

Sr. 3-31-92  
JS

#2996

Interim Report  
Soils Treated/Cleaned up  
Groundwater not  
**RECEIVED**

MAR 31 1992

DEPT. OF ECOLOGY  
NWRD

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## DIESEL CONTAMINATED SOIL REMOVAL

DEPARTMENT OF ECOLOGY  
UNDERGROUND STORAGE TANKS

MAR 25 1992

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### THE BON MARCHE

17000 South Center Parkway  
Tukwila, Washington 98188

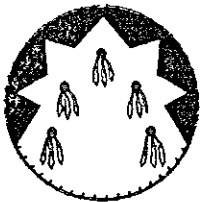
Prepared for

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**TANK LINERS, INC.**  
9004 14th Avenue South  
Seattle, Washington 98188

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March, 1992



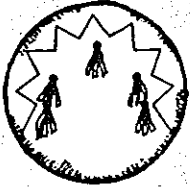
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# WHITE SHIELD

INC.

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P.O. BOX 477, 246 DIVISION STREET, GRANDVIEW, WA 98930  
TELEPHONE: (509) 882-1144 VOICE (509) 882-4566 FAX



# WHITE SHIELD, INC.

P.O. BOX 477 • GRANDVIEW, WA 98930 • (509) 882-1144  
FAX (509) 882-4566



March 20, 1991

Tank Liners, Inc.  
9004 14th Avenue South  
Seattle, WA 98108

Attention: William Brown

**SUBJECT: REPORT FOR REMOVAL OF DIESEL CONTAMINATED SOIL  
LOCATED ADJACENT TO A 10,000 GALLON UST ON THE BON  
MARCHE SITE, TUKWILA, WA.**

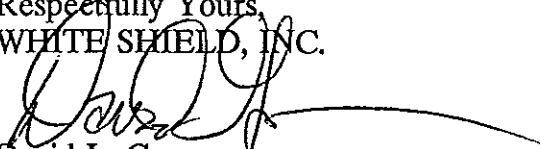
Dear Mr. Brown,

Enclosed, please find three copies of the Diesel Contaminated Soil Removal Report as required by the Washington State Department of Ecology (WSDOE). Based on the data and findings reported herein, we find no evidence of diesel contaminated soil remaining in the vicinity of the UST which exceeds Method A Soil Cleanup Levels, as established by the Model Toxics Control Act, Chapter 173-340 WAC. Contaminated soil generated during the cleanup process may be treated by a variety of methods. The WSDOE requires that you retain this report for a minimum of ten years. We recommend you retain it indefinitely.

Contaminated groundwater identified during the in-place closure site assessment for the existing 10,000 gallon UST, was not removed or treated during this contaminated soil removal action.

We appreciate the opportunity to provide you technical assistance for your tank closure. Please call us at (509) 882-1144 if you have any questions or comments.

Respectfully Yours,  
WHITE SHIELD, INC.

  
David L. Green  
Geologist

Project Number: TLI-0292

cc: lb  
Department of Ecology, Olympia Headquarters

The Bon Marche, Tukwila, WA

Executive Summary

White Shield, Inc. (WSI) provided field screening services and technical direction for removal of diesel contaminated soil at The Bon Marche, Tukwila, WA. We conducted our field investigation on March 6, 1992. Approximately 40 cubic yards of diesel contaminated soil was removed from the east end of the tank. The contaminated soil was placed upon a plastic liner and a dike was constructed around the perimeter of the stockpile. The soil was spread to a thickness of approximately three (3) feet.

Based upon our visual observations, field screening, analytical laboratory analyses and olfactory responses, we find no evidence of diesel in the soil remaining at the east end of the tank, exceeding Method A Cleanup Levels, as established by the Model Toxics Control Act, Chapter 173-340 WAC, remaining in the tank excavation.

**The Bon Marche, Tukwila, WA**

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**The Bon Marche, Tukwila, WA**

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Toxics Control Act, Chapter 173-340 WAC

## **1.0 Introduction**

### **1.1 Purpose**

This report describes findings and actions taken for work associated with the Underground Storage Tank (UST) closure. The work and investigation responds to regulatory requirements set forth by the United States Environmental Protection Agency (EPA) and the Washington State Department of Ecology (WSDOE).

### **1.2 Scope of Work**

This report completes the field screening, soil sampling, analytical services and technical direction for diesel contaminated soil removal, provided by White Shield, Inc. (WSI). Tank Liners, Inc. provided the excavation services.

## **2.0 Background Information**

### **2.1 Site Location**

The site is located at 17000 South Center Parkway, Tukwila, WA. It is situated in the NE 1/4 of the NM 1/4 of Section 26, Township 23 North, Range 4 East, Willamette Meridian.

### **2.2 Site Description and History**

Diesel contamination was discovered in the soil and groundwater during the closure site assessment for a 10,000 gallon UST during February, 1992. Findings of the closure site assessment are detailed in WSI's Interim Status Report dated February, 1992.

### **2.3 Soils Description**

Our inspection of the soil found silty clay and fine to medium sand. The fill material around the tank consists of poorly sorted gravels up to two (2) inches in diameter.

### 3.0 Field Activities

#### 3.1 General Investigative Methods

We visually inspected the soil and the fill. We also used Thin Layer Chromatography (TLC), analytical laboratory analyses and olfactory responses for data. The methods and general conclusions are discussed below.

#### 3.2 Diesel Contaminated Soil Removal

Rodney Heit, an environmental technician registered with the WSDOE Underground Storage Tank Program, provided technical direction for diesel contaminated soil removal on March 6, 1992 during and after removal of the soil. Figure 1 provides a tank site map and other key data. WSI used TLC for field analysis results to provide technical direction for contaminated soil removal. Upon removal of the soil, WSI collected three (3) soil samples from the excavation and submitted them to Materials Testing and Consulting (MTC), Mt. Vernon, Washington, for laboratory analysis and found that petroleum hydrocarbon concentrations fall below Method A Soil Cleanup Levels. In fact, no petroleum hydrocarbons were detected in the laboratory analyses. These sample locations are shown on Figure 1 and the Sampling Log is provided as Appendix A. The laboratory analyses are attached as Appendix B. Based upon the laboratory analytical results, no additional soil removal is required.

WSI also collected three (3) soil samples from the contaminated soil stockpile as required by the WSDOE Guidance for Remediation of Releases from Underground Storage Tanks. These samples were also submitted to MTC for laboratory analysis. The analyses found:

- diesel in concentrations up to 3,673 parts per million (ppm) and
- xylenes in concentrations up to 20,300 parts per billion (ppb).

Stockpile sampling locations are shown on Figure 2. The laboratory analytical results are included as Appendix B.

BON MARCHE WAREHOUSE

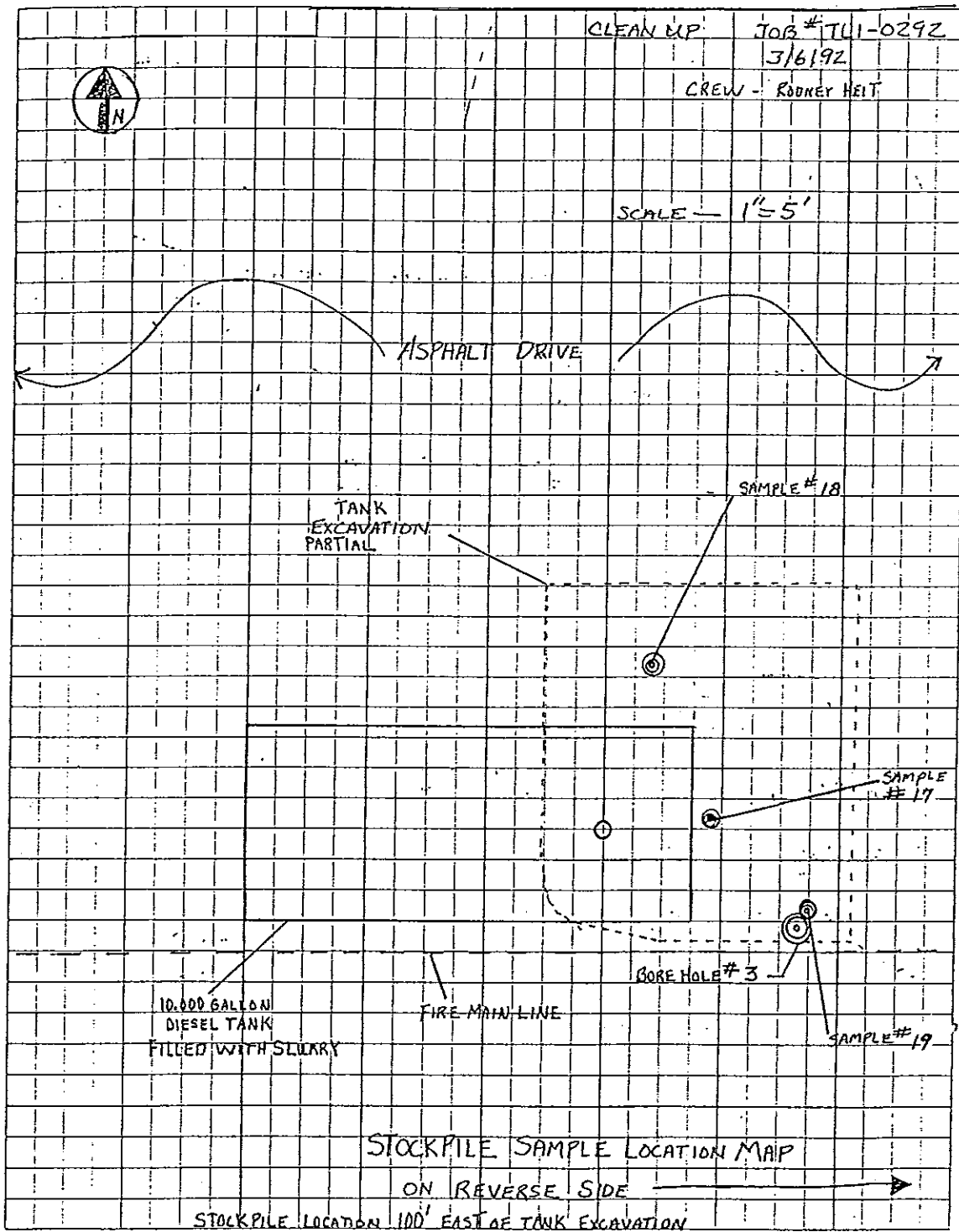


Figure 1. Sampling Locations for Contaminated Soil Removal

Diesel Contaminated Soil Removal - March, 1992



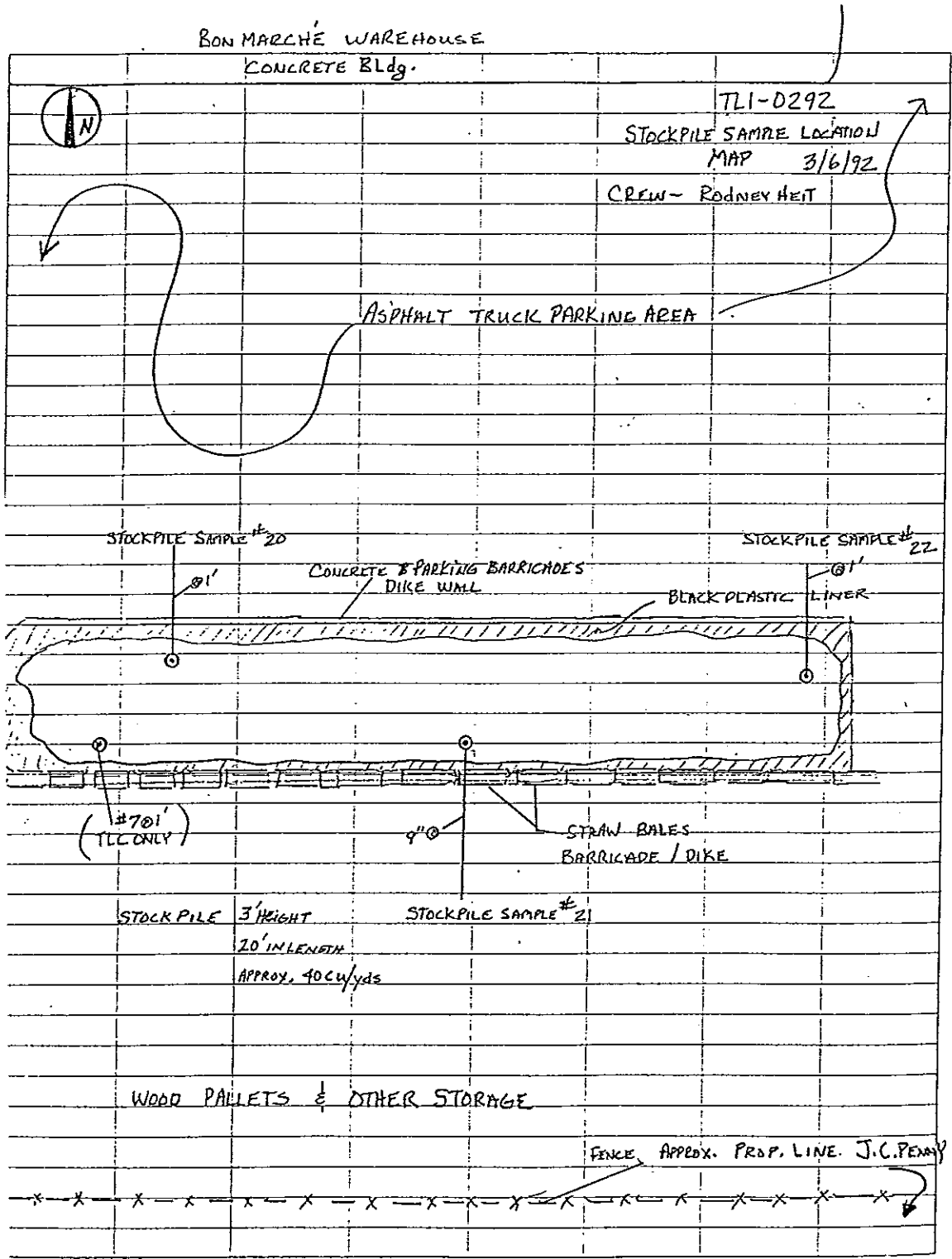


Figure 2. Sampling Locations for the Contaminated Stockpile

## **4.0 Investigative Methods and Results**

### **4.1 Field Screening**

For field analysis of semi-volatile (diesel) and non-volatile compounds (motor oil), we use Thin Layer Chromatography (TLC) for qualitative and quantitative analysis. This analytical technique utilizes the principle of chromatography to separate individual components for comparison to known standards.

TLC is classified as a solid-liquid chromatographic system, meaning there are two phases through which an extract of the sample is passed; a solid phase (silica gel) and a liquid phase (a solvent such as hexane).

The solid phase is stationary and is coated on a glass plate. During the chromatography process, the liquid phase carries the sample through the solid phase. The solvent moves at a fairly constant rate through the solid phase. However, the compound in the sample (analyte) are partitioned by a relative attractiveness of the analyte between the solid phase and the liquid phase. Analytes strongly attracted to the silica will remain on the silica longer and move more slowly than analytes that are not as strongly attracted to the silica. When the chromatography is stopped, the distance the analyte has moved relative to the distance the solvent has moved is used to identify the compound. When the plate is viewed under ultraviolet light, the analytes can be seen and compared to standards of known concentration for quantitative analysis.

### **4.2 Soil Sampling**

The Field Sampling Log (Appendix A) presents the location, quantity and types of samples taken. In general, sample collection and control followed the following protocol:

1. Select a laboratory certified clean sample jar for sample collection.
2. Using clean latex gloves and clean sampling utensils (tri-sodium phosphate, chlorine solution, tap water rinse and distilled water rinse cycle) tightly pack the soil sample in the sample jar (4 oz.) to the top of the jar to prevent any airspace.

3. Label the jar with the soil sample number, the type of laboratory test required, the date, name of site and sampler. The sample is then entered on the chain of custody form.
4. Cool the sample in wet ice to approximately 4 degrees centigrade.
5. Repack the samples for shipment to the laboratory in blue ice and a cooler.
6. Relinquish sample to courier for shipment to the laboratory.

## **5.0 Conclusion & Recommendations**

### **5.1 Conclusion**

Our investigation finds no petroleum hydrocarbons remaining in the soil at the east end of the tank. Based upon the laboratory analytical results, no additional soil removal is required.

### **5.2 Soil Treatment Options**

A variety of soil treatment and/or disposal options are available. These options are as follows:

- soil bioremediation,
- soil venting,
- thermal desorption and
- landfilling.

## **6.0 Limitations**

In performing our professional services, WSI uses a degree of care ordinarily exercised under similar circumstances by members of our profession. No warranty, expressed or implied, is made or intended. Our conclusions and recommendations, developed from our field and laboratory investigation reported herein, are based upon this firm's understanding of the tank removal project and are in concurrence with generally accepted practice.

# APPENDIX A

BON MARCHE  
CLEAN UP.

8:00 PURCHASED ICE TUKWILA TEXICO

8:15 MET WITH BACKHOE OPERATOR FOR TANK LINERS  
 APPROX. 40 cubic Yds WAS STOCKPILED ON PLASTIC  
 100 FT EAST OF INPLACE TANK, RAN TLC ON SIDE  
 WALLS, N.D. TOOK SAMPLES OF FLOOR OF  
 EAST END OF TANK, TLC - N.D. RAN TLC  
 SAMPLES ON STOCK PILE, > 200 TO < 50.  
 NO H<sub>2</sub>O ENCOUNTERED IN THE EXCAVATION.  
 SOIL IS A @ MEDIUM TO DARK CLAYE SILT  
 WITH A HEAVY ORGANIC ODOR.  
 EXCAVATION LOOKED GOOD, NO ODORS APPARENT  
 IN THE EXCAVATION / RAN TLC'S / TOOK LAB  
 SAMPLES,

1:00 LUNCH ISSAQUAH

1:45 LEFT FOR GRANDVIEW / STOP TOPPENISH /

SAMPLE #	LOCATION	MATRIX	DEPTH	ODOR	SUBMITTED	T.L.C.	STAND.
TLI-0292-17	FLOOR @ 12' Below Tank	SOIL	12 FEET		YES	#1 - NONE	200 PPM 1,000 PPM Diesel
TLI-0292-18	" @ 12'	"	"		"	#2 - "	"
TLI-0292-19	"	"	"		"	#3 - "	"
TLI-0292-20	STOCKPILE @ 1'	"	1'	YES	"	#4 - 300 PPM	
TLI-0292-21	STOCKPILE @ 9"	"	9"	"	"	#5 - 200 PPM	
TLI-0292-22	STOCKPILE @ 1'	"	1'	"	"	#6 - > 50 PPM	
TLI-0292-	STOCKPILE @ 1'	---	1'	"	NONE	#7 - < 50 PPM	

# APPENDIX B

MTC

Analytical/Environmental Services

Materials Testing & Consulting, Inc  
 WSDOE Laboratory # C057  
 WSDOH Laboratory # 46092090

P.O. Box 309  
 Mount Vernon, WA 98273  
 (206)424-7560 - FAX (206)424-7550

Client: 31  
 White Shield Inc.  
 P.O. Box 477  
 Grandview, WA 98930

Date: 3/12/92  
 Reference: 92-0240

Attn: Mr. Dave Green  
 Mr. Rodney Helt

Project: Tank Liners \ Tukwila Bon Marche

Data Report

Lab Number	Sample Description	ug/gm	ng/gm				Surrogate
		TPH	Benzene	Toluene	Ebenzene	Xylenes	% Recovery
31-92-00656.0S	TLI-0291-17	<10	<10	<10	<10	<10	93
31-92-00657.0S	TLI-0291-18	<10	<10	<10	<10	<10	92
31-92-00658.0S	TLI-0291-19	<10	<10	<10	<10	<10	98
31-92-00659.0S	TLI-0291-20	3673-D	<10	<10	<10	20300	98
31-92-00660.0S	TLI-0291-21	2631-D	<10	<10	<10	19500	102
31-92-00661.0S	TLI-0291-22	1682-D	<10	<10	<10	12100	109
Methods: WSDOE: WTPH-G/WTPH-D G- Gasoline D-Diesel							EPA
Method Reporting Limit (MRL)							Acceptance
Maximum Contamination Levels							Limits
		Soil/Water	Soil/Water	Soil/Water	Soil/Water	Soil/Water	Soil: 84-108
		100/1	500/5	20000/20	40000/40	20000/20	H2O: 68-110

Kurt W. Larsen  
 Kurt W. Larsen  
 Sr. Environmental Chemist



WHITE SHIELD INC.  
 P. O. BOX 477  
 GRANDVIEW, MA. 98930  
 (509) 882-1144  
 (509) 882-4566 FAX

CHAIN OF CUSTODY

PROJECT NAME TANK LINERS/TUKWILA - BON MARCHE  
 PROJECT # TLI-0292  
 DESTINATION MATERIALS TESTING & CONSULTING  
 SAMPLER Rodney Heit  
 DATE 3/9/92 TIME 9:30 AM

SAMPLE NUMBER	ANALYSIS REQUESTED								
			B015	B020					
TLI-0291-17			X	X					
TLI-0292-18			X	X					
TLI-0292-19			X	X					
TLI-0292-20			X	X					
TLI-0292-21			X	X					
TLI-0292-22			X	X					

RELINQUISHED BY (SIGN) 1. <u>Rodney Heit</u>	RELINQUISHED BY (SIGN) 2. _____	RELINQUISHED BY (SIGN) 13. _____	RELINQUISHED BY (SIGN) 14. _____
DATE <u>3/9</u> TIME <u>9:30</u>	DATE _____ TIME _____	DATE _____ TIME _____	DATE _____ TIME _____
RECEIVED BY (SIGN) 1. _____	RECEIVED BY (SIGN) 12. _____	RECEIVED BY (SIGN) 13. _____	RECEIVED BY (SIGN) 14. _____
DATE _____ TIME _____	DATE _____ TIME _____	DATE _____ TIME _____	DATE _____ TIME _____
METHOD OF SHIPMENT	SHIPPED BY (SIGN) _____	RECEIVED FOR LABORATORY (SIGN) _____	DATE _____ TIME _____

# APPENDIX C

Method A Cleanup Levels - Soil \*

Hazardous Substance	CAS Number	Cleanup Level
Arsenic	7440-38-2	20.0 mg/kg <sup>b</sup>
Benzene	71-43-2	0.5 mg/kg <sup>c</sup>
Cadmium	7440-43-9	2.0 mg/kg <sup>d</sup>
Chromium	7440-47-3	100.0 mg/kg <sup>e</sup>
DDT	50-29-3	1.0 mg/kg <sup>f</sup>
Ethylbenzene	100-41-4	20.0 mg/kg <sup>g</sup>
Ethylene dibromide	106-93-4	0.001 mg/kg <sup>h</sup>
Lead	7439-92-1	250.0 mg/kg <sup>i</sup>
Lindane	58-89-9	1.0 mg/kg <sup>j</sup>
Methylene chloride	75-09-2	0.5 mg/kg <sup>k</sup>
Mercury (inorganic)	7439-97-6	1.0 mg/kg <sup>l</sup>
PAHs (carcinogenic)		1.0 mg/kg <sup>m</sup>
PCB Mixtures		1.0 mg/kg <sup>n</sup>
Tetrachloroethylene	127-18-4	0.5 mg/kg <sup>o</sup>
Toluene	108-88-3	40.0 mg/kg <sup>p</sup>
TPH (gasoline)		100.0 mg/kg <sup>q</sup>
TPH (diesel)		200.0 mg/kg <sup>r</sup>
TPH (other)		200.0 mg/kg <sup>s</sup>
1,1,1 Trichloroethane	71-55-6	20.0 mg/kg <sup>t</sup>
Trichloroethylene	79-01-5	0.5 mg/kg <sup>u</sup>
Xylenes	1330-20-7	20.0 mg/kg <sup>v</sup>