University Volkswagen
King Co.

ENVIRONMENTAL SITE ASSESSMENT/CHECKLIST

UNDERGROUND STORAGE TANK REMOVAL

UNIVERSITY VOLKSWAGEN
4724 Roosevelt Avenue Seattle, Washington

Prepared for

Rob Will
University Volkswagen

Prepared by

Bison Environmental Northwest, Inc.
200 333rd Street - Suite 120
Federal Way, Washington 98003

November 1993

11/30/93

BISON

Project No. 93380 Confidential for client use only

TABLE OF CONTENTS

UNDERGROUND STORAGE TANK REMOVAL

SITE ASSESSMENT REPORT

UNIVERSITY VOLKSWAGEN SEATTLE, WASHINGTON

1.0 Executive Summary

Three Underground Storage Tanks (UST's) were removed from 4727 Roosevelt Way Seattle, Washington on September 23, 1993. The project included the following tanks:

Tank # 2	One (1)	4,000 gallon tank containing Gasoline
Tank # (2)annex1540	One (1)	550 gallon tank containing Lube Oil
Tank # (3)waste(htr)	One (1)	4,000 gallon tank containing Waste Oil

The tanks were buried individually within the automobile dealership property. The waste oil tank was the first tank removed. This tank was located to the north of the mechanical repair shop and it's axis was east to west. The centerline of the tank was 8' from the north wall of the building and the west end of the tank was 6' from the east edge of the concrete paving of the alley. The tank had two remote fills, one inside the building and the other located outside the west wall of the building.This fill was a concrete basin set 1" above finished grade with a steel lid to shed storm water and rain water. This tank was also connected to a waste oil burner and used to heat the shop building.

The lube oil tank was buried west of the mechanical shop on the east side of the alley with the tank axis north to south. This tank had a remote suction pump inside the building and dispensed product to various locations inside the building.

The last tank removed was the gasoline tank located at the south end of the property and west of the alley. This system was a suction type of pump and a lift check valve was noted on the tank during removal. A leaking union was discovered prior to removing the tank and this is the probable source of contamination that was uncovered.

Lee Morse General Contractor Inc. inerted the tanks by adding 2 pounds of dry ice for every 100 gallons of capacity. The inerting of the tanks was approved by the Seattle Fire Department prior to their removal.

The tanks were properly labeled and openings were plugged before transporting them to Marine Vacuum Service where they were pumped and rinsed before being destroyed.

Soil samples were taken during the removal process per the Department of Ecology protocol. Groundwater was not encountered during any excavation activities.

The analytical results confirm a release has occurred at the lube oil tank site and the gasoline tank site and these findings have been reported to the Department of Ecology and the Owner. The waste oil tank pit was free of petroleum product contamination, but the gasoline tank pit will require further action.

The Department of Ecology has issued site I.D.# 005719 to the address and release incident # 14123 for the leaking gasoline piping system.

2.0 Site Characteristics

The subject site is an automotive dealership with a mechanical repair shop, a body and fender repair shop, new and used vehicle parking lots and vehicle showrooms with offices.

The surrounding area is mixed commercial with some residential and multi-dwelling apartments. The property is located two blocks northwest of the University of Washington campus.

3.0 Site Inspection

No surface evidence of contamination existed on site. Surface coverings included asphalt and concrete throughout the facility. The active tanks were located along the alley that divides the property from east to west. All tanks were located next to the alley for easy service. Electrical utilities are all fed to the property from overhead transmission lines at the west and center of the property. Underground utilities were located prior to excavation and included water service, natural gas, telephone and sewer. There are in-ground hydraulic hoists as would typically be found at a service garage. No evidence of a release was found in the storm drains.

4.0 Sampling Plan

Samples during the initial tank removal were planned below the tanks and of the walls of the excavation, and all exhumed soils, thus allowing the entire pit and spoils to be completely analyzed for contamination. Upon finding contamination, additional sampling will progress throughout the excavations to determine the extent, type and amount of contamination, if it is detected.

5.0 Tank Removal

The tank removal process was completed by Lee Morse General Contractor, Inc. on September 23, 1993. Dry ice was used to inert the tanks and the carbon dioxide content within the tanks was certified by the Seattle Fire Department so hot work on the tanks would pose no danger to life and property. Proper labels were placed on the tanks for transportation to Marine Vacuum Services where they were cut open and cleaned before being certifiably destroyed.

6.0 Tank Condition

The construction of the 3 tanks were single wall welded steel without cathodic protection. The tanks did not have the fill/spill containers on the fill pipes. The waste oil tank had a gravity drain into the tank, and a suction line from the tank fed a waste oil burner to heat the shop. The gasoline tank had a suction type pump used for re-fueling vehicles. All tanks were epoxy coated and in good condition and still bearing the name of the manufacturer on the tank head. The tanks are not suspected of releasing product into the surrounding soil.

7.0 Soil Removal

The soils removed from the waste oil tank excavation, and the excavation itself, have been tested and found to be below the MTCA Method A reporting limits. All soils were returned to the excavation and paved over.

Approximately one cubic yard of lube oil contaminated soil from the lube oil tank excavation are incorporated in the gasoline tank excavation along with the gasoline contaminated soil and will be exhumed and transported to the Sterling Asphalt plant for asphalt encapsulation. Ground water was not encountered in any of the excavations on this site.

8.0 Soil Characterization

The soil classification at this site as defined by the Unified Soil Classification System ASTM D-2487 is SW and defined as "Well graded sands and gravelly sands, little or no fines." This type of soil was found at all the tank excavations and is native to this area.

9.0 Soil Sampling

Soil samples were taken throughout the gasoline tank excavation zone in an initial attempt to provide evidence of a non-contaminated site. When it was determined that this was not feasible, additional samples were taken to document the existence and level of contamination. Sample analysis will determine the fate of the soil to be disposed of. All excavated material has been returned to the excavation and will require additional work.
Soil samples were taken from the floor and two walls of waste oil tank pit and the pile of excavated material was tested for contamination. Contamination was not detected in this excavation, or in the soils that were removed, and all materials were placed back into the excavation.

Soil samples from the lube oil tank pit were taken under the tank and from two walls of the excavation. The stockpile was sampled and is over MTCA limits and will be sent with the other soils for incineration.

Samples were taken and stored in accordance with DOE Guidance Documents, and included both grab samples and composite samples. The samples were delivered to the laboratory under standard chain of custody. Sample locations and laboratory results are shown in Appendix A and Appendix B.

10.0 Conclusion

Evaluation of the analytical data indicate a release has occurred on this site at the gasoline tank burial site. Contamination in the soil appears to be from a combination of stored material and a leaking product delivery line. The major area of contamination is related to the underground gasoline tank. The piping system is suspected to have leaked a small amount over a long period of time. This tank had a suction type product delivery system that has the potential to drain down the delivery line when idle. The tank did not have the fill/spill containment boxes on the fill pipes and this is also a source of entry for fuel entering the ground.

The tanks were in good condition upon removal and are not suspected as the source, but only as a contributor in this situation.

The source of contamination has been eliminated from this site although further decontamination work and testing will be needed to meet the Department of Ecology's guidelines.

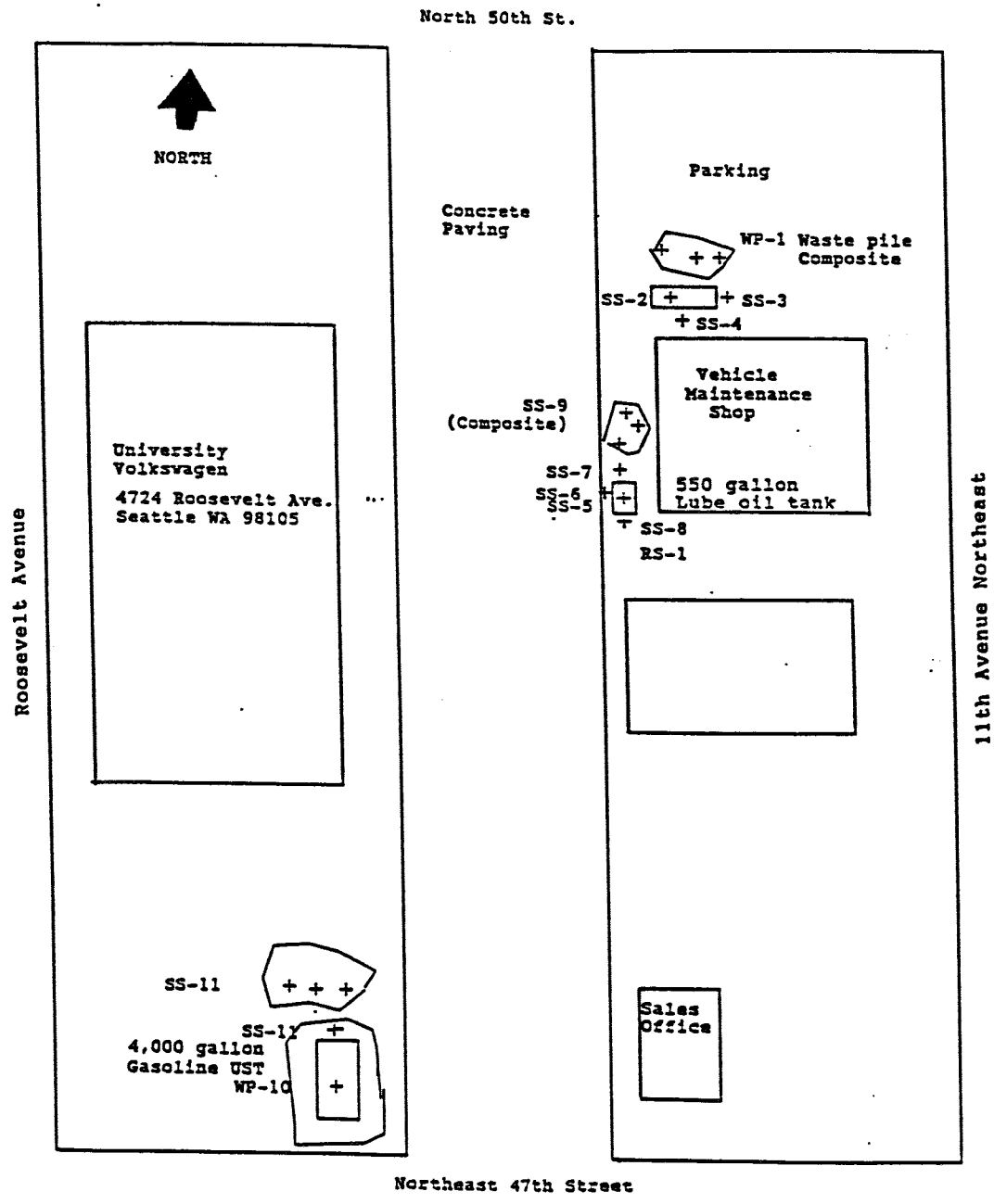
A decontamination effort is expected begin in the spring of 1994 to try and eliminate the gasoline contaminated soil from this site. The one cubic yard of soil contaminated with lubricating oil will be treated at the same time.

Further information will be made available as this project proceeds.

APPENDIX A

Sampling Diagram

University Volskwagen
4724 Roosevelt Avenue
Seattle, WA 98105


North 50th St.
NORTH
Parking
Concrete
Paving
WP-1 Waste pile
Composite
SS-2
SS-3
SS-4
Vehicle
Maintenance
Shop
SS-9
(Composite)
SS-7
SS-6
SS-5
SS-8
RS-1
550 gallon
Lube oil tank
University
Volkswagen
4724 Roosevelt Ave.
Seattle WA 98105
Roosevelt Avenue
11th Avenue Northeast
SS-11
SS-12
4,000 gallon
Gasoline UST
WP-10
Sales
Office
Northeast 47th Street

APPENDIX B

Analytical Results

University Volkswagen Underground Storage Tank Removal
Sample Log

Sample #	Date	Location	Methods	Analyses-PPM
WP-1	9/22/93	Waste Oil tank Composite of stockpile	WTPH-418.1	35
SS-2	9/22/93	Waste Oil tank pit center of pit 11' down	WTPH-418.1	32
SS-3	9/22/93	Waste Oil tank pit east wall 6' deep	WTPH-418.1	20
SS-4	9/22/93	Waste Oil tank pit south wall 7' deep	WTPH-418.1	26
SS-5	9/23/93	Lube Oil tank pit 10' down	WTPH 418.1	58
SS-6	9/23/93	Lube Oil tank pit west wall 4' deep	WTPH-418.1	18
SS-7	9/23/93	Lube Oil tank pit north wall 4' deep	WTPH-418.1	19
SS-8	9/23/93	Lube Oil tank pit south wall 3' deep	WTPH-418.1	49,000
SS-9	9/23/93	Lube Oil tank pit composite of spoil pile	WTPH-418.1	800
RS-1	12/13/93	Lube Oil tank pit Resample south wall after overexcavation	EPA-418.1	40
WP-10	9/23/93	Gasoline tank pit bottom of pit 10' deep	WTPH-G Benzene Toluene Ethyl Benzene Xylenes Lead	57 .20 .96 1.5 8.0 4.8
SS-11		Gasoline tank pit north wall 3' deep	WTPH-G Benzene Toluene Ethyl Benzene Xylenes	5,100 21 280 110 620
SS-11	11/12/93	Gasoline tank pit grab sample profile for disposal	See Appendix B Laboratory Results	

BISON Environmental Northwest, Inc.

NORTHPARK BUILDING
200 SOUTH 333RD STREET - SUITE 120
FEDERAL WAY, WASHINGTON 98003

OFFICE: 206/838-7261
FAX: 206/927-2610

CHAIN OF CUSTODY RECORD

Page ____ of ____

Project# 93380
Project Name UNIVERSITY VOLKSWAGON
Client LEE MORSE
Results to KEN BEAULAURIER

Sample #	Location	Sample Description	Date	Time	Sample Type	Analysis Required
WP-1	SPOIL FROM EXCAVATION	4000 W/O TANK SOIL COMPOSITE	9/22/93	3:20	SOIL	418.1
SS-2	FLOOR OF EXCAVATION	UNDERTANK(P) 11' DEEP MIDDLE	9/22/93	3:30	SOIL	418.1
SS-3	EAST WALL OF EXCAVATION	6 FEET BELOW GRADE	9/22/93	3:35	SOIL	418.1
SS-4	SOUTH WALL " "	7 FEET BELOW GRADE	9/22/93	3:45	SOIL	418.1

Sample Type: A=Air B=Bulk S=Soil W=Water Other-Describe

Special Instructions ____

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

Relinquished by: BENW [signature] 9/23/93 8:30 2. Relinquished by: ____

Received by: Mary Coston 9/23/93 8:30 Received by: ____

Delivered by: Hand X UPS ____ Airborne ____ Fed X ____ Other ____

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

TRANSMITTAL MEMORANDUM

DATE: September 29, 1993

TO: Ken Beaulaurier
Bison Environmental N. W.

PROJECT NAME: University Volkswagon

PROJECT NUMBER: 93380

LABORATORY NUMBER: 34996

Enclosed is one original and one copy of the Tier I data deliverables package for Laboratory Work Order Number 34996. Four samples were received for analysis at Sound Analytical Services, Inc., on September 23, 1993.

If there are any questions regarding this data package, please do not hesitate to call me at (206) 922-2310.

Sincerely,

Dean A. Strom
Project Manager

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Bison Environmental N.W. Date: September 29, 1993

Report On: Analysis of Soil Lab No.: 34996

IDENTIFICATION:
Samples received on 09-23-93
Project: 93380 University Volkswagon

ANALYSIS:

TPH Per EPA Method 418.1
Date Extracted: 9-28-93
Date Analyzed: 9-28-93

Lab Sample No. 34996-1 Client ID: WP-1

Parameter	Concentration, mg/kg	PQL	Flag
Total Petroleum Hydrocarbons	35	10	

Lab Sample No. 34996-2 Client ID: SS-2

Parameter	Concentration, mg/kg	PQL	Flag
Total Petroleum Hydrocarbons	32	10	

ND - Not Detected
PQL - Practical Quantitation Limit

Continued . . .

SOUND ANALYTICAL SERVICES, INC.

Bison Environmental N. W.
Project: 93380

Lab No. 34996
September 29, 1993

TPH Per EPA Method 418.1
Date Extracted: 9-28-93
Date Analyzed: 9-28-93

Lab Sample No. 34996-3 Client ID: SS-3

Parameter	Concentration, mg/kg	PQL	Flag
Total Petroleum Hydrocarbons	20	10	

Lab Sample No. 34996-4 Client ID: SS-4

Parameter	Concentration, mg/kg	PQL	Flag
Total Petroleum Hydrocarbons	26	10	

ND - Not Detected
PQL - Practical Quantitation Limit

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QUALITY CONTROL REPORT

TPH by Method 418.1

Client: Bison Environmental N.W.
Lab No: 34996qc
Matrix: Soil
Units: mg/kg
Date: September 29, 1993

METHOD BLANK

Parameter	Result	PQL
Total Petroleum Hydrocarbons	ND	10

ND - Not Detected
PQL - Practical Quantitation Limit

DUPLICATE

Dup No. 34996-1

Parameter	Sample(S)	Duplicate(D)	RPD	Flags
Total Petroleum Hydrocarbons	35	33	5.9	

RPD = Relative Percent Difference
= [(S - D) / ((S + D) / 2)] x 100

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NORTHMARK BUILDING
200 SOUTH 333RD STREET - SUITE 120
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OFFICE: 206/838-7261
FAX: 206/927-2610

CHAIN OF CUSTODY RECORD

Page ____ of ____

Project# 93380
Project Name UNIVERSITY VOLKSWAGON
Client LEE MORSE
Results to KEN BEAULAURIER

Sample #	Location	Sample Description	Date	Time	Sample Type	Analysis Required
SS 5	LUBE OIL TANK PIT	FLOOR (CENTER) OF EXCAVATION 5' DEEP	9/23/93	10:00	SOIL	418.1
SS 6	" " " "	WEST WALL 4' DEEP	9/23/93	10:10	"	"
SS 7	" " " "	NORTH WALL 4' DEEP	9/23/93	10:20	"	"
SS 8	" " " "	SOUTH WALL 3' DEEP	9/23/93	10:35	"	"
SS 9	" " " "	SPOIL PILE COMPOSITE	9/23/93	10:40	"	"

Sample Type: A=Air B=Bulk S=Soil W=Water Other-Describe

Special Instructions RUSH #B

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

Relinquished by: BENWL 9/23/93 4:10 2. Relinquished by: ____

Received by: Mary Cuton 9/23/93 4:10 Received by: ____

Delivered by: Hand ✓ UPS ____ Airborne ____ Fed X ____ Other ____

5 B TO DOCUMENT CONTAMINATION

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

TRANSMITTAL MEMORANDUM

DATE: September 27, 1993

TO: Ken Beaulaurier
Bison Environmental N.W.

PROJECT NAME: University Volkswagen

PROJECT NUMBER: 93380

LABORATORY NUMBER: 35028

Enclosed is one original and one copy of the Tier I data deliverables package for Laboratory Work Order Number 35028. One sample was received for analysis at Sound Analytical Services, Inc., on September 23, 1993.

If there are any questions regarding this data package, please do not hesitate to call me at (206) 922-2310.

Sincerely,

Dean A. Strom
Project Manager

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Bison Environmental N.W. Date: September 27, 1993

Report On: Analysis of Soil Lab No.: 35028

IDENTIFICATION:
Samples received on 09-23-93
Project: 93380 University Volkswagen

ANALYSIS:

Lab Sample No. 35028-1 Client ID: SS8

TPH Per EPA Method 418.1
Date Extracted: 9-24-93
Date Analyzed: 9-24-93

Parameter	Concentration, mg/kg	PQL	Flag
Total Petroleum Hydrocarbons	49,000	1,000	

PQL - Practical Quantitation Limit

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4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

QUALITY CONTROL REPORT

TPH by Method 418.1

Client: Bison Environmental N.W.
Lab No: 35028qc
Units: mg/kg
Date: September 27, 1993

METHOD BLANK

Parameter	Result	PQL
Total Petroleum Hydrocarbons	ND	10

ND - Not Detected
PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

TRANSMITTAL MEMORANDUM

DATE: October 1, 1993

TO: Ken Beaulaurier
Bison Environmental N.W.

PROJECT NAME: University Volkswagon

PROJECT NUMBER: 93380

LABORATORY NUMBER: 35029

Enclosed is one original and one copy of the Tier I data deliverables package for Laboratory Work Order Number 35029. Four samples were received for analysis at Sound Analytical Services, Inc., on September 23, 1993.

If there are any questions regarding this data package, please do not hesitate to call me at (206) 922-2310.

Sincerely,

Dean A. Strom
Project Manager

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Bison Environmental N.W. Date: October 1, 1993

Report On: Analysis of Soil Lab No.: 35029

IDENTIFICATION:
Samples received on 09-23-93
Project: 93380 University Volkswagon

ANALYSIS:

TPH Per EPA Method 418.1
Date Extracted: 9-30-93
Date Analyzed: 9-30-93

Lab Sample No. 35029-1 Client ID: SS5

Parameter	Concentration, mg/kg	PQL	Flag
Total Petroleum Hydrocarbons	58	10	

Lab Sample No. 35029-2 Client ID: SS6

Parameter	Concentration, mg/kg	PQL	Flag
Total Petroleum Hydrocarbons	18	10	

PQL - Practical Quantitation Limit

Continued . . .

SOUND ANALYTICAL SERVICES, INC.

Bison Environmental N.W.
Project: 93380

Lab No. 35029
October 1, 1993

TPH Per EPA Method 418.1
Date Extracted: 9-30-93
Date Analyzed: 9-30-93

Lab Sample No. 35029-3 Client ID: SS7

Parameter	Concentration, mg/kg	PQL	Flag
Total Petroleum Hydrocarbons	19	10	

Lab Sample No. 35029-4 Client ID: SS9

Parameter	Concentration, mg/kg	PQL	Flag
Total Petroleum Hydrocarbons	800	10	

PQL - Practical Quantitation Limit

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QUALITY CONTROL REPORT

TPH by Method 418.1

Client: Bison Environmental N.W.
Lab No: 35029qc
Units: mg/kg
Date: October 1, 1993

METHOD BLANK

Parameter	Result	PQL
Total Petroleum Hydrocarbons	ND	10

ND - Not Detected
PQL - Practical Quantitation Limit

DUPLICATE

Dup No. 35029-1

Parameter	Sample(S)	Duplicate(D)	RPD	Flags
Total Petroleum Hydrocarbons	58	58	0.0	

RPD = Relative Percent Difference
= [(S - D) / ((S + D) / 2)] x 100

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FEDERAL WAY, WASHINGTON 98003

OFFICE: 206/838-7261
FAX: 206/927-2610

CHAIN OF CUSTODY RECORD

Page ___ of ___

Project# 93380
Project Name UNIVERSITY VOLKSWAGEN
Client LEE MORSE
Results to KEN BEAULIEU

uple #	Location	Sample Description	Date	Time	Sample Type	Analysis Required
P 10	GASOLINE TANK EXCAVATION	BOTTOM OF TANK PIT 10' DEEP	9/23/93	12:05	SOIL	WTPH-G BTEX PB

Sample Type: A=Air B=Bulk S=Soil W=Water Other-Describe

cial Instructions RUSH 24 HR TURNAROUND

IATURES: (Name, Company, Date and Time) Laboratory Name: SAS

telinquished by: BENW 9/23/93 4:10 2. Relinquished by: ___

leceived by: Mary Cubbon 9/23/93 4:10 Received by: ___

vered by: Hand X UPS ___ Airborne ___ Fed X ___ Other ___

1

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

TRANSMITTAL MEMORANDUM

DATE: September 28, 1993

TO: Ken Beaulaurier
Bison Environmental N.W.

PROJECT NAME: University Volkswagen

PROJECT NUMBER: 93380

LABORATORY NUMBER: 35027

Enclosed is one original and one copy of the Tier I data deliverables package for Laboratory Work Order Number 35027. One sample was received for analysis at Sound Analytical Services, Inc., on September 23, 1993.

If there are any questions regarding this data package, please do not hesitate to call me at (206) 922-2310.

Sincerely,

Dean A. Strom
Project Manager

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Bison Environmental N.W. Date: September 28, 1993

Report On: Analysis of Soil Lab No.: 35027

IDENTIFICATION:
Sample received on 09-23-93
Project: 93380 University Volkswagen

ANALYSIS:

Lab Sample No. 35027-1 Client ID: WP10

WTPH-G
Date Extracted: 9-24-93
Date Analyzed: 9-24-93

Parameter	Concentration, mg/kg	PQL	Flag
Gasoline (C7-C12)	57	1.0	X1, B2

SURROGATE RECOVERY, %

Trifluorotoluene	93

X1 - Aged Gas

BTEX by EPA Method 8020
Date Extracted: 9-24-93
Date Analyzed: 9-27-93

Parameter	Concentration, mg/kg	PQL	Flag
Benzene	0.20	0.05	
Toluene	0.96	0.05	B1
Ethyl Benzene	1.5	0.05	
Xylenes	8.0	0.05	

SURROGATE RECOVERY, %

Trifluorotoluene	91

ND - Not Detected
PQL - Practical Quantitation Limit

Continued . . . . . .

SOUND ANALYTICAL SERVICES, INC.

Bison Environmental N.W.
Project: 93380 University Volkswagon

September 28, 1993

Lab Sample No. 35027-1 Client ID: WP10

ICP Metals Per EPA Method 6010
Date Digested: 9-24-93
Date Analyzed: 9-27-93

Parameter	Concentration, mg/kg	PQL
Lead	4.8	1.1

ND - Not Detected
PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

QUALITY CONTROL REPORT

Total Lead

Client: Bison Environmental N.W.
Lab No: 35027qc2
Units: mg/kg
Date: September 28, 1993

METHOD BLANK

Parameter	Result	PQL
Lead	ND	1.2

PQL - Practical Quantitation Limit
ND - Not Detected

BISON Environmental Northwest, Inc.

NORTHMARK BUILDING
200 SOUTH 333RD STREET - SUITE 120
FEDERAL WAY, WASHINGTON 98003

OFFICE: 206/838-7261
FAX: 206/927-2610

CHAIN OF CUSTODY RECORD

Page 1 of 1

Project# 93380-1
Project Name UNIVERSITY VOLKSWAGON
Client ROB WILL
Results to KEN BEAULAURIER

RS = RESAMPLE

Sample #	Location	Sample Description	Date	Time	Sample Type	Analysis Required
RS 1	LUBE OIL TANK PIT	SOUTH WALL RESAMPLE AFTER	12/13/93	11:20	Soil	~~HTPH~~ EPA 418.1
		OVER EXCAVATION				

pow KEN 12/13

Sample Type: A=Air B=Bulk S-Soil W-Water Other-Describe

Special Instructions STANDARD TURN AROUND

SIGNATURES: (Name, Company, Date and Time) Laboratory Name: SOUND ANALYTICAL SERVICES

1. Relinquished by: BENW 12/13/93 1:10
   Received by: D. Thygesen 12/13 1:10
2. Relinquished by: _____
   Received by: _____

Delivered by: Hand X UPS _____ Airborne _____ Fed X _____ Other _____

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

TRANSMITTAL MEMORANDUM

DATE: December 16, 1993

TO: Ken Beaulaurier
Bison Environmental N. W.

PROJECT NAME: University Volkswagon

PROJECT NUMBER: 93380

LABORATORY NUMBER: 36767

Enclosed are one original and one copy of the Tier I data deliverables package for Laboratory Work Order Number 36767. One sample was received for analysis at Sound Analytical Services, Inc., on December 13, 1993.

If there are any questions regarding this data package, please do not hesitate to call me at (206) 922-2310.

Sincerely,

Dean A. Strom
Project Manager

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Bison Environmental N. W. Date: December 16, 1993

Report On: Analysis of Soil Lab No.: 36767

IDENTIFICATION:
Samples received on 12-13-93
Project: 93380 University Volkswagon

ANALYSIS:

Lab Sample No. 36767-1 Client ID: RS1

TPH Per EPA Method 418.1
Date Extracted: 12-14-93
Date Analyzed: 12-14-93

Parameter	Result, mg/kg	PQL	Flag
Total Petroleum Hydrocarbons	40	13	

SOUND ANALYTICAL SERVICES, INC.

Bison Environmental N.W.
Project: 93380 University Volkswagon

September 28, 1993

Lab Sample No. 35027-1 Client ID: WP10

ICP Metals Per EPA Method 6010
Date Digested: 9-24-93
Date Analyzed: 9-27-93

Parameter	Concentration, mg/kg	PQL
Lead	4.8	1.1

ND - Not Detected
PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

QUALITY CONTROL REPORT

TPH per EPA Method 418.1

Client: Bison Environmental N.W.
Lab No: 36767qc
Units: mg/kg

Date Extracted: 12-14-93
Date Analyzed: 12-14-93

METHOD BLANK

Parameter	Result	PQL
Total Petroleum Hydrocarbons	ND	10

ND - Not Detected
PQL - Practical Quantitation Limit

BISON ENVIRONMENTAL NORTHWEST, INC.

NORTHMARK BUILDING
200 SOUTH 333RD STREET - SUITE 120
FEDERAL WAY, WASHINGTON 98003

OFFICE: 206/838-7261
FAX: 206/927-2610

CHAIN OF CUSTODY RECORD

Page 1 of 1

Project# 93380-1
Project Name UNIVERSITY VOLKSWAGON
Client ROB WILL
Results to KEN BEAULAURIER

Sample #	Location	Sample Description	Date	Time	Sample Type	Analysis Required
SS 11	945 TANK PIT	NORTH WALL OF EXCAVATION 3' DOWN	10/1/93	12:40	SOIL	WTPH-G BTEX

Sample Type: A=Air B=Bulk S-Soil W-Water Other-Describe

Special Instructions RUSH WTPHG & BTEX IF OVER 5000 PPM CALL KEN

SIGNATURES: (Name, Company, Date and Time)

Laboratory Name: SAR

1. Relinquished by: BENW 10/1/93

Received by: [signature] 10/1 4:05

2. Relinquished by: _____

Received by: _____

Delivered by: Hand X UPS _____ Airborne _____ Fed X _____ Other _____

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Bison Environmental Date: October 23, 1993

Report On: Analysis of Soil Lab No.: 35258

IDENTIFICATION:
Sample received on 10-01-93
Project: 93380-1 University Volkswagen

ANALYSIS:

Lab Sample No. 35258-1 Client ID: SS 11

WTPH-G with BTEX by EPA Method 8020
Date Extracted: 10-4-93
Date Analyzed: 10-5-93

Parameter	Concentration, mg/kg	PQL	Flag
Gasoline (C7 - C12)	5,100	100	
Benzene	21	5.0	
Toluene	280	5.0	
Ethyl Benzene	110	5.0	
Xylenes	620	5.0	
SURROGATE RECOVERY, %			
Trifluorotoluene	NR		X8

NR - Not Reported
PQL - Practical Quantitation Limit

Continued . . . . .

BISON ENVIRONMENTAL NORTHWEST, INC.

NORTHPARK BUILDING
200 SOUTH 333RD STREET - SUITE 120
FEDERAL WAY, WASHINGTON 98003

OFFICE: 206/838-7261
FAX: 206/927-2610

CHAIN OF CUSTODY RECORD

Page 1 of 1

Project# 93380-1
Project Name UNIVERSITY VOLKSWAGON
Client ROB WILL
Results to KEN BEAULAURIER

Sample #	Location	Sample Description	Date	Time	Sample Type	Analysis Required
SS 11	945 TANK PIT	NORTH WALL OF EXCAVATION 3' DOWN	10/1/93	12:40	SOIL	WTPH-G BTEX

Sample Type: A=Air B=Bulk S-Soil W-Water Other-Describe

Special Instructions RUSH WTPHG & BTEX IF OVER 5000 PPM CALL KEN

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

1. Relinquished by: BENW 10/1/93
   Received by: [signature] 10/1 4:05
2. Relinquished by:
   Received by:

Delivered by: Hand X UPS _____ Airborne _____ Fed X _____ Other _____

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

TRANSMITTAL MEMORANDUM

DATE: October 23, 1993

TO: Ken Beaulaurier
Bison Environmental

PROJECT NAME: University Volkswagen

PROJECT NUMBER: 93380-1

LABORATORY NUMBER: 35258

Enclosed are one original and one copy of the Tier I data deliverables package for Laboratory Work Order Number 35258. One sample was received for analysis at Sound Analytical Services, Inc., on October 1, 1993.

If there are any questions regarding this data package, please do not hesitate to call me at (206) 922-2310.

Sincerely,

Dean A. Strom
Project Manager

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Bison Environmental — Date: October 23, 1993

Report On: Analysis of Soil — Lab No.: 35258

IDENTIFICATION:
Sample received on 10-01-93
Project: 93380-1 University Volkswagen

ANALYSIS:

Lab Sample No. 35258-1 — Client ID: SS 11

WTPH-G with BTEX by EPA Method 8020
Date Extracted: 10-4-93
Date Analyzed: 10-5-93

Parameter	Concentration, mg/kg	PQL	Flag
Gasoline (C7 - C12)	5,100	100	
Benzene	21	5.0	
Toluene	280	5.0	
Ethyl Benzene	110	5.0	
Xylenes	620	5.0	
SURROGATE RECOVERY, %			
Trifluorotoluene	NR		X8

NR - Not Reported
PQL - Practical Quantitation Limit

Continued . . . . .

BISON ENVIRONMENTAL NORTHWEST, INC.

NORTHMARK BUILDING
200 SOUTH 333RD STREET - SUITE 120
FEDERAL WAY, WASHINGTON 98003

OFFICE: 206/838-7261
FAX: 206/927-2610

CHAIN OF CUSTODY RECORD

Page 1 of 1

Project# 93380-1
Project Name Union Oil
Client
Results to Bill

Sample #	Location	Sample Description	Date	Time	Sample Type	Analysis Required
SS 11	Excavated Material	Gas Tank Pit - Grab Sample	11-8	10:50	S	PCB, Pesticides - 8080
						Total Metals

Sample Type: A=Air B=Bulk S-Soil W-Water Other-Describe

Special Instructions Normal.

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

1. Relinquished by: BENW/ [signature] 11/12/93 4:55
   Received by: [signature] 11/12/93 4:55
2. Relinquished by:
   Received by:

Delivered by: Hand X UPS _____ Airborne _____ Fed X _____ Other _____

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

TRANSMITTAL MEMORANDUM

DATE: November 23, 1993

TO: Bill Shuck
Bison Environmental N.W.

PROJECT NAME: Univ. VW

PROJECT NUMBER: 93380-1

LABORATORY NUMBER: 36163

Enclosed are one original and one copy of the Tier I data deliverables package for Laboratory Work Order Number 36163. One sample was received for analysis at Sound Analytical Services, Inc., on November 12, 1993.

If there are any questions regarding this data package, please do not hesitate to call me at (206) 922-2310.

Sincerely,

Dean A. Strom
Project Manager

SOUND ANALYTICAL SERVICES, INC.

Bison Environmental
Project: 93380-1 University Volkswagen
Lab No. 35258

October 23, 1993

Lab Sample No. 35258-1 Client ID: SS 11

Volatile Organics Per EPA Method 8240
Date Extracted: 10-14-93
Date Analyzed: 10-17-93

Compound	Concentration ug/kg	PQL	Flag
Chloromethane	ND	5,000	
Bromomethane	ND	5,000	
Vinyl Chloride	ND	5,000	
Chloroethane	ND	5,000	
Methylene Chloride	ND	2,500	
Acetone	ND	12,500	
Carbon Disulfide	ND	2,500	
1,1-Dichloroethene	ND	2,500	
1,1-Dichloroethane	ND	2,500	
1,2-Dichloroethene (Total)	ND	2,500	
Chloroform	ND	2,500	
1,2-Dichloroethane	ND	2,500	
2-Butanone	ND	12,500	
1,1,1-Trichloroethane	ND	2,500	
Carbon Tetrachloride	ND	2,500	
Vinyl Acetate	ND	12,500	
Bromodichloromethane	ND	2,500	
1,2-Dichloropropane	ND	2,500	
Cis-1,3-Dichloropropene	ND	2,500	
Trichloroethene	ND	2,500	
Dibromochloromethane	ND	2,500	
1,1,2-Trichloroethane	ND	2,500	

ND - Not Detected
PQL - Practical Quantitation Limit

Continued . . . .

Bison Environmental
Project: 93380-1 University Volkswagen
Lab No. 35258

October 23, 1993

Lab Sample No. 35258-1 Client ID: SS 11

8240 Continued . . .

Compound	Concentration ug/kg	PQL	Flag
Benzene	ND	2,500	
Trans-1,3-Dichloropropene	ND	2,500	
Bromoform	ND	2,500	
4-Methyl-2-Pentanone	ND	12,500	
2-Hexanone	ND	2,500	
Tetrachloroethene	ND	2,500	
1,1,2,2-Tetrachloroethane	ND	2,500	
Toluene	54,000	2,500	
Chlorobenzene	ND	2,500	
Ethyl Benzene	51,000	2,500	
Styrene	ND	2,500	
Total Xylenes	220,000	2,500	

ND - Not Detected
PQL - Practical Quantitation Limit

Volatile Surrogates

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Soil
Toluene - D8	100		88 - 110	81 - 117
Bromofluorobenzene	102		86 - 115	74 - 121
1,2-Dichloroethane-D4	102		76 - 114	70 - 121

Continued . . . .

Bison Environmental
Project: 93380-1 University Volkswagen
Lab No. 35258

October 23, 1993

Lab Sample No. 35258-1 Client ID: SS 11

Semivolatile Organics Per EPA Method 8270
Date Extracted: 10-18-93
Date Analyzed: 10-20-93

Compound	Concentration ug/kg	PQL	Flag
Phenol	ND	18,000	
bis(2-Chloroethyl) ether	ND	18,000	
2-Chlorophenol	ND	18,000	
1,3-Dichlorobenzene	ND	18,000	
1,4-Dichlorobenzene	ND	18,000	
Benzyl Alcohol	ND	36,000	
1,2-Dichlorobenzene	ND	18,000	
2-Methylphenol	ND	18,000	
bis(2-Chloroisopropyl)ether	ND	18,000	
4-Methylphenol	ND	18,000	
N-Nitroso-Di-N-propylamine	ND	18,000	
Hexachloroethane	ND	18,000	
Nitrobenzene	ND	18,000	
Isophorone	ND	18,000	
2-Nitrophenol	ND	18,000	
2,4-Dimethylphenol	ND	18,000	
Benzoic Acid	ND	89,000	
bis(2-Chloroethoxy)methane	ND	18,000	
2,4-Dichlorophenol	ND	18,000	
1,2,4-Trichlorobenzene	ND	18,000	
Naphthalene	ND	18,000	
4-Chloroaniline	ND	36,000	
Hexachlorobutadiene	ND	18,000	
4-Chloro-3-methylphenol	ND	36,000	

ND - Not Detected
PQL - Practical Quantitation Limit

Continued . . . .

Bison Environmental
Project: 93380-1 University Volkswagen
Lab No. 35258

October 23, 1993

Lab Sample No. 35258-1 Client ID: SS 11

EPA Method 8270 Continued

Compound	Concentration ug/kg	PQL	Flag
2-Methylnaphthalene	ND	18,000	
Hexachlorocyclopentadiene	ND	18,000	
2,4,6-Trichlorophenol	ND	18,000	
2,4,5-Trichlorophenol	ND	18,000	
2-Chloronaphthalene	ND	18,000	
2-Nitroaniline	ND	89,000	
Dimethyl phthalate	ND	18,000	
Acenaphthylene	ND	18,000	
2,6-Dinitrotoluene	ND	18,000	
3-Nitroaniline	ND	89,000	
Acenaphthene	ND	18,000	
2,4-Dinitrophenol	ND	89,000	
4-Nitrophenol	ND	89,000	
Dibenzofuran	ND	18,000	
2,4-Dinitrotoluene	ND	18,000	
Diethylphthalate	ND	18,000	
4-Chlorophenyl phenyl ether	ND	18,000	
Fluorene	ND	18,000	
4-Nitroaniline	ND	89,000	
4,6-Dinitro-2-methylphenol	ND	89,000	
N-Nitrosodiphenylamine	ND	18,000	
4-Bromophenyl phenyl ether	ND	18,000	
Hexachlorobenzene	ND	18,000	
Pentachlorophenol	ND	89,000	
Phenanthrene	ND	18,000	
Anthracene	ND	18,000	
Di-n-butylphthalate	ND	18,000	

ND - Not Detected
PQL - Practical Quantitation Limit

Continued . . . .

Bison Environmental
Project: 93380-1 University Volkswagen
Lab No. 35258

October 23, 1993

Lab Sample No. 35258-1 Client ID: SS 11

EPA Method 8270 Continued

Compound	Concentration ug/kg	PQL	Flag
Fluoranthene	ND	18,000	
Pyrene	ND	18,000	
Butyl benzyl phthalate	ND	18,000	
3,3'-Dichlorobenzidine	ND	36,000	
Benzo(a)anthracene	ND	18,000	
Chrysene	ND	18,000	
bis(2-ethylhexyl)phthalate	ND	18,000	
Di-n-octyl phthalate	ND	18,000	
Benzo(b)fluoranthene	ND	18,000	
Benzo(k)fluoranthene	ND	18,000	
Benzo(a)pyrene	ND	18,000	
Indeno(1,2,3-cd)pyrene	ND	18,000	
Dibenz(a,h)anthracene	ND	18,000	
Benzo(g,h,i)perylene	ND	18,000	

ND - Not Detected
PQL - Practical Quantitation Limit

Semi-Volatile Surrogates

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Soil
Nitrobenzene - d_5	68		35 - 114	23 - 120
2-Fluorobiphenyl	63		43 - 116	30 - 115
p-Terphenyl-d_{14}	98		33 - 141	18 - 137
Phenol-d_6	59		10 - 94	24 - 113
2-Fluorophenol	65		21 - 100	25 - 121
2,4,6-Tribromophenol	55		10 - 123	19 - 122

Continued . . . . .

Bison Environmental
Project: 93380-1 University Volkswagen
Lab No. 35258

October 23, 1993

Lab Sample No. 35258-1 Client ID: SS 11

Toxicity Characteristic Leaching Procedure (TCLP) Method 1311
ICP Metals by EPA Method 6010
Date Extracted: 10-14-93
Date Analyzed: 10-19-93

Parameter	Concentration (mg/L)	PQL	Max Conc., (mg/L)
Arsenic	ND	0.10	5.0
Barium	0.53	0.005	100.0
Cadmium	ND	0.005	1.0
Chromium	0.21	0.01	5.0
Lead	ND	0.05	5.0
Selenium	ND	0.15	1.0
Silver	ND	0.01	5.0

Mercury by Cold Vapor AA Per EPA Method 7470
Date Analyzed: 10-18-93

Parameter	Concentration (mg/L)	PQL	Max Conc., (mg/L)
Mercury	ND	0.002	0.2

ND - Not Detected
PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

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DATA QUALIFIER FLAGS

ND: Indicates that the analyte was analyzed for but was not detected. The associated numerical value is the practical quantitation limit, corrected for sample dilution.

J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

C: The identification of this analyte was confirmed by GC/MS.

B1: This analyte was also detected in the associated method blank. The reported sample results have been adjusted for moisture, final exract volume, and/or dilutions performed during extract preparation. The analyte concentration was evaluated prior to sample preparation adjustments, and was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

B2: This analyte was also detected in the associated method blank. However, the analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

E: The concentration of this analyte exceeded the instrument calibration range.

D: The reported result for this analyte is calculated based on a secondary dilution factor.

A: This TIC is a suspected aldol-condensation product.

M: Quantitation Limits are elevated due to matrix interferences.

S: The calibration quality control criteria for this compound were not met. The reported concentration should be considered an estimated quantity.

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

X2: Contaminant does not appear to be "typical" product. Further testing is suggested for identification.

X3: Identification and quantification of peaks was complicated by matrix interference; GC/MS confirmation is recommended.

X4: RPD for duplicates outside QC limits. Sample was re-analyzed with similar results. Sample matrix is nonhomogeneous.

X4a: RPD for duplicates outside QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike was diluted out during analysis.

X6: Recovery of matrix spike outside QC limits. Sample was re-analyzed with similar results.

X7: Recovery of matrix spike outside QC limits. Matrix interference is indicated by blank spike recovery data.

X7a: Recovery and/or RPD values for MS/MSD outside QC limits due to high contaminant levels.

X8: Surrogate was diluted out during analysis.

X9: Surrogate recovery outside QC limits due to matrix composition.

X10: Surrogate recovery outside QC limits due to high contaminant levels.

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

QUALITY CONTROL REPORT

WTPH-G with BTEX by EPA SW-846 Method 8020

Client: Bison Environmental
Lab No: 35258qc1
Units: mg/kg
Date: October 23, 1993

METHOD BLANK

Blank No. 93100404

Parameter	Result	PQL
Gasoline (C_7-C_{12})	ND	1.0
Benzene	ND.	0.05
Toluene	ND	0.05
Ethyl Benzene	ND	0.05
Xylenes	ND	0.05
SURROGATE RECOVERY, %		
Trifluorotoluene	112	

ND - Not Detected
PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

QUALITY CONTROL REPORT

TCLP Metals

Client: Bison Environmental
Lab No: 35258qc2
Units: mg/L
Date: October 23, 1993

METHOD BLANK

Parameter	Result	PQL
Arsenic	ND	0.10
Barium	ND	0.005
Cadmium	ND	0.005
Chromium	ND	0.01
Lead	ND	0.05
Mercury	ND	0.002
Selenium	ND	0.15
Silver	ND	0.01

ND - Not Detected
PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

QUALITY CONTROL REPORT
VOLATILE ORGANICS PER EPA METHOD 8240

Client: Bison Environmental
Lab No: 35258qc3
Units: ug/kg
Date: October 23, 1993
Blank No: Z3816

Date Analyzed: 10-17-93

METHOD BLANK

Compound	Result	PQL	Flags
Chloromethane	ND	400	
Bromomethane	ND	400	
Vinyl Chloride	ND	400	
Chloroethane	ND	400	
Methylene Chloride	52	200	J
Acetone	ND	1,000	
Carbon Disulfide	ND	200	
1,1-Dichloroethene	ND	200	
1,1-Dichloroethane	ND	200	
1,2-Dichloroethene (Total)	ND	200	
Chloroform	ND	200	
1,2-Dichloroethane	ND	200	
2-Butanone	ND	1,000	
1,1,1-Trichloroethane	ND	200	
Carbon Tetrachloride	ND	200	
Vinyl Acetate	ND	1,000	
Bromodichloromethane	ND	200	
1,2-Dichloropropane	ND	200	
Cis-1,3-Dichloropropene	ND	200	
Trichloroethene	ND	200	
Dibromochloromethane	ND	200	
1,1,2-Trichloroethane	ND	200	
Benzene	ND	200	
Trans-1,3-Dichloropropene	ND	200	
Bromoform	ND	200	
4-Methyl-2-Pentanone	ND	1,000	
2-Hexanone	ND	200	
Tetrachloroethene	ND	200	
1,1,2,2-Tetrachloroethane	ND	200	
Toluene	ND	200	
Chlorobenzene	ND	200	
Ethyl Benzene	ND	200	
Styrene	ND	200	
Total Xylenes	ND	200	

ND - Not Detected
PQL - Practical Quantitation Limit

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

VOLATILE ORGANICS PER EPA METHOD 8240

Client: Bison Environmental
Lab No: 35258qc3
Date: October 23, 1993
Blank No: Z3816

Volatile Surrogates

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Soil
Toluene - D8	101		88 - 110	81 - 117
Bromofluorobenzene	100		86 - 115	74 - 121
1,2-Dichloroethane-D4	99		76 - 114	70 - 121

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

QUALITY CONTROL REPORT

SEMIVOLATILE ORGANICS PER EPA METHOD 8270

Client: Bison Environmental
Lab No: 35258qc4
Units: ug/kg
Date: October 23, 1993
Blank No: SBLK43-S10162

Date Extracted: 10-18-93
Date Analyzed: 10-19-93

METHOD BLANK

Compound	Result	PQL	Flags
Phenol	ND	670	
bis(2-Chloroethyl) ether	ND	670	
2-Chlorophenol	ND	670	
1,3-Dichlorobenzene	ND	670	
1,4-Dichlorobenzene	ND	670	
Benzyl Alcohol	ND	1,300	
1,2-Dichlorobenzene	ND	670	
2-Methylphenol	ND	670	
bis(2-Chloroisopropyl)ether	ND	670	
4-Methylphenol	ND	670	
N-Nitroso-Di-N-propylamine	ND	670	
Hexachloroethane	ND	670	
Nitrobenzene	ND	670	
Isophorone	ND	670	
2-Nitrophenol	ND	670	
2,4-Dimethylphenol	ND	670	
Benzoic Acid	ND	3,300	
bis(2-Chloroethoxy)methane	ND	670	
2,4-Dichlorophenol	ND	670	
1,2,4-Trichlorobenzene	ND	670	
Naphthalene	ND	670	
4-Chloroaniline	ND	1,300	
Hexachlorobutadiene	ND	670	
4-Chloro-3-methylphenol	ND	1,300	
2-Methylnaphthalene	ND	670	
Hexachlorocyclopentadiene	ND	670	
2,4,6-Trichlorophenol	ND	670	
2,4,5-Trichlorophenol	ND	670	
2-Chloronaphthalene	ND	670	
2-Nitroaniline	ND	3,300	
Dimethyl phthalate	ND	670	
Acenaphthylene	ND	670	

PQL - Practical Quantitation Limit
ND - Not Detected

SOUND ANALYTICAL SERVICES, INC.

SEMIVOLATILE ORGANICS PER EPA METHOD 8270

Client: Bison Environmental
Lab No: 35258qc4
Units: ug/kg
Date: October 23, 1993
Blank No: SBLK43-S10162

METHOD BLANK

Compound	Result	PQL	Flags
3-Nitroaniline	ND	5,300	
Acenaphthene	ND	670	
2,4-Dinitrophenol	ND	5,300	
4-Nitrophenol	ND	5,300	
Dibenzofuran	ND	670	
2,4-Dinitrotoluene	ND	670	
2,6-Dinitrotoluene	ND	670	
Diethylphthalate	ND	670	
4-Chlorophenyl phenyl ether	ND	670	
Fluorene	ND	670	
4-Nitroaniline	ND	3,300	
4,6-Dinitro-2-methylphenol	ND	3,300	
N-Nitrosodiphenylamine	ND	670	
4-Bromophenyl phenyl ether	ND	670	
Hexachlorobenzene	ND	670	
Pentachlorophenol	ND	3,300	
Phenanthrene	ND	670	
Anthracene	ND	670	
Di-n-butylphthalate	ND	670	
Fluoranthene	ND	670	
Pyrene	ND	670	
Butyl benzyl phthalate	ND	670	
3,3'-Dichlorobenzidine	ND	1,300	
Benzo(a)anthracene	ND	670	
bis(2-ethylhexyl)phthalate	ND	670	
Chrysene	ND	670	
Di-n-octyl phthalate	ND	670	
Benzo(b)fluoranthene	ND	670	
Benzo(k)fluoranthene	ND	670	
Benzo(a)pyrene	ND	670	
Indeno(1,2,3-cd)pyrene	ND	670	
Dibenz(a,h)anthracene	ND	670	
Benzo(g,h,i)perylene	ND	670	

PQL - Practical Quantitation Limit
ND - Not Detected

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

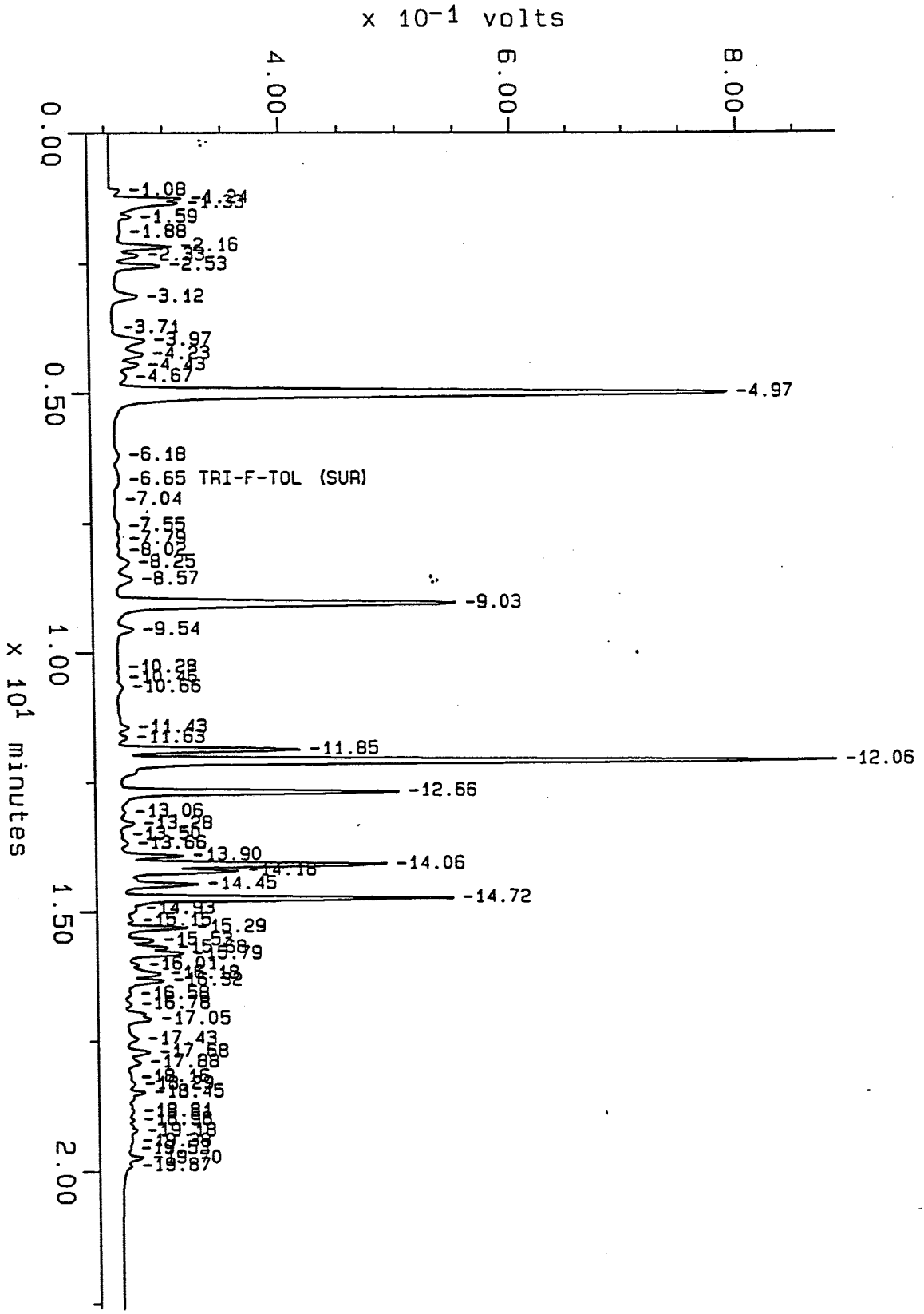
SEMIVOLATILE ORGANICS PER EPA METHOD 8270

Client: Bison Environmental
Lab No: 35258qc4
Date: October 23, 1993
Blank No: SBLK43-S10162

SEMIVOLATILE SURROGATES

Surrogate Compound	Percent Recovery	Flags	Control Limits Water	Control Limits Soil
Nitrobenzene - d_5	54		35 - 114	23 - 120
2-Fluorobiphenyl	52		43 - 116	30 - 115
p-Terphenyl-d_{14}	78		33 - 141	18 - 137
Phenol-d_6	47		10 - 94	24 - 113
2-Fluorophenol	57		21 - 100	25 - 121
2,4,6-Tribromophenol	52		10 - 123	19 - 122

Sample: 35258-1 Channel: FID Filename: 93100408
Acquired: 05-OCT-93 12:18 Method: D:\DATA1\250\TPH1005A Operator: DAS
Dilution: 1 : 4400.000 Amount: 10.006
Comments: INITIAL CALIBRATION DATE 04/30/93. (METHOD TPH0430A)



SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

DATA QUALIFIER FLAGS

ND: Indicates that the analyte was analyzed for but was not detected. The associated numerical value is the practical quantitation limit, corrected for sample dilution.

J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

C: The identification of this analyte was confirmed by GC/MS.

B1: This analyte was also detected in the associated method blank. The reported sample results have been adjusted for moisture, final exract volume, and/or dilutions performed during extract preparation. The analyte concentration was evaluated prior to sample preparation adjustments, and was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

B2: This analyte was also detected in the associated method blank. However, the analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

E: The concentration of this analyte exceeded the instrument calibration range.

D: The reported result for this analyte is calculated based on a secondary dilution factor.

A: This TIC is a suspected aldol-condensation product.

M: Quantitation Limits are elevated due to matrix interferences.

S: The calibration quality control criteria for this compound were not met. The reported concentration should be considered an estimated quantity.

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

X2: Contaminant does not appear to be "typical" product. Further testing is suggested for identification.

X3: Identification and quantification of peaks was complicated by matrix interference; GC/MS confirmation is recommended.

X4: RPD for duplicates outside QC limits. Sample was re-analyzed with similar results. Sample matrix is nonhomogeneous.

X4a: RPD for duplicates outside QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike was diluted out during analysis.

X6: Recovery of matrix spike outside QC limits. Sample was re-analyzed with similar results.

X7: Recovery of matrix spike outside QC limits. Matrix interference is indicated by blank spike recovery data.

X7a: Recovery and/or RPD values for MS/MSD outside QC limits due to high contaminant levels.

X8: Surrogate was diluted out during analysis.

X9: Surrogate recovery outside QC limits due to matrix composition.

X10: Surrogate recovery outside QC limits due to high contaminant levels.

APPENDIX C

Checklist/Site Assessment Form

UNDERGROUND STORAGE TANK
Site Check/Site Assessment Checklist

WASHINGTON STATE DEPARTMENT OF ECOLOGY

For Office Use Only	
Owner #	
Site #	

INSTRUCTIONS:

When a release has **not** been confirmed and reported, this Site Check/Site Assessment Checklist must be completed and signed by a person registered with Ecology. **The results of the site check or site assessment must be included with this checklist.** This form must be submitted to Ecology at the address shown below within 30 days after completion of the site check/site assessment.

SITE INFORMATION: Include the Ecology site ID number if the tanks are registered with Ecology. This number may be found on the tank owner's invoice or tank permit.

TANK INFORMATION: Please list all tanks for which the site check or site assessment is being conducted. Use the owner's tank ID numbers if available, and indicate tank capacity and substance stored.

REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT: Please check the appropriate item.

CHECKLIST: Please initial each item in the appropriate box.

SITE ASSESSOR INFORMATION: This form must be signed by the registered site assessor who is responsible for conducting the site check/site assessment.

Underground Storage Tank Section
Department of Ecology
P. O. Box 47655
Olympia, WA 98504-7655

SITE INFORMATION

Site ID Number (on invoice or available from Ecology if the tanks are registered): 005719

Site/Business Name: University Volkswagen

Site Address: 4724 Roosevelt Avenue (Street) Telephone: (206) 634-3322

Seattle (City) Washington (State) 98105 (ZIP-Code)

TANK INFORMATION

Tank ID No.	Tank Capacity	Substance Stored
#2	4,000 gallon	Gasoline
# (2) annex1540	550 gallon	Lube Oil
# (3) waste (htr)	4,000 gallon	Waste Oil

REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

- ____ Investigate suspected release due to on-site environmental contamination
- ____ Investigate suspected release due to off-site environmental contamination.
- ____ Extend temporary closure of UST system for more than 12 months.
- ____ UST system undergoing change-in-service.
- ____ UST system permanently closed-in-place.
- XX UST system permanently closed with tank removed.
- ____ Abandoned tank containing product.
- ____ Required by Ecology or delegated agency for UST system closed before 12/22/88.
- ____ Other (describe): ____

Department of Ecology - Northwest Regional Office
Underground Storage Tank Notice of Confirmed Release

Incident #: 4801 Date Ecology Notified: October 29, 1993 Received by: Susanne Winter

UST #: 005719 Incident Reported by: Ken Beaulaurier Phone: 838-7261

ERTS #: N14123

Site		Owner	
Name:	University Volkswagen	Name:	Same
Address:	4724 Roosevelt Ave	Address:	
City:	Seattle	City	
Zip + 4:	98105	Zip + 4:	
County:	King	County:	
Phone:		Phone:	
Contact:		Contact:	

Consultant/Other Contacts

Contact Name	Affiliation	Phone	Ext.
Ken Beaulaurier	Bison Environmental	838-7261	

Affected Media

[X] Soil [ ] GW [ ] DW [ ] SW [ ] Sed.

Free Product?

[ ] Yes [X] No [ ] Excavation? [ ] GW?

Tank Information

	Tank ID	Substance	Status	Status Date		Tank ID	Substance	Status	Status Date
1.		Gasoline	Removed	last week	6.				
2.		Waste Oil	Removed		7.				
3.		Fresh Lube Oil	Removed		8.				
4.					9.				
5.					10.				

Cleanup Status: [X] Assessing [ ] In Progress [ ] Monitoring [ ] Conducted [ ] Unknown

Comments (include remediation methods, PCS status, and if this is a "limited" cleanup):
3 tanks removed, only gasoline tank area had contamination. They are getting permission for disposal of soil and will remove. No samples back yet.