for the method detection limits.

Selected monitoring wells were tested for BOD, COD, iron, manganese and hardness to provide additional information relating to the remediation system design. Although those results are included in the laboratory results provided they are outside the scope of this report and will be presented in the Remediation Investigation/Feasibility Study report to be submitted later.

Table 1
Analytical Results for Groundwater Samples Collected from Site Monitoring Wells - December 28-29, 1994 - South Seattle Auto Auction, Kent, Washington

Sample ID	TPH-G (mg/l)	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	Pb (ug/l)
Regulatory Limit	1	5	40	30	20	5
MW-1	2.9	**550**	ND	ND	**310**	**5**
MW-2	**250**	**39,000**	**16,000**	**2,500**	**12,000**	**5**
MW-3	**130**	**4,800**	ND	**840**	**3,400**	3
MW-4	ND	**6.5**	ND	ND	ND	**7**
MW-5	ND	ND	ND	ND	ND	**7**
MW-6	**560**	**29,000**	**43,000**	**4,700**	**32,000**	4
MW-7	ND	ND	3.8	ND	ND	**13**
MW-8	ND	ND	ND	ND	1.6	**9**
MW-9	ND	ND	1.8	ND	ND	**7**
MW-10	ND	2.2	1.1	ND	ND	**6**

Notes:
mg/l = parts per million (ppm).
ug/l = parts per billion (ppb).
ND = Sample concentration below the detection limit for this analyte.
Refer to the laboratory reports for laboratory detection limits and method numbers.
Values in boldface are in excess of applicable regulatory standards.

The above data indicates that the maximum petroleum hydrocarbon concentrations are present in monitoring wells MW-1, MW-2, MW-3, and MW-6 located immediately northeast of the former UST cavity. The lateral limits of petroleum hydrocarbon impacts to site groundwater are defined by monitoring wells MW-5,7,8,9. Groundwater samples from three perimeter monitoring wells did not contain detectable concentrations of petroleum concentrations. Levels of benzene

were detected in MW-10 which is the southernmost well at the site. Hydrocarbons were not detected in this well during the November 1993 and February 1994 monitoring event but were detected in small amounts in the June and September monitoring event. This indicates migration of the contaminant plume to the south. No free phase petroleum hydrocarbons were observed in any monitoring wells prior to purging of well water.

Dissolved lead was detected in the groundwater samples collected from all monitoring wells at the site. Each of these samples with the exception of that taken at MW-9 are in close proximity to the original tank excavation. It is currently unknown whether detection of this compound is contaminant related or due to soil chemistry at the site.

TPH-G and benzene isoconcentration contour maps were constructed using data from the December 1994 monitoring event (Figures 1 and 2 respectively). As shown on the figures, groundwater concentrations are highest in monitoring well MW-2. Results from this monitoring event indicate that the contamination is moving away from the pit toward MW-2, possibly as a result of the pump test conducted in July, 1994. Groundwater concentrations generally decrease with distance from this point. The elongate plume extends to the northeast from this point. The areal extent and magnitude of the plume has expanded beyond that indicated by the November 1993 and February, June and September, 1994 monitoring events.

Groundwater elevation data indicate a groundwater gradient to the northeast, away from the drainage ditch located west of the excavation. Groundwater elevation data from this and previous sampling events suggests that the groundwater gradient in the site vicinity undergoes a seasonal, oscillatory change of direction from the northeast to the northwest and back again. This may be a response to precipitation rates and the proximity of the monitoring wells to the drainage ditch to the west of the site.

Washington Department of Ecology Cleanup Standards

The primary statute governing cleanup of releases from UST sites in Washington is the Model Toxic Control Act (MTCA), Chapter 70.105D of the Revised Code of Washington (RCW). As implemented by Part VII of Chapter 173-340 WAC, three methods are available for establishing cleanup levels for leaking underground storage tank (LUST) sites. Method A Tables provide conservative cleanup standards applicable to most routine soil and groundwater cleanup actions.

Where Method A Cleanup Standards are not appropriate (at large, complex sites or where multiple contaminant types are present), Method B establishes a matrix evaluation procedure which is designed to be protective of site groundwater. At sites where neither Method A or B are technically feasible, a site-specific risk assessment may be performed to establish Method C Cleanup Standards.

For the South Seattle Auto Auction, the Method A Cleanup Standards apply for the following reasons:

1) UST system history and data collected during the UST decommissioning and soil excavation phases conducted to date indicate that a single contaminant, gasoline, has been released at the subject site.

2) Impacted soil and groundwater appear to be limited to the immediate vicinity of the UST cavity.

3) Based on the data collected to date, the site appears well-suited to standard remediation techniques for leaking underground storage tank sites.

The Method A Cleanup Standards for soil and groundwater are presented in Table 2 below.

Table 2
Washington Department of Ecology
Method A Cleanup Standards

Hazardous Substance		Cleanup Level	
		Soil	Groundwater
Total Petroleum Hydrocarbons	Gasoline	100 ppm	1 ppm
	Diesel & Heavy Oils	200 ppm	1 ppm
Benzene		500 ppb	5 ppb
Toluene		40,000 ppb	40 ppb
Ethylbenzene		20,000 ppb	30 ppb
Xylenes		20,000 ppb	20 ppb
Total Lead		250 ppm	5 ppb

NOTES: ppm - parts per million (mg/kg or mg/l)
ppb - parts per billion (ug/kg or ug/l)

A comparison of the regulatory limits for petroleum hydrocarbons and related compounds from Table 1 above to the groundwater concentrations in site monitoring wells indicates that four (MW-1,MW-2, MW-3, MW-6) of the monitoring wells contain hydrocarbon concentrations which exceed the Method A Cleanup Standards for the September 1994 monitoring event. The present extent of groundwater with dissolved-phase petroleum hydrocarbon concentrations above the Method A Cleanup Standards is displayed as the bold contour on Figures 1 and 2 attached. The concentration of lead detected in all monitoring wells are above the Method A Cleanup Standards.

Groundwater Level Monitoring

November 1993 Observations: Fluid-levels in each well were measured to the nearest 0.01-foot before purging using an electronic probe. Free-phase petroleum hydrocarbons were encountered in MW-6 (approximately 2 inches in depth) prior to purging that well, however no free phase petroleum hydrocarbons were observed after purging. Water-level elevations were calculated using survey data and measurements from the November 1993 fluid-level monitoring. These data did not indicate a consistent groundwater flow direction at the site. The system appears to be quite complex from a hydrogeologic standpoint for the following reasons:

1) The presence of the drainage ditch to the west of the UST excavation. Visual observations indicate the level of water flowing within the ditch fluctuates on a daily basis. The ditch has not been observed dry to date.

2) The results of the UST Closure and Site Characterization investigations indicate the drainage ditch may be in direct hydrologic connection with the UST excavation due to the position of the sand zone from approximately 2.5 to 6.5 feet below the surface grade at the subject site. This connection was suspected during the excavation of the UST pit due to the fast recharge of groundwater within the excavation.

3) The close proximity of some monitoring wells to the UST excavation, the drainage ditch, and subsurface utility lines may be influencing the level of groundwater in the wells. This coupled with the high groundwater levels during groundwater monitoring events (in some cases above the monitoring well screen), indicates that groundwater data collected in the vicinity of the UST excavation may not consistently reflect the regional gradient.

February 1994 Observations: Fluid-level measurements were again collected on February 4, 1994. These data indicated a more consistent groundwater flow direction to the northeast at the subject site.

June 1994 Observations: Fluid level measurements were collected in June 1994. These data show a groundwater flow direction to the northwest. This indicates that the groundwater gradient at the site underwent a seasonal direction shift from the northeast to the northwest from February to June. This may be in response to the decreased summertime precipitation rates and the proximity of the site to the drainage ditch to the west.

September 1994 Observations: Fluid level measurements were collected in September 1994. These data show a groundwater low at the location of MW-2, possibly as a result of the July 1994 pump test. The data shows an over all groundwater flow direction to the northwest.

December 1994 Observations: Fluid level measurements were collected in December 1994. These data show the largest concentrations of petroleum in MW-2 and decreasing out radially from this point. The groundwater low created by the July 1994 pump test, as evidenced by the September groundwater data, indicate that contaminants have been drawn from MW-6 to MW-2 as the system returned to equilibrium. Data indicates that the groundwater gradient slopes away from the drainage ditch.

SUMMARY AND CONCLUSIONS

Petroleum hydrocarbons were detected above applicable regulatory limits in four site monitoring wells during the December 1994 sampling event. The horizontal extent of impacted groundwater is presently defined at the subject site; perimeter wells did not contain detectable concentrations of gasoline-range petroleum hydrocarbons with the exception of MW-10 to the south which contained benzene concentration below Washington DOE Method A cleanup standards. Dissolved lead was detected at concentrations above applicable regulatory limits in eight of the ten groundwater samples. The groundwater concentration and elevation data indicates a northwest groundwater flow direction.

PSI appreciates the opportunity to provide South Seattle Auto Auction, Inc. with groundwater monitoring services. The next quarterly groundwater monitoring event is scheduled for March, 1995. If you have any questions, please do not hesitate to call.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.

Geoff Delisio, P.E.
Department Manager
Environmental Services

Michael Hauser, G.I.T.
Staff Geologist
Environmental Services

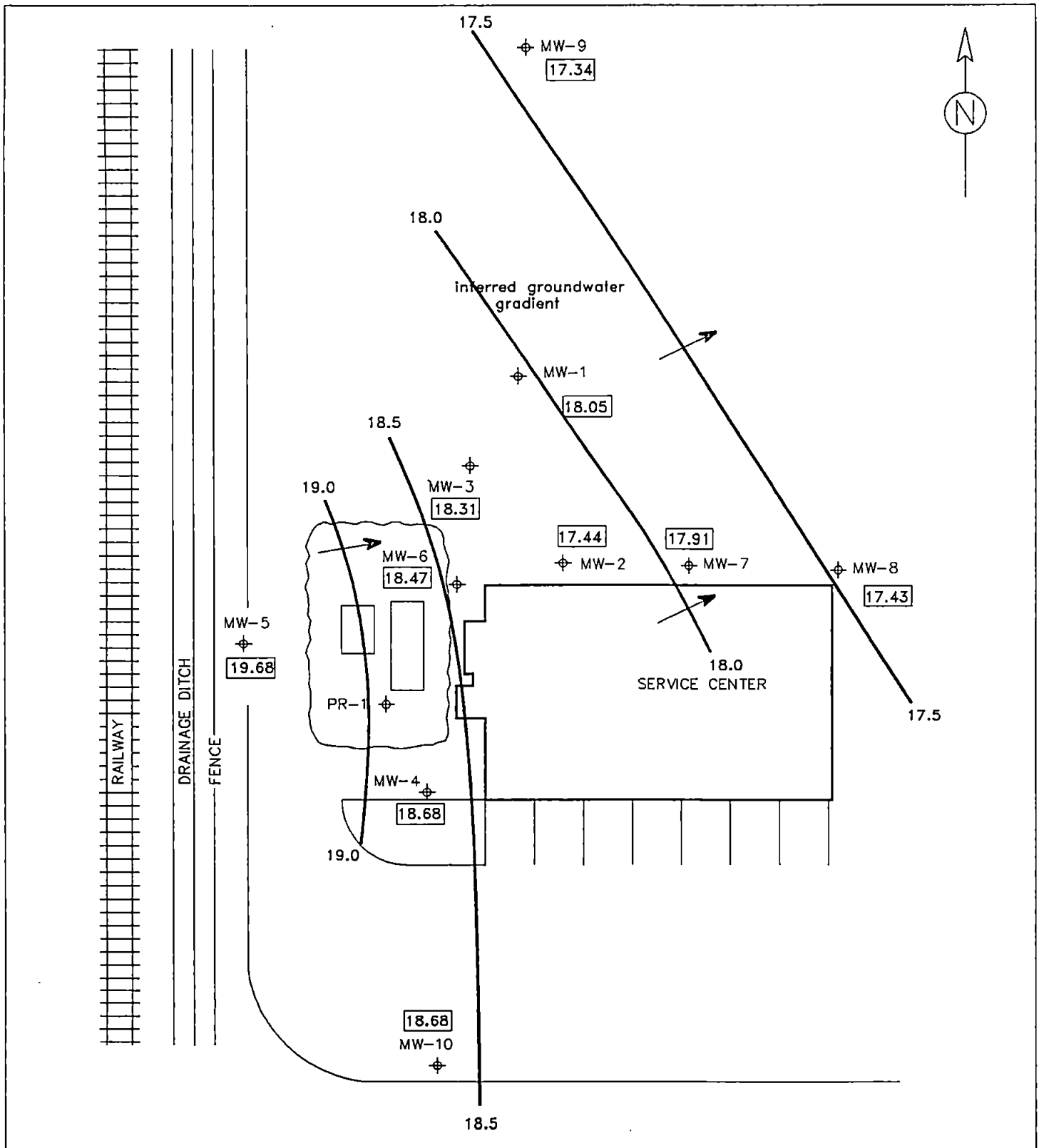
Attachments:

Figure 1 - TPH-G Isoconcentration Contour Map for Site Monitoring Wells - December 1994

Figure 2 - Benzene Isoconcentration Contour Map for Site Monitoring Wells - December 1994

Figure 3 - Site Detail Showing Groundwater Elevations and Contours for Site Monitoring Wells -December 1994

Laboratory Reports/Chain of Custody Forms



LEGEND

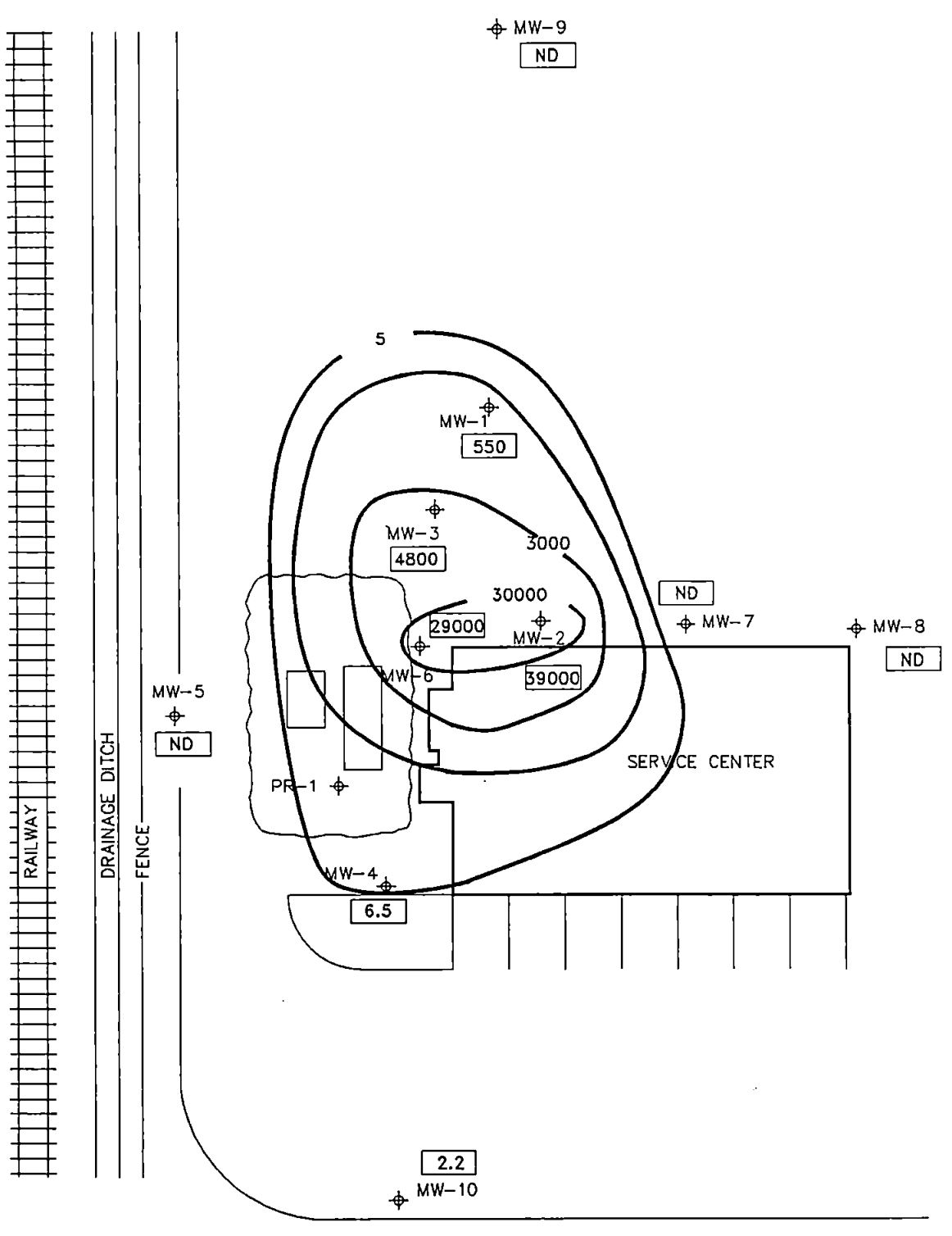
MW-1 MONITORING WELL

18.05 GROUNDWATER ELEVATION IN FEET

SCALE APPROXIMATE (FEET)

0 10 20 30 40 50

PSI 12812 NE MARX STREET PORTLAND, OREGON 97230		SITE DETAIL SHOWING GROUNDWATER ELEVATION & CONTOURS FOR SITE MONITORING WELLS DECEMBER, 1994 SOUTH SEATTLE AUTO AUCTION KENT, WASHINGTON	PROJECT NO. 572-34261
DESIGNED BY: M. HAUSER	CHECKED BY: M. HAUSER		FILE: 34261GWC
DRAWN BY: M. JACKSON	DATE: FEBRUARY 14, 1995		FIGURE



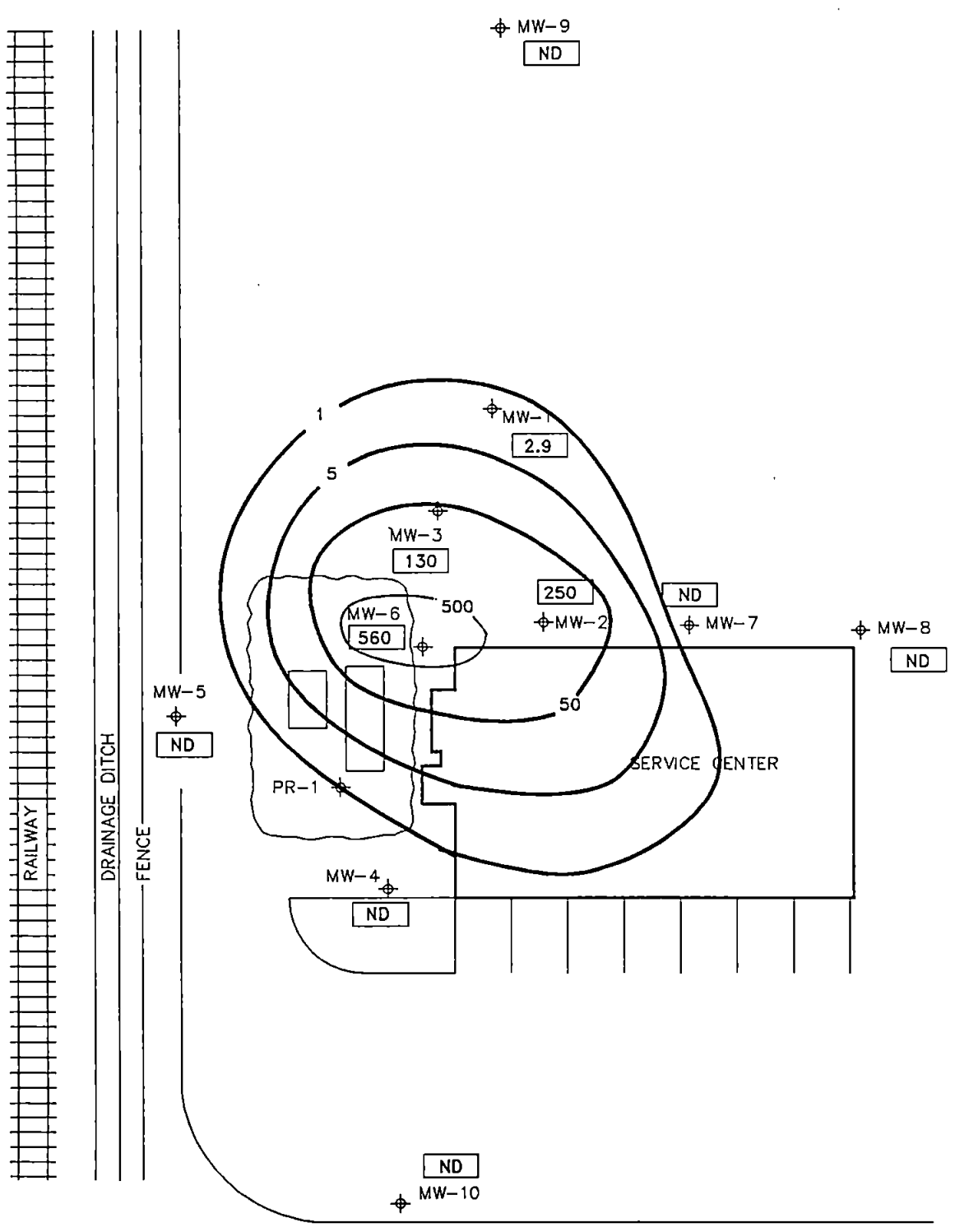
LEGEND

⊕MW-1	Monitoring Well
29000	Isoconcentration contour line for groundwater Benzene in ppb.
ND	Below Laboratory detection Limit

SCALE APPROXIMATE (FEET)

0 10 20 30 40 50

psi 12812 NE MARX STREET PORTLAND, OREGON 97230		SITE DETAIL SHOWING GROUNDWATER BENZENE ISOCONCENTRATION CONTOUR MAP FOR MONITORING WELLS DECEMBER, 1994	PROJECT NO. 572-34261
DESIGNED BY: M. HAUSER	CHECKED BY: M. HAUSER		FILE: 34261BEN
DRAWN BY: M. JACKSON	DATE: FEBRUARY 14, 1995	SOUTH SEATTLE AUTO AUCTION KENT, WASHINGTON	FIGURE



LEGEND

⊕ MW-1	Monitoring Well
560	Isoconcentration contour line for groundwater TPH-G in ppb.
ND	Below Laboratory detection Limit

SCALE APPROXIMATE (FEET)

0 10 20 30 40 50

psi 12812 NE MARX STREET PORTLAND, OREGON 97230		SITE DETAIL SHOWING GROUNDWATER TPH-G ISOCONCENTRATION CONTOUR MAP FOR MONITORING WELLS DECEMBER, 1994 SOUTH SEATTLE AUTO AUCTION KENT, WASHINGTON	PROJECT NO. 572-34261
DESIGNED BY: M. HAUSER	CHECKED BY: M. HAUSER		FILE: 34261GWC
DRAWN BY: M. JACKSON	DATE: FEBRUARY 14, 1995		FIGURE

Professional Service Industries, Inc.

ANALYTICAL REPORT

TESTED FOR: Professional Service Industries, Inc.
12812 NE Marx
Portland, OR 97230

PROJECT: South Seattle Auto Auction
PROJECT NUMBER: 572-167
PAGE: 1

ATTENTION: Mike Hauser

DATE: January 17, 1995

OUR REPORT NUMBER: 5940P572-38177

Attached, please find our analytical report for samples described on the Chain-of-Custody Record. Please reference our report number and direct any questions regarding this report to the individual designated below or to one of our Customer Service Representatives.

Jan Fuss
Lawrence Chemistry
Department Manager

1/17/95
Date

Respectfully Submitted,
Professional Service Industries, Inc.

PROFESSIONAL SERVICE INDUSTRIES, INC.
4820 West 15th St., Lawrence, KS 66049

Batch #: 38177
Matrix: Water

Analyte	Results	Units	Method	Analysis Date	Analyst	MDL
Client Sample #: MW-10						
Our Sample #: 856140						
BTEX						
Benzene	2.2	ug/L	8020	1-06-95	MV	1.0
Toluene	1.1	ug/L	8020	1-06-95	MV	1.0
Ethylbenzene	<1.0	ug/L	8020	1-06-95	MV	1.0
Xylenes	<1.0	ug/L	8020	1-06-95	MV	1.0
Surrogate Recovery = 90%						
TPH - PURGEABLE						
Gasoline Range	<0.1	mg/L	5030/8015	1-06-95	MV	0.1
Surrogate Recovery = 94%						
Lead	0.006	mg/L	239.2	1-12-95	AL	0.001
Client Sample #: MW-5						
Our Sample #: 856141						
BTEX						
Benzene	<1.0	ug/L	8020	1-06-95	MV	1.0
Toluene	<1.0	ug/L	8020	1-06-95	MV	1.0
Ethylbenzene	<1.0	ug/L	8020	1-06-95	MV	1.0
Xylenes	<1.0	ug/L	8020	1-06-95	MV	1.0
Surrogate Recovery = 97%						
TPH - PURGEABLE						
Gasoline Range	<0.1	mg/L	5030/8015	1-06-95	MV	0.1
Surrogate Recovery = 107%						
Lead	0.007	mg/L	239.2	1-12-95	AL	0.001

PROFESSIONAL SERVICE INDUSTRIES, INC.
4820 West 15th St., Lawrence, KS 66049

Batch #: 38177
Matrix: Water

Analyte	Results	Units	Method	Analysis Date	Analyst	MDL
Client Sample #: MW-4						
Our Sample #: 856142						
BTEX						
Benzene	6.5	ug/L	8020	1-06-95	MV	2.0
Toluene	<1.0	ug/L	8020	1-06-95	MV	1.0
Ethylbenzene	<1.0	ug/L	8020	1-06-95	MV	1.0
Xylenes	<1.0	ug/L	8020	1-06-95	MV	1.0
Surrogate Recovery = 80%						
TPH - PURGEABLE						
Gasoline Range	<0.1	mg/L	5030/8015	1-06-95	MV	0.1
Surrogate Recovery = 90%						
Lead	0.007	mg/L	239.2	1-12-95	AL	0.001
Client Sample #: MW-8						
Our Sample #: 856143						
BTEX						
Benzene	<1.0	ug/L	8020	1-09-95	MV	1.0
Toluene	<1.0	ug/L	8020	1-09-95	MV	1.0
Ethylbenzene	<1.0	ug/L	8020	1-09-95	MV	1.0
Xylenes	1.6	ug/L	8020	1-09-95	MV	1.0
Surrogate Recovery = 101%						
TPH - PURGEABLE						
Gasoline Range	<0.1	mg/L	5030/8015	1-09-95	MV	0.1
Surrogate Recovery = 100%						
Lead	0.009	mg/L	239.2	1-12-95	AL	0.001

PROFESSIONAL SERVICE INDUSTRIES, INC.
4820 West 15th St., Lawrence, KS 66049

Batch #: 38177
Matrix: Water

Analyte	Results	Units	Method	Analysis Date	Analyst	MDL
Client Sample #: MW-9						
Our Sample #: 856144						
BTEX						
Benzene	<1.0	ug/L	8020	1-06-95	MV	1.0
Toluene	1.8	ug/L	8020	1-06-95	MV	1.0
Ethylbenzene	<1.0	ug/L	8020	1-06-95	MV	1.0
Xylenes	<1.0	ug/L	8020	1-06-95	MV	1.0
Surrogate Recovery = 90%						
TPH - PURGEABLE						
Gasoline Range	<0.1	mg/L	5030/8015	1-06-95	MV	0.1
Surrogate Recovery = 102%						
Lead	0.007	mg/L	239.2	1-12-95	AL	0.001
Client Sample #: MW-7						
Our Sample #: 856145						
BTEX						
Benzene	<1.0	ug/L	8020	1-06-95	MV	1.0
Toluene	3.8	ug/L	8020	1-06-95	MV	2.0
Ethylbenzene	<1.0	ug/L	8020	1-06-95	MV	1.0
Xylenes	<1.0	ug/L	8020	1-06-95	MV	1.0
Surrogate Recovery = 100%						
TPH - PURGEABLE						
Gasoline Range	<0.1	mg/L	5030/8015	1-06-95	MV	0.1
Surrogate Recovery = 105%						
Lead	0.013	mg/L	239.2	1-12-95	AL	0.001

PROFESSIONAL SERVICE INDUSTRIES, INC.
4820 West 15th St., Lawrence, KS 66049

Batch #: 38177
Matrix: Water

Analyte	Results	Units	Method	Analysis Date	Analyst	MDL
Client Sample #: MW-1						
Our Sample #: 856146						
BTEX						
Benzene	550	ug/L	8020	1-09-95	MV	10
Toluene	<5.0	ug/L	8020	1-09-95	MV	5.0
Ethylbenzene	<5.0	ug/L	8020	1-09-95	MV	5.0
Xylenes	310	ug/L	8020	1-09-95	MV	10
Surrogate Recovery = 83%						
TPH - PURGEABLE						
Gasoline Range	2.9	mg/L	5030/8015	1-09-95	MV	1.0
Surrogate Recovery = 93%						
Lead	0.005	mg/L	239.2	1-12-95	AL	0.001
Client Sample #: MW-3						
Our Sample #: 856147						
BTEX						
Benzene	4,800	ug/L	8020	1-10-95	MV	100
Toluene	<50	ug/L	8020	1-10-95	MV	50
Ethylbenzene	840	ug/L	8020	1-10-95	MV	100
Xylenes	3,400	ug/L	8020	1-10-95	MV	100
Surrogate Recovery = 67%						
TPH - PURGEABLE						
Gasoline Range	130	mg/L	5030/8015	1-09-95	MV	10
Surrogate Recovery = 83%						
Hardness	338	mg/L	200.7	1-11-95	JP	0.087
Iron	95.9	mg/L	200.7	1-11-95	JP	0.01
Lead	0.007	mg/L	239.2	1-12-95	AL	0.001
Dissolved Lead	0.003	mg/L	239.2	1-13-95	AL	0.001
Maganese	4.47	mg/L	200.7	1-11-95	JP	0.001
BOD	23.4*	mg/L	405.1	12-30-94	JH	2.0
COD	210	mg/L	410.4	1-05-95	JH	40

* = This sample came from a LUST with BOD detected. The values are approximated. These samples were read at 4 1/2 days, and at this time all qualifiers were out of range.

Batch #: 38177
Matrix: Water

Analyte	Results	Units	Method	Analysis Date	Analyst	MDL
Client Sample #: MW-2						
Our Sample #: 856148						
BTEX						
Benzene	39,000	ug/L	8020	1-09-95	MV	2,500
Toluene	16,000	ug/L	8020	1-09-95	MV	2,500
Ethylbenzene	2,500	ug/L	8020	1-09-95	MV	2,500
Xylenes	12,000	ug/L	8020	1-09-95	MV	2,500
Surrogate Recovery = 93%						
TPH - PURGEABLE						
Gasoline Range	250	mg/L	5030/8015	1-09-95	MV	250
Surrogate Recovery = 101%						
Hardness	270	mg/L	200.7	1-11-95	JP	0.087
Iron	138	mg/L	200.7	1-11-95	JP	0.01
Lead	0.005	mg/L	239.2	1-12-95	AL	0.001
Dissolved Lead	<0.001	mg/L	239.2	1-13-95	AL	0.001
Maganese	7.21	mg/L	200.7	1-11-95	JP	0.001
BOD	58.8*	mg/L	405.1	12-30-94	JH	2.0
COD	420	mg/L	410.4	1-05-95	JH	40

* = This sample came from a LUST with BOD detected. The values are approximated. These samples were read at 4 1/2 days, and at this time all qualifiers were out of range.

Client Sample #: MW-6						
Our Sample #: 856149						
BTEX						
Benzene	29,000	ug/L	8020	1-09-95	MV	5,000
Toluene	43,000	ug/L	8020	1-09-95	MV	5,000
Ethylbenzene	4,700	ug/L	8020	1-09-95	MV	5,000
Xylenes	32,000	ug/L	8020	1-09-95	MV	5,000
Surrogate Recovery = 87%						
TPH - PURGEABLE						
Gasoline Range	560	mg/L	5030/8015	1-09-95	MV	500
Surrogate Recovery = 96%						
Lead	0.004	mg/L	239.2	1-12-95	AL	0.001
Dissolved Lead	0.008	mg/L	239.2	1-13-95	AL	0.001

PROFESSIONAL SERVICE INDUSTRIES, INC.
4820 West 15th St., Lawrence, KS 66049

Batch #: 38177
Matrix: Soil

Analyte	Results	Units	Method	Analysis Date	Analyst	MDL
Client Sample #: S-1						
Our Sample #: 8561450						
BTEX						
Benzene	4.4	ug/kg	8020	1-10-95	MV	2.0
Toluene	<2.0	ug/kg	8020	1-10-95	MV	2.0
Ethylbenzene	<2.0	ug/kg	8020	1-10-95	MV	2.0
Xylenes	<2.0	ug/kg	8020	1-10-95	MV	2.0
Surrogate Recovery = 74%						
TPH - PURGEABLE						
Gasoline Range	<0.1	mg/kg	5030/8015	1-10-95	MV	0.1
Surrogate Recovery = 73%						
Client Sample #: S-2						
Our Sample #: 8561451						
BTEX						
Benzene	6,200	ug/kg	8020	1-12-95	MV	1,000
Toluene	<500	ug/kg	8020	1-12-95	MV	500
Ethylbenzene	1,700	ug/kg	8020	1-12-95	MV	1,000
Xylenes	5,400	ug/kg	8020	1-12-95	MV	1,000
Surrogate Recovery = 78%						
TPH - PURGEABLE						
Gasoline Range	570	mg/kg	5030/8015	1-10-95	MV	50
Surrogate Recovery = NA						

Batch #: 38177
Matrix: Soil

Analyte	Results	Units	Method	Analysis Date	Analyst	MDL
Client Sample #: S-3						
Our Sample #: 8561452						
BTEX						
Benzene	<2.0	ug/kg	8020	1-10-95	MV	2.0
Toluene	<2.0	ug/kg	8020	1-10-95	MV	2.0
Ethylbenzene	<2.0	ug/kg	8020	1-10-95	MV	2.0
Xylenes	<2.0	ug/kg	8020	1-10-95	MV	2.0
Surrogate Recovery = 67%						
TPH - PURGEABLE						
Gasoline Range	<0.1	mg/kg	5030/8015	1-10-95	MV	0.1
Surrogate Recovery = 65%						
Client Sample #: S-4						
Our Sample #: 8561453						
BTEX						
Benzene	<2.0	ug/kg	8020	1-10-95	MV	2.0
Toluene	<2.0	ug/kg	8020	1-10-95	MV	2.0
Ethylbenzene	<2.0	ug/kg	8020	1-10-95	MV	2.0
Xylenes	<2.0	ug/kg	8020	1-10-95	MV	2.0
Surrogate Recovery = 60%						
TPH - PURGEABLE						
Gasoline Range	<0.1	mg/kg	5030/8015	1-10-95	MV	0.1
Surrogate Recovery = 60%						

PROFESSIONAL SERVICE INDUSTRIES, INC.
4820 West 15th St., Lawrence, KS 66049

Batch #: 38177
Matrix: Soil

Analyte	Results	Units	Method	Analysis Date	Analyst	MDL
Client Sample #: S-5						
Our Sample #: 8561454						
BTEX						
Benzene	<2.0	ug/kg	8020	1-10-95	MV	2.0
Toluene	<2.0	ug/kg	8020	1-10-95	MV	2.0
Ethylbenzene	<2.0	ug/kg	8020	1-10-95	MV	2.0
Xylenes	<2.0	ug/kg	8020	1-10-95	MV	2.0
Surrogate Recovery = 60%						
TPH - PURGEABLE						
Gasoline Range	<0.1	mg/kg	5030/8015	1-10-95	MV	0.1
Surrogate Recovery = 104%						
Client Sample #: S-6						
Our Sample #: 8561455						
BTEX						
Benzene	<2.0	ug/kg	8020	1-10-95	MV	2.0
Toluene	<2.0	ug/kg	8020	1-10-95	MV	2.0
Ethylbenzene	<2.0	ug/kg	8020	1-10-95	MV	2.0
Xylenes	<2.0	ug/kg	8020	1-10-95	MV	2.0
Surrogate Recovery = 74%						
TPH - PURGEABLE						
Gasoline Range	<0.1	mg/kg	5030/8015	1-10-95	MV	0.1
Surrogate Recovery = 73%						

PROFESSIONAL SERVICE INDUSTRIES, INC.
4820 West 15th St., Lawrence, KS 66049

Batch #: 38177
Matrix: Water

Analyte	Results	Units	Method	Analysis Date	Analyst	MDL
Method Blank						
BTEX						
Benzene	<1.0	ug/L	8020	1-06-95	MV	1.0
Toluene	<1.0	ug/L	8020	1-06-95	MV	1.0
Ethylbenzene	<1.0	ug/L	8020	1-06-95	MV	1.0
Xylenes	<1.0	ug/L	8020	1-06-95	MV	1.0
Surrogate Recovery = 100%						
TPH - PURGEABLE						
Gasoline Range	<0.1	mg/L	5030/8015	1-06-95	MV	0.1
Surrogate Recovery = 103%						

CLIENT# (LAB#)	ANALYTE	PERCENT RECOVERY
LCS	Benzene	98
	Toluene	83
	Ethylbenzene	95
	Xylenes	92
	Total	92
	Surrogate Recovery = 93%	
Matrix Spike	Benzene	102
	Toluene	88
	Ethylbenzene	100
	Xylenes	96
	Total	97
	Surrogate Recovery = 97%	
Matrix Spike Duplicate	Benzene	100
	Toluene	88
	Ethylbenzene	100
	Xylenes	96
	Total	96
	Surrogate Recovery = 97%	
LCS	TPH - PURGEABLE Gasoline Range	91
	Surrogate Recovery = 104%	

Batch #: 38177
Matrix: Water

Analyte	Results	Units	Method	Analysis Date	Analyst	MDL
Method Blank						
BTEX						
Benzene	<1.0	ug/L	8020	1-09-95	MV	1.0
Toluene	<1.0	ug/L	8020	1-09-95	MV	1.0
Ethylbenzene	<1.0	ug/L	8020	1-09-95	MV	1.0
Xylenes	<1.0	ug/L	8020	1-09-95	MV	1.0
Surrogate Recovery = 100%						
TPH - PURGEABLE						
Gasoline Range	<0.1	mg/L	5030/8015	1-09-95	MV	0.1
Surrogate Recovery = 101%						

CLIENT# (LAB#)	ANALYTE	PERCENT RECOVERY
LCS	Benzene	107
	Toluene	93
	Ethylbenzene	106
	Xylenes	103
	Total	103
	Surrogate Recovery = 103%	
Matrix Spike	Benzene	96
	Toluene	86
	Ethylbenzene	98
	Xylenes	95
	Total	94
	Surrogate Recovery = 97%	
Matrix Spike Duplicate	Benzene	83
	Toluene	74
	Ethylbenzene	84
	Xylenes	82
	Total	81
	Surrogate Recovery = 83%	
LCS	TPH - PURGEABLE	
	Gasoline Range	85
	Surrogate Recovery = 101%	

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4820 West 15th St., Lawrence, KS 66049

Batch #: 38177
Matrix: Water

Analyte	Blank	MDL	Units	Duplicate RPD	Percent Recovery	Method	Matrix
Iron	<0.01	0.01	mg/L	3.93	98.2	200.7	Water
Lead	<0.001	0.001	mg/L	35.3	125	239.2	Water
Dissolved Lead	<0.001	0.001	mg/L	40.0	94.9	239.2	Water
Maganese	<0.001	0.001	mg/L	5.05	95.5	200.7	Water
BOD	<2.0	2.0	mg/L	NA	77.3	405.1	Water
COD	<20	20	mg/L	6.8	116.5	410.4	Water

Batch #: 38177
Matrix: Soil

Analyte	Results	Units	Method	Analysis Date	Analyst	MDL
Method Blank						
BTEX						
Benzene	<1.0	ug/kg	8020	1-10-95	MV	1.0
Toluene	<1.0	ug/kg	8020	1-10-95	MV	1.0
Ethylbenzene	<1.0	ug/kg	8020	1-10-95	MV	1.0
Xylenes	<1.0	ug/kg	8020	1-10-95	MV	1.0
Surrogate Recovery = 96%						
TPH - PURGEABLE						
Gasoline Range	<0.1	mg/kg	5030/8015	1-10-95	MV	0.1
Surrogate Recovery = 95%						

CLIENT# (LAB#)	ANALYTE	PERCENT RECOVERY
LCS	Benzene	85
	Toluene	75
	Ethylbenzene	85
	Xylenes	83
	Total	82
	Surrogate Recovery = 96%	
	TPH - PURGEABLE	
	Gasoline Range	91
	Surrogate Recovery = 102%	

P. 1 of 2

CHAIN OF COUSTODY RECORD

psi Professional Service Industries, Inc.

PROJECT NAME: South Seattle Auto Auction	REPORT TO: Mike Hauser	INVOICE TO: K. Nygaard
PROJECT NUMBER: 572-167	PROJECT MANAGER: M. Hauser	ADDRESS
P.O. NUMBER: 572	ADDRESS	CITY / STATE / ZIP
REQUIRED DUE DATE: Regular	CITY / STATE / ZIP	ATTENTION
SAMPLES TO LAB VIA: Fed Ex	TELEPHONE / FAX	TELEPHONE
NUMBER OF COOLERS: 1	REPORT VIA: VERBAL FAX U.S. MAIL/OVERNIGHT	

LABORATORY SUBMITTED TO:

- ☐ 6913 Hwy. 225, Deer Park, TX 77536, (713) 479-8307
- ☒ 4820 W. 15th Street, Lawrence, KS 66049, (800) 548-7901
- ☐ 6056 Ulmerton Road, Clearwater, FL 34620, (813) 531-1446
- ☐ 850 Poplar Street, Pittsburgh, PA 15220, (412) 922-4000

TRANSFER NUMBER	RELINQUISHED BY DATE / TIME	ACCEPTED BY DATE / TIME	SEAL NUMBER
1	M. Teulen (signature)	Jan See (signature) 12/30/94	

LABORATORY USE ONLY

FIELD SERVICES Y/N $

SHIPPING Y/N $

LABORATORY USE ONLY

ANALYTICAL DUE DATE 1/11

REPORT DUE DATE 1/13

INORGANIC Sect ____ Row ____ ORGANIC Sect ____ Row 9

PSI PROJECT NAME PSI-Portland

PSI PROJECT # 5940P572

PSI BATCH # 38177

LABORATORY USE ONLY

SAMPLE CUSTODIAN | DATE / TIME

PARAMETER LIST

SAMPLE IDENTIFICATION	DATE / TIME	COMP-C GRAB-B	SOIL-S WATER-W WASTE-X	LAB USE ONLY LAB NUMBER	NUMBER OF CONTAINERS	TPH-G	BTEX	TOTAL LEAD	DISSOLVED LEAD	TOTAL IRON	MAGANESE	HARDNESS	BOD	COD
MW-10	12/28/94	B	W	856140	3	✓	✓	✓						
MW-5	12/28/94	↓	↓	141	3	✓	✓	✓						
MW-4	12/28/94	↓	↓	142	3	✓	✓	✓						
MW-8	12/28/94	↓	↓	143	3	✓	✓	✓						
MW-9	12/28/94	↓	↓	144	3	✓	✓	✓						
MW-7	12/29/94	↓	↓	145	3	✓	✓	✓						
MW-1	12/29/94	↓	↓	146	3	✓	✓	✓						
MW-3	12/29/94	↓	↓	147	6	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW-2	12/29/94	↓	↓	856148	6	✓	✓	✓	✓	✓	✓	✓	✓	✓

NOTE! Please filter Dissolved lead

* Please use 1 40ml for COD " " " "

ADDITIONAL REMARKS ____

SAMPLER'S SIGNATURE M. Teulen (signature)

A-600

P. 2 OF 2.

CHAIN OF CUSTODY RECORD

PSI Professional Service Industries, Inc.

PROJECT NAME: SOUTH SEATTLE AUTO AUCTION	REPORT TO: M. HAUSER	INVOICE TO: K. NYGAARD
PROJECT NUMBER: 572-167	PROJECT MANAGER: M. HAUSER	ADDRESS: PORTLAND
P.O. NUMBER: 572	ADDRESS:	CITY / STATE / ZIP:
REQUIRED DUE DATE: REGULAR	CITY / STATE / ZIP:	ATTENTION:
SAMPLES TO LAB VIA: FED EX.	TELEPHONE: FAX:	TELEPHONE:
NUMBER OF COOLERS:	REPORT VIA: VERBAL FAX; U.S. MAIL/OVERNIGHT	

LABORATORY SUBMITTED TO:

- ☐ 6913 Hwy. 225, Deer Park, TX 77536, (713) 479-8307
- ☐ 6056 Ulmerton Road, Clearwater, FL 34620, (813) 531-1446
- ☒ 4820 W. 15th Street, Lawrence, KS 66049, (800) 548-7901
- ☐ 850 Poplar Street, Pittsburgh, PA 15220, (412) 922-4000

TRANSFER NUMBER	RELINQUISHED BY DATE / TIME	ACCEPTED BY DATE / TIME	SEAL NUMBER
1	M. Sexton	Jan See 12/20/94	

LABORATORY USE ONLY

SAMPLE CUSTODIAN: J. See — DATE / TIME:

LABORATORY USE ONLY

FIELD SERVICES Y/N $

SHIPPING Y/N $

LABORATORY USE ONLY

ANALYTICAL DUE DATE 1/11

REPORT DUE DATE 1/13

INORGANIC Sect ____ Row ____ ORGANIC Sect ____ Row 9

PSI PROJECT NAME PSI - PORTLAND

PSI PROJECT # 5940P572

PSI BATCH # 38177

PARAMETER LIST

SAMPLE IDENTIFICATION	DATE / TIME	COMP-C GRAB-B	SOIL-S WATER-W WASTE-X	LAB USE ONLY LAB NUMBER	NUMBER OF CONTAINERS	TPH-G	BTEX	DISSOLVED LEAD	TOTAL LEAD 6020	WTPH-G
MW-6	12/29/94	B	W	856149	4	✓	✓	✓	✓	
S-1		B	S	150	1				✓	✓
S-2				151	1				✓	✓
S-3				152	1				✓	✓
S-4				153	1				✓	✓
S-5				154	1				✓	✓
S-6				856155	1				✓	✓
				~~15~~						

NOTE! Please filter for Dissolved Lead.

ADDITIONAL REMARKS

SAMPLER'S SIGNATURE M. Sexton

A-600-1