

HOLLIS,



◆ CONSULTING ◆ ENGINEERING ◆ TECHNOLOGIES ◆

February 8, 2002

Project No. 672-0201

To:

Ted Wichers  
Triangle Pump Service  
2565 Delzotto Ave.  
Gloucester, ON  
K1T 3V6

**Re: Underground Storage Tank Removals  
45 Wilson Street, Perth, ON.**

## 1.0 INTRODUCTION

Franz Environmental Inc. (FEI), has prepared this report to summarize the results and conclusions of the underground storage tank (UST) removals at the above noted site.

### 1.1 Scope of Work

The scope of work performed by FEI included the following:

- A visual inspection of the USTs once removed from the ground;
- The collection and analysis of soil samples from the UST excavations for combustible vapour concentrations in accordance with industry accepted standards;
- The analysis of four soil samples from each UST excavation as per the Ontario Ministry of Environment Guidelines on Sample Collection and Analysis; and,
- The preparation of this report.

## 1.2 Site Description

The subject property is located at <sup>125</sup>45 Wilson Street in Perth, Ontario and consists of one residential house with a separate garage located on the east side of the property. A site plan showing the general site layout is provided as Figure 1. The site uses fuel oil (aboveground tank in the basement) for heating purposes and has municipally supplied potable water.

The neighbouring properties are primarily residential with some commercial properties within 1 km of the site.

## 1.3 Remedial Criteria

The Ontario Ministry of Environment (MOE) *Guideline For Use At Contaminated Sites In Ontario, Revised September 1998*, provides numerical values for concentrations of chemical substances in soil, groundwater and sediments that relate to the suitability of a site for specific uses and land-use categories.

FEI reviewed the above guideline and have determined that the MOE Table B criteria for residential/parkland land use under a non-potable groundwater condition for coarse grain soils would be applicable for use at the site based on the following:

- The chemicals of concern are petroleum products, (heating oil)
- The site is not a sensitive site as defined by the guideline;
- The site is used for residential purposes;
- Potable water is supplied via a municipal water system; and,
- Soils observed at the site were primarily sandy (coarse grained)

## 2.0 EXCAVATION MONITORING

### 2.1 Excavation Management

FEI personnel were on site on January 31, 2002 to monitor the excavation of the USTs by Triangle Pump Service (Triangle) of Gloucester, Ontario.

### 2.2 Subsurface Conditions

The soil in the vicinity of the UST excavations primarily consisted of sand fill from surface to approximately 1.5 m below grade surface. The water table was estimated to be approximately 1.4 metres below grade.

## **2.3 UST Excavation and Monitoring**

### **2.3.1 UST 1 - Garage Heating Oil UST**

Upon removal, the 1,100 L UST was noted to be single wall steel with no pitting or perforations. The location of the UST excavation relative to the property is provided on Figure No 2. Following the removal of the UST, slight olfactory evidence of petroleum hydrocarbons were evident in the surrounding soil.

FEI obtained representative soil samples for field vapour screening from the limits of the UST excavation. Each soil sample was placed in a plastic sample bag for combustible vapour analysis with a Gastech Model 1238ME combustible gas indicator calibrated with hexane and operated in methane elimination mode.

The location of the soil samples and the corresponding soil vapour concentrations for the limits of the UST excavation are shown on Figure No. 3. In addition, the location of the soil samples that were submitted for laboratory analysis are also shown on Figure No. 3.

A total of four soil samples from the UST excavation were submitted to Paracel Laboratories Limited, (Paracel) for analysis. The samples were selected based on the most elevated soil vapour concentrations. Each soil sample was analysed for benzene, toluene, ethyl benzene, xylenes, (BTEX) and total petroleum hydrocarbons (TPH) in the gas, diesel and heavy oil ranges.

### **2.3.2 UST 2 - Gasoline UST**

Upon removal, the 1,100 L UST was noted to be single wall steel with no pitting or perforations. The location of the UST excavation relative to the property is provided on Figure No 2. Following the removal of the UST, slight olfactory evidence of petroleum hydrocarbons were evident in the surrounding soil.

FEI obtained representative soil samples for field vapour screening from the limits of the UST excavation. Each soil sample was placed in a plastic sample bag for combustible vapour analysis with a Gastech Model 1238ME combustible gas indicator calibrated with hexane and operated in methane elimination mode.

The location of the soil samples and the corresponding soil vapour concentration for the limits of the UST excavation are shown on Figure No. 4. In addition, the location of the soil samples that were submitted for laboratory analysis are also shown on Figure No. 4.

A total of four soil samples from the UST excavation were submitted to Paracel for analysis. The samples were selected based on the most elevated soil vapour concentrations. Each soil sample was analysed for BTEX and TPH in the gas, diesel and heavy oil ranges.

### 2.3.3 UST 3 - House Heating Oil UST

Upon removal, the 2,270 L UST was noted to be single wall steel with some pitting. The location of the UST excavation relative to the property is provided on Figure No 2. Following the removal of the UST, slight olfactory evidence of petroleum hydrocarbons were evident in the surrounding soil.

FEI obtained representative soil samples for field vapour screening from the limits of the UST excavation. Each soil sample was placed in a plastic sample bag for combustible vapour analysis with a Gastech Model 1238ME combustible gas indicator calibrated with hexane and operated in methane elimination mode.

The location of the soil samples and the corresponding soil vapour concentration for the limits of the UST excavation are shown on Figure No. 5. In addition, the location of the soil samples that were submitted for laboratory analysis are also shown on Figure No. 5.

A total of four soil samples from the UST excavation were submitted to Paracel for analysis. The samples were selected based on the most elevated soil vapour concentrations. Each soil sample was analysed for BTEX and TPH in the gas, diesel and heavy oil ranges.

### 3.0 RESULTS AND DISCUSSION

#### 3.1 Analytical Results

The laboratory analytical results for the BTEX and TPH analysis are presented on Table 1. The analytical results from the limits of the three excavations indicate that concentrations of BTEX and TPH were either non-detectable or below the applicable MOE Table B guideline criteria.

### 4.0 CONCLUSIONS

1. Three underground steel storage tanks were unearthed and removed from site: UST 1 (garage heating oil tank), UST 2 (gasoline tank) and UST 3 (house heating oil tank). Upon removal, UST 1 and UST 2 were noted to be in good condition with no evidence of pitting or perforations while UST 3 showed some signs of pitting.
2. Following the removal of the USTs, slight olfactory evidence of petroleum hydrocarbons were evident in the surrounding soil of the UST excavations.
3. Analytical results from the limits of the UST excavations indicate that concentrations of BTEX and TPH compounds were either non-detectable or below the applicable MOE Table B guideline criteria.
4. No further environmental work is recommended at this time relating to the UST excavations.

## 5.0 CLOSING

The information provided in this report is based on testing conducted to determine the presence of petroleum hydrocarbon impacted soils in the vicinity of the former USTs located at the site. This report was prepared for the use of Triangle Pump Service and their entities for the purposes of determining soil conditions around the former petroleum storage tanks following their removal. The content of this report cannot be relied upon by other parties without first obtaining consent from the Triangle Pump Service and FEI. In addition, an environmental sampling program is a limited sampling of a site and therefore the results of this testing can only be extrapolated to a limited area around the actual sample locations. FEI cannot warrant that other chemical compounds are not present since the sampling program was specifically designed to determine the presence of potential environmental impacts associated with the underground petroleum storage tanks.

We trust that the above is satisfactory for your purposes at this time. If you have any questions please feel free to contact the undersigned at your convenience.

Yours truly,

**Franz Environmental Inc.**



Marc MacDonald, P.Eng.  
Environmental Engineer

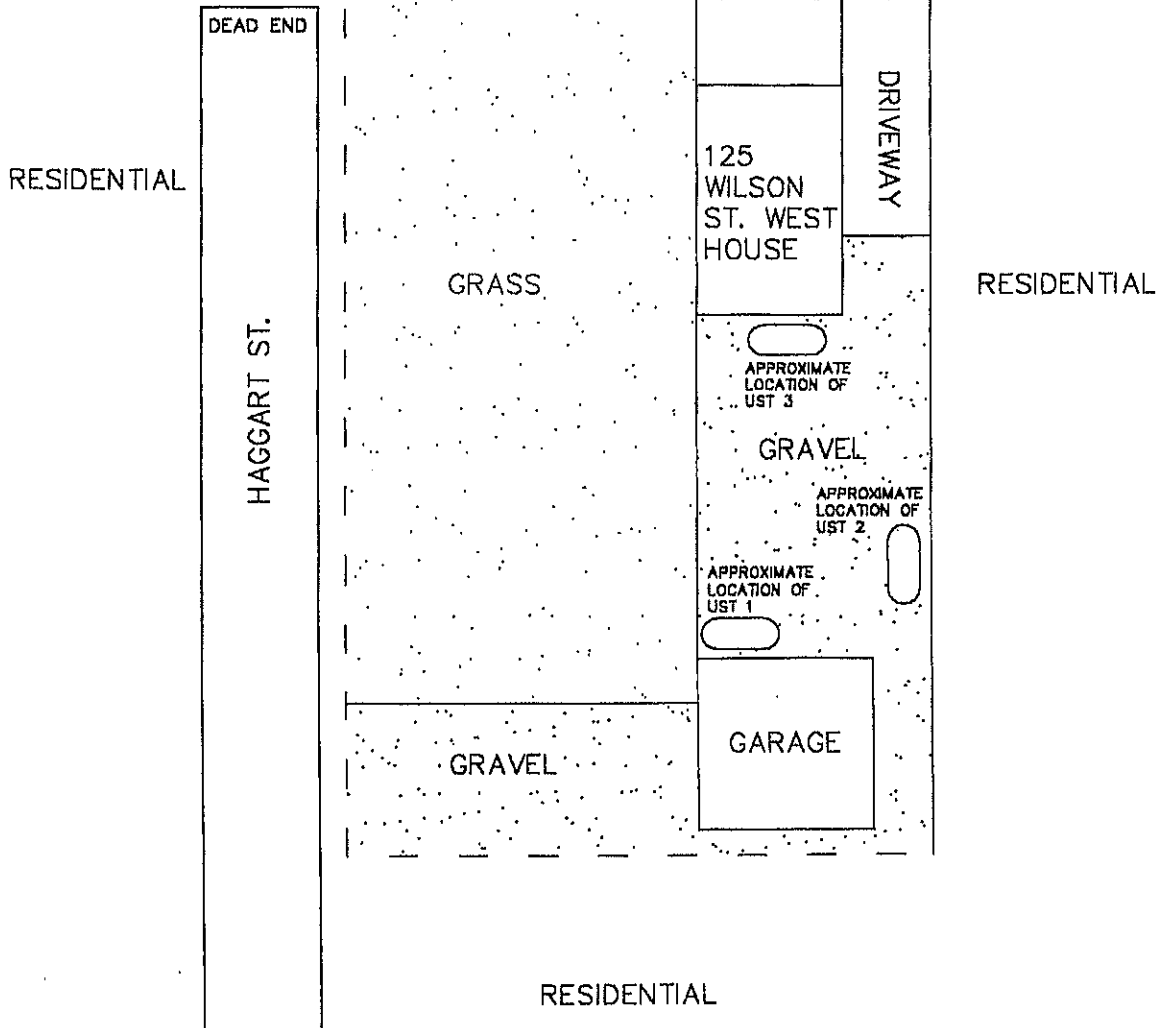


Bruce Cochrane, B.Sc.  
Remediation Specialist

P:\2002\672 Triangle Perth\Perth Rpt.wpd



WILSON ST. WEST



**LEGEND**

 UST



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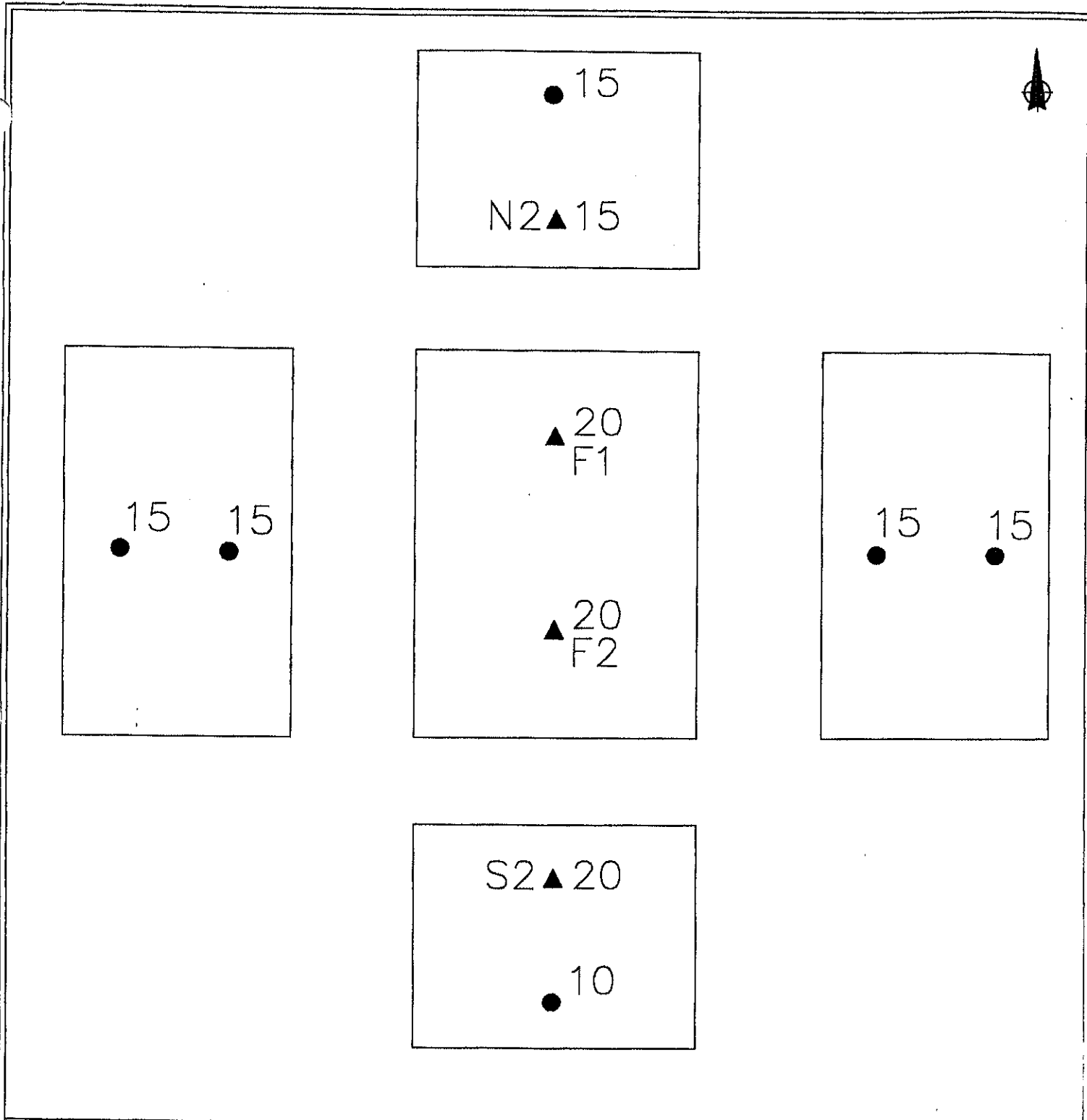
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FIGURE 1

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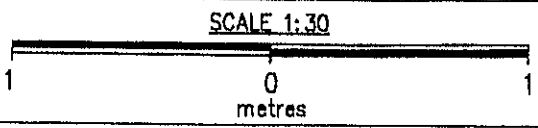


**LEGEND**

- S2▲20 SCIL SAMPLE SUBMITTED FOR LABORATORY ANALYSIS
- 10 VAPOUR READING IN PARTS PER MILLION



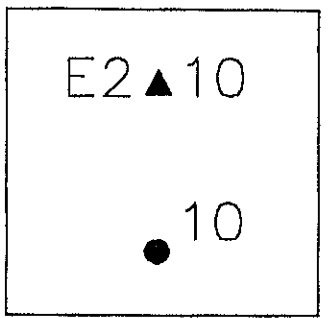
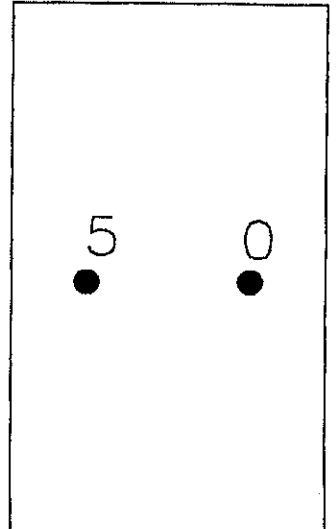
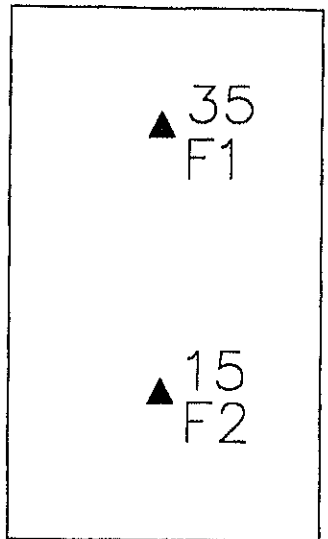
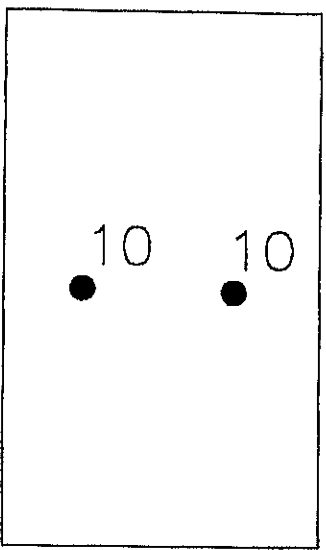
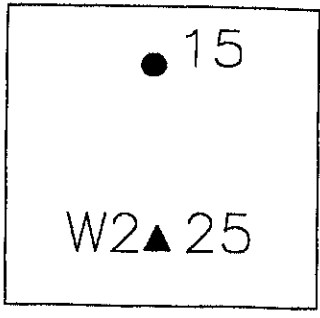
Title	UST 1 EXCAVATION PLAN
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FIGURE 2





**LEGEND**

- S2▲20 SOIL SAMPLE SUBMITTED FOR LABORATORY ANALYSIS
- 10 VAPOUR READING IN PARTS PER MILLION

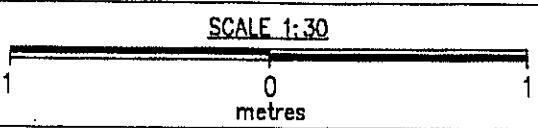


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Title: UST 2 EXCAVATION PLAN

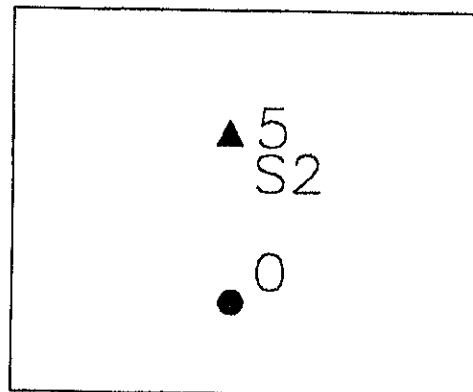
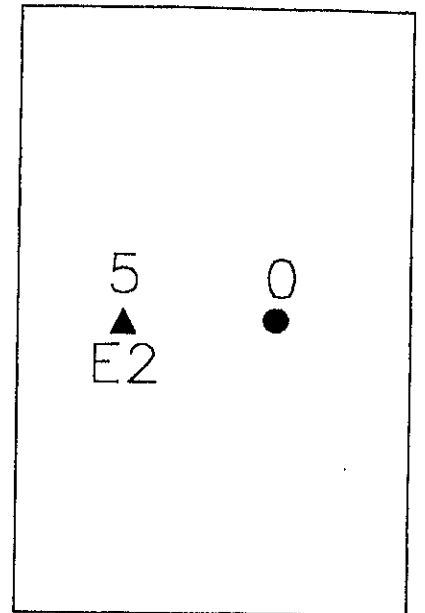
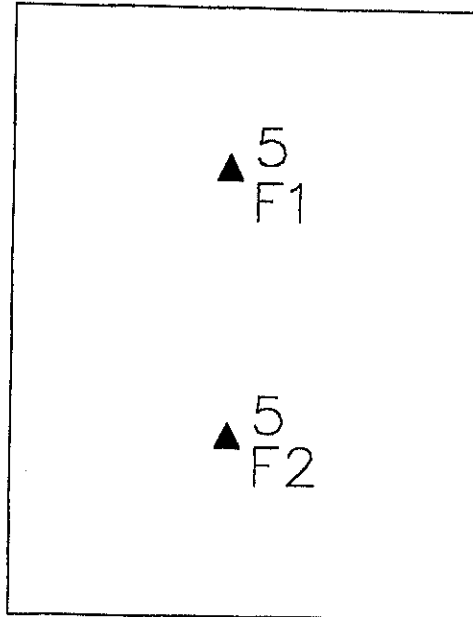
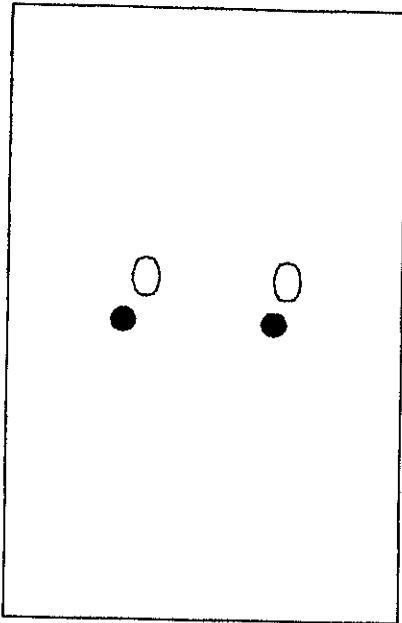
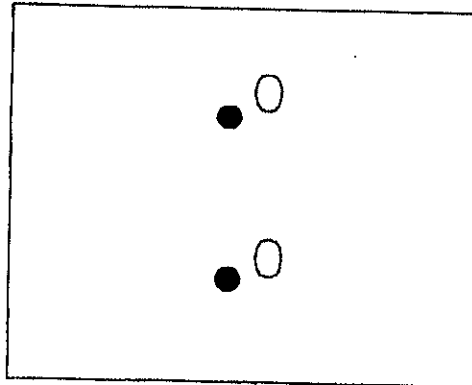
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FIGURE 3



**LEGEND**

- S2▲20 SOIL SAMPLE SUBMITTED FOR LABORATORY ANALYSIS
- 10 VAPOUR READING IN PARTS PER MILLION

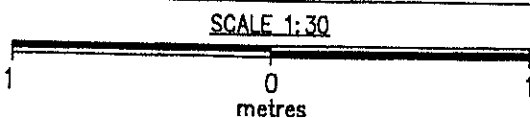


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FIGURE 4

**Table 1**  
**Soil Sample Laboratory Analytical Results**  
**45 Wilson St, Perth, ON**  
**mg/kg or ppm**

Sample ID	Depth (m)	Date Sampled	Benzene	Toluene	Ethyl Benzene	Xylenes	TPH Gas/Diesel	TPH Heavy Oils
UST1 S2	0.9	01/31/02	<0.025	0.025	<0.025	<0.200	<10	100
UST1 N2	0.9	01/31/02	<0.025	<0.025	<0.025	<0.050	<10	<50
UST1 F1	1.2	01/31/02	0.025	0.025	<0.025	0.050	<10	<50
UST1 F2	1.2	01/31/02	<0.025	0.050	0.075	0.450	30	<50
UST2 W2	0.9	01/31/02	<0.025	<0.025	<0.025	0.125	<10	<50
UST2 E2	0.9	01/31/02	<0.025	<0.025	<0.025	<0.050	<10	<50
UST2 F1	1.2	01/31/02	<0.025	<0.025	<0.025	0.125	<10	250
UST2 F2	1.2	01/31/02	<0.025	<0.025	<0.025	<0.050	<10	<50
UST3 S2	0.9	01/31/02	<0.025	<0.025	<0.025	<0.050	<10	<50
UST3 E2	0.9	01/31/02	<0.025	<0.025	<0.025	<0.050	<10	<50
UST3 F1	1.5	01/31/02	<0.025	<0.025	<0.025	<0.050	<10	100
UST3 F2	1.5	01/31/02	<0.025	0.050	0.050	0.200	<10	<50
<b>MOE Criteria<sup>1</sup></b>			<b>5.3</b>	<b>34</b>	<b>290</b>	<b>34</b>	<b>1000</b>	<b>1000</b>

1. Table B criteria from the Ontario Ministry of Environment (MOE) *Guideline For Use At Contaminated Sites In Ontario*, Revised September 1998, for residential land use in a non-potable groundwater situation and coarse textured soils.