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**KEROSENE UNDERGROUND STORAGE TANK  
SITE INVESTIGATION PROGRESS REPORT**

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**TECUMSEH PRODUCTS COMPANY  
GRAFTON, WISCONSIN**

**PREPARED FOR:**

**TECUMSEH PRODUCTS COMPANY  
GRAFTON, WISCONSIN**

**SUBMITTED BY:**

**FOX ENVIRONMENTAL SERVICES, INC.  
MILWAUKEE, WISCONSIN**

**PROJECT: F-92513**

**OCTOBER, 1992**

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**fox environmental services, inc.**

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SITE INVESTIGATION PROGRESS REPORT**

**TECUMSEH PRODUCTS COMPANY**

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**Prepared for:**


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**FOX ENVIRONMENTAL SERVICES, INC.**

**October, 1992**



A handwritten signature in black ink, appearing to read 'F. Johnston', is written over a horizontal line.

**Foster Johnston, REP, CHCM**

fox environmental services, inc.

**SITE INVESTIGATION  
Kerosene Tank**

**Tecumseh Products Company  
Grafton, Wisconsin**

**Project No. F - 92513**

**INTRODUCTION**

This is a progress report to summarize the site investigation activities completed by Fox Environmental Services, Inc. (**FOX**) at Tecumseh Products Company, 900 North Street in Grafton, Wisconsin (**Figure 1**). The site investigation was in response to a leak from a kerosene underground storage tank (UST).

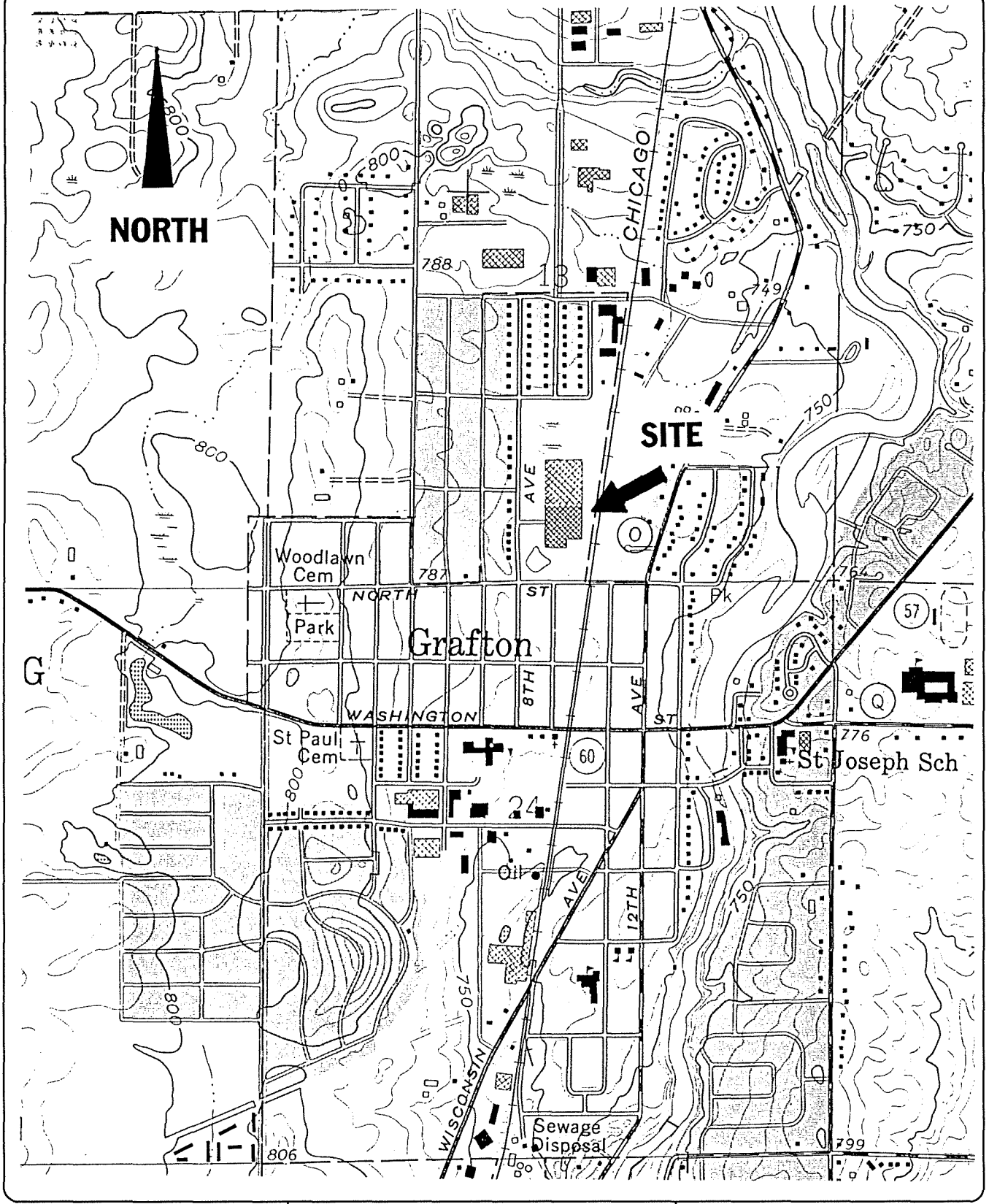
**BACKGROUND**

On June 15 & 16, 1992, E&K Hazardous Waste Services, Inc. (E&K) removed a 350 gallon kerosene UST and the associated piping, and performed a tank closure assessment. At four locations within the tank excavation soil contamination was detected (32 - 8,400 parts per million) by the analytical laboratory. For details of the closure assessment, refer to the report titled "Site Assessment and Tank Closure Report"; Tecumseh Products Company; Grafton, Wisconsin; E&K No. 152922, dated August 18, 1992.

**SITE INVESTIGATION**

On September 11, 1992, four soil borings were placed in and around the excavation backfill for the kerosene tank which was in the maintenance storage area on the east side of the building. The location of the borings are identified in **Figure 2**. Using a General 550 drill rig soil samples were collected with a six (6) inch shelly tube and screened in the field with a Thermo Electron, Model 580, photoionization detector (PID). The soil was classified and entered on boring logs along with the results of the screened samples (**Appendix A**). The soils were a beige sand and gravel fill with cobbles down to 4 to 5 feet, and light yellow brown, fine to medium sandy clay to about 10 feet. The depth of the borings ranged from eight (8) to ten (10) feet and water was encountered at ten (10) feet. A total of four soil samples were submitted to PAL for diesel range organics (DRO), petroleum volatile organic compounds (PVOC), and polynuclear aromatic hydrocarbons (PAH) analysis. The boreholes were properly abandoned, however, the depths were less than 10 feet and no abandonment forms were completed.

SB1KT was forced to terminate at eight feet due to the rock and gravel fill. Due to the interior constraints of the building, a compact drill rig was used but, with only a 5 horsepower engine, lacked the power to advance beyond this depth. Two additional boring locations (SB3KT and SB4KT) were also terminated at four feet for the same reason as SB1KT. Only soil boring SB2KT was advanced to a sufficient depth for site investigation purposes. A more powerful but larger drill rig was mobilized to the site, however, the attempt to place it in the maintenance storage area failed due to the narrow wall openings.



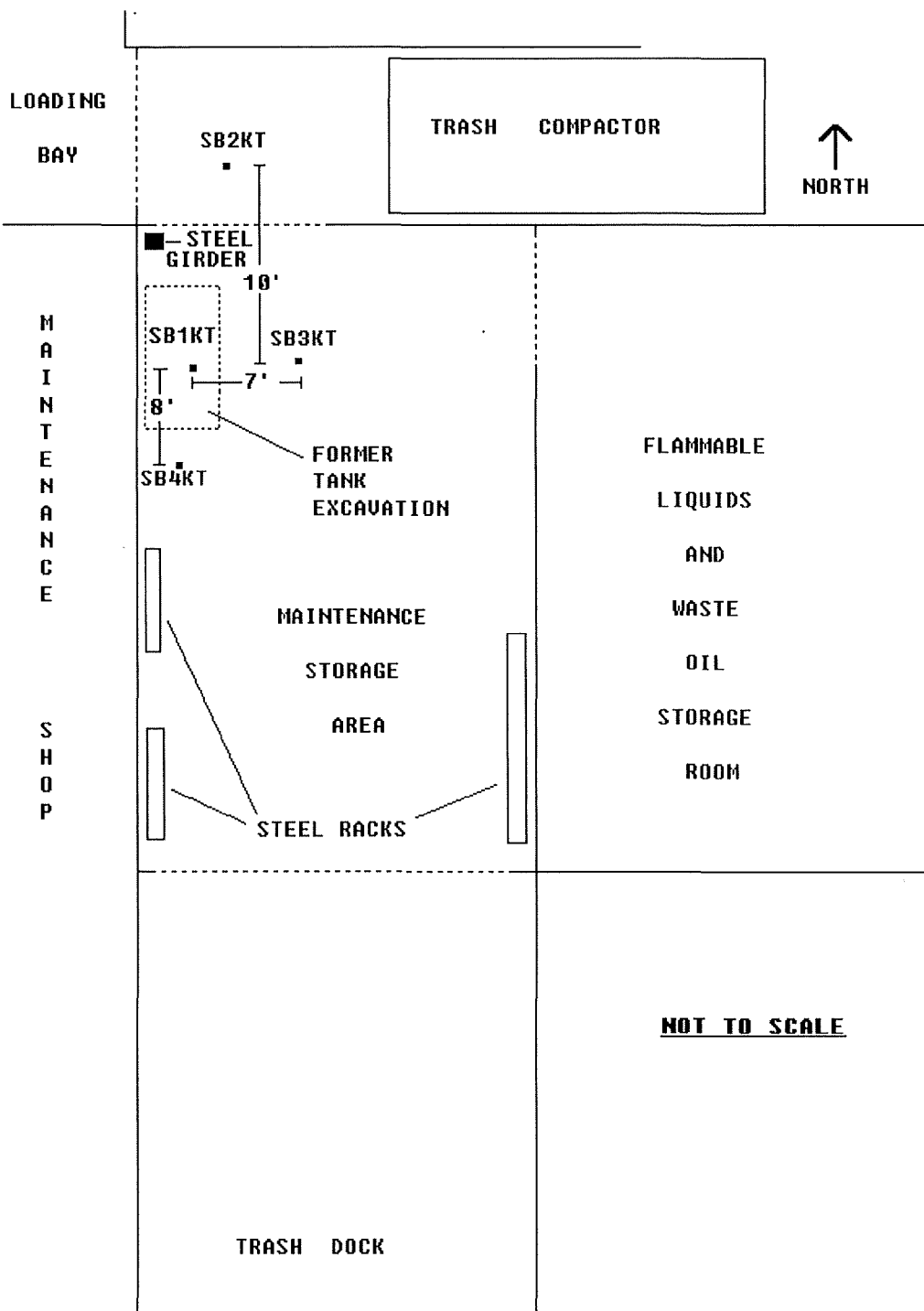
fox environmental services, inc.

5150 North Port Washington Rd.  
 Suite 101  
 Milwaukee, Wisconsin 53217  
 (414) 332 - 5857

**FIGURE 1**  
**LOCATION PLAN**

**PROJECT NO. 92513**

**OCTOBER, 1992**



fox environmental services, inc.  
 5150 North Port Washington Rd.  
 Suite 101  
 Milwaukee, Wisconsin 53217  
 (414) 332 - 5857

**FIGURE 2**  
**SITE PLAN**

**PROJECT NO. 92513**  
**OCTOBER, 1992**

## RESULTS

The results of the laboratory analysis are summarized in **Table 1** and a copy of the lab report is in **Appendix B**. Concentrations of DRO were detected in SB1KT 7' - 7.5' and SB1KT 8' - 8.5' at 230 and 390 parts per million (ppm), respectively. No DRO were detected in SB2KT 7.75' - 8.25' and SB2KT 9.75' - 10.25'. No PVOC or PAH were detected in any of the samples.

**TABLE 1  
KEROSENE TANK**

	SB1KT 7' - 7.5'	SB1KT 8' - 8.5'	SB2KT 7.75' - 8.25'	SB2KT 9.75' - 10.25'
<b>DRO</b> (in parts per million)	230	390	<10	<10

## SUMMARY AND RECOMMENDATIONS

The results of the laboratory analysis detected concentrations of DRO in SB1KT 7' - 7.5' and SB1KT 8' - 8.5' at 230 and 390 ppm, respectively. The soil boring to the north (SB2KT) detected no DRO at 7.75' - 8.25' and 9.75' - 10.25'. In order to assess the extent of the contamination, a more powerful drill rig capable of being placed in the maintenance storage area and auguring through the rocky fill, is needed. FOX recommends modifying a trailer-mounted SIMCO rig onto skids and continuing with the soil borings in and around the excavation backfill, as originally planned.

# **APPENDIX A**

## **Soil Boring Logs**







**APPENDIX B**

**Laboratory Report**



Precision Analytical Lab, Inc  
205 West Galena  
Milwaukee, WI 53212

Phone: (414) 272-5222

Fox Environmental Services  
5150 N. Port Washington Rd.  
Milwaukee, WI 53217

Attn: Lawrence L. Fox  
Invoice Number:

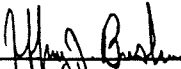
Order #: 92-09-132  
Date: 09/30/92 16:12  
Work ID: 92513  
Date Received: 09/11/92  
Date Completed: 09/30/92  
Client Code: FOX\_ENVIRO

SAMPLE IDENTIFICATION

<u>Sample Number</u>	<u>Sample Description</u>
01	SBKT 17-7.5
02	SBKT 18-8.5

<u>Sample Number</u>	<u>Sample Description</u>
03	SBKT-24-4.5
04	SBKT-26-6.5

Laboratory ID Number (Wisconsin DNR): 241369260

  
\_\_\_\_\_  
Certified By  
Jeff Bushner

Sample: 01A SBKT 17-7.5

Collected: 09/11/92

<u>Test Description</u>	<u>Result</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	<u>By</u>
Mod. DRO (WDNR)	230		mg/kg	09/29/92	SEL
PVOC Soil, (WDNR) 8020					
Benzene	# < 43		ug/kg	09/21/92	LJS
Ethylbenzene	< 43		ug/kg	09/21/92	LJS
Methyl-t-butylether	< 43		ug/kg	09/21/92	LJS
Toluene	< 43		ug/kg	09/21/92	LJS
1,2,4-Trimethylbenzene	< 43		ug/kg	09/21/92	LJS
1,3,5-Trimethylbenzene	< 43		ug/kg	09/21/92	LJS
Total Xylenes	< 43		ug/kg	09/21/92	LJS

Sample: 02A SBKT 18-8.5

Collected: 09/11/92

<u>Test Description</u>	<u>Result</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	<u>By</u>
Mod. DRO (WDNR)	390		mg/kg	09/29/92	SEL
PAH Soil, Method 8270					
Acenaphthene	< 660		ug/kg	09/22/92	JJB
Acenaphthylene	< 660		ug/kg	09/22/92	JJB
Anthracene	< 660		ug/kg	09/22/92	JJB
Benzo(a)anthracene	< 660		ug/kg	09/22/92	JJB
Benzo(b)fluoranthene	< 660		ug/kg	09/22/92	JJB
Benzo(k)fluoranthene	< 660		ug/kg	09/22/92	JJB
Benzo(g,h,i)perylene	< 660		ug/kg	09/22/92	JJB
Benzo(a)pyrene	< 660		ug/kg	09/22/92	JJB
Chrysene	< 660		ug/kg	09/22/92	JJB
Dibenz(a,h)anthracene	< 660		ug/kg	09/22/92	JJB
Fluoranthene	< 660		ug/kg	09/22/92	JJB
Fluorene	< 660		ug/kg	09/22/92	JJB
Indeno(1,2,3-cd)pyrene	< 660		ug/kg	09/22/92	JJB
Naphthalene	< 660		ug/kg	09/22/92	JJB
Phenanthrene	< 660		ug/kg	09/22/92	JJB
Pyrene	< 660		ug/kg	09/22/92	JJB
PVOC Soil, (WDNR) 8020					
Benzene	# < 50		ug/kg	09/21/92	LJS
Ethylbenzene	< 50		ug/kg	09/21/92	LJS
Methyl-t-butylether	< 50		ug/kg	09/21/92	LJS
Toluene	< 50		ug/kg	09/21/92	LJS
1,2,4-Trimethylbenzene	< 50		ug/kg	09/21/92	LJS
1,3,5-Trimethylbenzene	< 50		ug/kg	09/21/92	LJS
Total Xylenes	< 50		ug/kg	09/21/92	LJS

Sample: 03A SBKT-24-4.5

Collected: 09/11/92

<u>Test Description</u>	<u>Result</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	<u>By</u>
Mod. DRO (WDNR)	< 10		mg/kg	09/26/92	SEL

<u>Test Description</u>	<u>Result</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	<u>By</u>
PVOC Soil, (WDNR) 8020					
Benzene	# < 50		ug/kg	09/21/92	LJS
Ethylbenzene	< 50		ug/kg	09/21/92	LJS
Methyl-t-butylether	< 50		ug/kg	09/21/92	LJS
Toluene	< 50		ug/kg	09/21/92	LJS
1,2,4-Trimethylbenzene	< 50		ug/kg	09/21/92	LJS
1,3,5-Trimethylbenzene	< 50		ug/kg	09/21/92	LJS
Total Xylenes	< 50		ug/kg	09/21/92	LJS

Sample: 04A SBKT-26-6.5

Collected: 09/11/92

<u>Test Description</u>	<u>Result</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	<u>By</u>
Mod. DRO (WDNR)	< 10		mg/kg	09/26/92	SEL
PVOC Soil, (WDNR) 8020					
Benzene	# < 50		ug/kg	09/21/92	LJS
Ethylbenzene	< 50		ug/kg	09/21/92	LJS
Methyl-t-butylether	< 50		ug/kg	09/21/92	LJS
Toluene	< 50		ug/kg	09/21/92	LJS
1,2,4-Trimethylbenzene	< 50		ug/kg	09/21/92	LJS
1,3,5-Trimethylbenzene	< 50		ug/kg	09/21/92	LJS
Total Xylenes	< 50		ug/kg	09/21/92	LJS

# Elevated detection limit due to compliance with the Wisconsin DNR modified PVOC method.

The organic data is reported out on a dry-weight basis.

Sample was covered air tight in approved container, shipped in cooler from the source to our lab, temperature upon arrival was 4 degrees C.

The samples ordered for PVOC were analyzed according to Method 8020 ( SW 846 Test Methods for Evaluating Solid Waste - Physical/ Chemical Methods )

The samples ordered for PAHs were analyzed according to Method 8270 ( SW 846 Test Methods for Evaluating Solid Waste - Physical/ Chemical Methods )

The samples ordered for DRO were analyzed by the Wisconsin DNR Modified DRO method.

The extraction qc for the DRO samples exhibited recoveries that were just outside our normal criteria. The samples were not re-extracted due to hold-time considerations; however, the values reported should not be affected significantly.