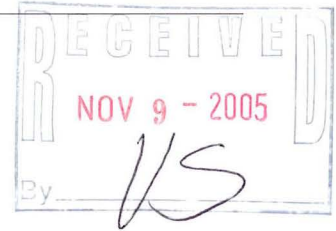


KPRG and Associates, Inc.



**TRANSMITTAL LETTER**

November 7, 2005

Ms. Victoria Stovall  
Program Assistant, Remediation and Redevelopment  
Wisconsin Department of Natural Resources  
2300 N. Dr. Martin Luther King, Jr., Drive  
Milwaukee, WI 53212-0436

VIA U.S. MAIL

KPRG Project No. 13905

Re: Site Investigation Work Plan  
Jill's Dry Cleaners  
574 W16834 Janesville Road, Muskego, WI  
BRRTS #02-68-543070, FID #268077480

Dear Ms. Stovall:

On behalf of Jill's Dry Cleaners, KPRG and Associates, Inc. (KPRG) is providing a copy of the Site Investigation Work Plan for the above referenced site for your review and approval. The submittal of this Work Plan fulfills requirements set forth by the Wisconsin Department of Natural Resources (WDNR) in the responsible party letter for this site. Based on conversations with Mr. Jeff Soellner of the WDNR, it is our understanding that the standard work plan review fee is not required for sites within the Dry Cleaner Environmental Response Fund (DERF) program.

We look forward to working with the WDNR in addressing the environmental issues associated with this property. If there are any questions, please contact me at 262-781-0475.

Sincerely,  
KPRG and Associates, Inc.

A handwritten signature in cursive script that reads "Richard R. Gnat, P.G.".

Richard R. Gnat, P.G.  
Principal

Cc: Ms. Jill Fitzgerald, Jill's Dry Cleaners  
Donald P. Gallo, Esq., Reinhart Boerner Van Deuren, SC



ENVIRONMENTAL CONSULTATION & REMEDIATION

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KPRG and Associates, Inc.

## **SITE INVESTIGATION WORK PLAN**

**JILL'S DRY CLEANERS  
S74 W16834 JANESVILLE ROAD  
MUSKEGO, WISCONSIN**

**BRRTS # 02-68-543070**

**FID # 268077480**

**PREPARED BY:** KPRG and Associates, Inc.  
14665 West Lisbon Road, Suite 2B  
Brookfield, Wisconsin 53005

**PREPARED FOR:** Jill's Dry Cleaners  
S74 W16834 Janesville Road  
Muskego, Wisconsin

KPRG Project No. 13905

November 7, 2005

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## 1.0 INTRODUCTION

### 1.1 Site Name and Location

The subject site is the Jill's Dry Cleaner (JDC) facility located at S74 W16834 Janesville Road in Muskego, Wisconsin. This property is located within Hales Corners Quadrangle in the SW ¼ of the NW ¼ of Section 10, Township 5 North, Range 20 East. A general site location map is provided on Figure 1.

### 1.2 Contact Information

#### Responsible Party

The current property owner and responsible party is:

Jill's Dry Cleaners  
S74 W16834 Janesville Road  
Muskego, Wisconsin 53150  
Contact: Ms. Jill Fitzgerald  
Phone No: 262-679-2121

#### Environmental Consultant

The environmental consulting contact for this project is:

KPRG and & Associates, Inc.  
14665 W. Lisbon Road, Suite 2B  
Brookfield, Wisconsin 53005  
Contact: Mr. Richard R. Gnat, P.G.  
Phone No: 262-781-0475

### 1.3 Background Information

The subject property is located at the northeast corner of the intersection of Janesville Road and Parkland Road in Muskego, Wisconsin. The site consists of a single story strip mall building with slab on grade foundation. The building is currently occupied and is partially used by JDC which is a "wet" dry cleaning which uses the solvent tetrachloroethene (a.k.a., perchloroethene (PCE)). The dry cleaning machine is located on the northeast side of the facility. The remainder of the building is occupied by a laundromat, a card shop and a pet grooming business. A drainage pond is located approximately 75 feet to the north. The surrounding land use is primarily commercial with a residential area to the north. A site layout is provided on Figure 2.

In March, 2005 a limited Phase II subsurface investigation was performed for the adjoining property to the east (Olson's Outdoor Power Equipment). Three geoprobe borings (B-1, B-2 and B-3) were advanced along the west side of the Olson's property as part of the property transaction process. The approximate

locations of the borings are provided on Figure 2. Soil boring logs are provided in Appendix A.

The geoprobes were extended to a depth of 12 feet below ground surface (bgs). All field screening measurements were reported below 1 part per million (ppm). The borings were generally logged as silty clay with no detail or additional information provided relative to soil moisture or the presence of saturated conditions. An evaluation of the local USGS topographic map for this area suggests that the near surface ground water should be relatively shallow, less than 15 feet bgs.

One soil sample collected from each of borings B-1 and B-2 were analyzed for volatile organic compounds (VOCs). The soil sample collected from boring B-1 indicated a PCE concentration of 1,050  $\mu\text{g}/\text{kg}$ , a trichloroethene (TCE) concentration of 111  $\mu\text{g}/\text{kg}$  and a cis-1,2-dichloroethene (DCE) concentration of 52  $\mu\text{g}/\text{kg}$ . The soil sample collected from boring B-2 detected only PCE at 180  $\mu\text{g}/\text{kg}$ . No sample was collected from boring B-3. No ground water samples were collected as part of the investigation. Analytical data are provided in Appendix B.

The WDNR was notified of the release on April 14, 2005. The site has been accepted into the Dry Cleaner Environmental Response Fund (DERF) program. The site investigation was competitively bid by JDC and KPRG and Associates, Inc. (KPRG) was selected to perform the work. The selection was approved by the WDNR.

#### 1.4 Objective of Work Plan

The objective of this Work Plan is to provide the specifications for a proposed site investigation (SI) to delineate the nature and extent of subsurface impacts. This Work Plan is submitted to fulfill requirements set forth in the WDNR letter to JDC.

#### 1.5 Organization of Work Plan

The remainder of this Work Plan is structured to fulfill requirements outlined in NR 716.09. Section 2.0 provides some additional background geology/hydrogeology and a preliminary analysis of potential exposure/migration pathways as part of project scoping. Based on this initial analysis, Section 3.0 defines the proposed site sampling and analysis program. Section 4.0 identifies the quality assurance/quality control procedures and Section 5.0 provides the site management plan for investigation derived wastes. Section 6.0 outlines the proposed Site Investigation Report deliverable and a project schedule is presented in Section 7.0.

## 2.0 PROJECT SCOPING

### 2.1 Geology/Hydrogeology

The regional geology consists of unconsolidated glacial overburden which overlies Silurian age dolomite bedrock or Ordovician age Maquoketa Shale. Depth to bedrock beneath the site is not documented, however, based on regional geologic interpretations, the depth to bedrock is anticipated to be approximately 150 feet. Beneath the Maquoketa Shale are the Ordovician St. Peter Sandstone and Galena Dolomite units which form the primary ground water aquifer for large municipal and industrial uses in the area. A drainage pond is located approximately 75 feet to the north of the site. This pond is part of a system that drains into Little Muskego Lake, west of the site. Figure 3 depicts the surface water flow direction.

As noted in Section 1.3, the near surface unconsolidated deposits beneath the subject site consist of silty clay and clay till. Ground water flow direction is not known, however, based on topographic map interpretations and surficial drainage patterns, near surface ground water flow is expected to be in a north-northeasterly direction towards the nearest pond located approximately 75 feet to the north. This drainage flows to the west through a series of connected ponds, however, this flow may be influenced locally by the surface water drainage ditch to the west-northwest.

### 2.2 Nature of Contaminants

Based on the history of the property provided in Section 1.3, the site has not been used for industrial/manufacturing purposes. The only operations involving chemical use have been dry cleaning which is still in operation. The site screening investigation for the adjacent property has documented a release of the chlorinated solvent PCE which is used in "wet" dry cleaning operations. No aromatic VOCs (benzene, toluene, ethyl benzene and xylene) suggestive of petroleum hydrocarbons were detected above WDNR standards in the preliminary sampling. There are no records of registered petroleum tanks (underground or above ground) or leaking underground storage tanks (USTs) associated with this site. The nature of site impacts, therefore, appears to be limited to chlorinated solvents associated with the former dry cleaning operations, specifically PCE and associated breakdown products.

### 2.3 Preliminary Exposure Pathway Analysis

#### Direct Contact/Ingestion

The subject property currently consists of a single story building with slab on grade, a blacktop parking lot and grass or landscaping over the remaining area of the property. Some of the current conditions do not act as a barrier to potential direct contact hazards associated with the currently documented

impacts. Based on these conditions, the direct contact/ingestion pathway will be addressed in this site investigation

Potential Migration to Ground Water Pathway

Based on topographic map interpretations, depth to ground water is expected to be shallow, approximately 15 feet bgs. The shallow depth to ground water and the various detections in soils of the compounds discussed above indicates that there is a potential migration to ground water pathway for these constituents. No ground water samples were collected as part of the site screening investigation for the adjacent property. This migration pathway will be addressed in this site investigation with the completion of delineation of unsaturated zone impacts, collection of ground water samples from geoprobe borings and the installation/sampling of monitoring wells.

Ground Water Transport Pathway

The ground water transport pathway can be completed by either direct ingestion of impacted ground water or via discharge of impacted ground water to a surface water body. A brief initial analysis of each pathway is presented below.

Direct Ingestion of Impacted Ground Water

The subject property is located within the City of Muskego. The City of Muskego's engineer's office indicated that the local community is served by private and municipal water supply wells in the area. The closest municipal well is approximately 600 feet north-northwest of the site. The well is located on the north of the regional surface water drainages which should act as local hydraulic barriers to shallow ground water flow. Based on discussions with the City of Muskego, the well is 327 feet deep, which suggests it is completed at the base of the Silurian age dolomite. There is a private well on the subject property as well as on the property adjacent to the east. Based on this information, the ground water ingestion route will need to be addressed.

Discharge of Impacted Ground Water to Surface Water

The nearest down gradient surface water receptor is a drainage pond located approximately 75 feet north of the site. This pond is part of a surface water drainage system which eventually flows into Little Muskego Lake located approximately 1,450 feet west-northwest of the site. The extent of ground water impacts, however, will be defined as part of the site investigation and this potential pathway will be re-examined in the site investigation report.

Surface Water Pathway

As noted above, the nearest surface water receptor is approximately 75 feet to the north of the site. At this time there is no data to suggest that the surface water pathway is complete. Therefore, a surface water and sediment sampling program

is not envisioned or proposed as part of this Work Plan. This potential pathway will be re-examined after receipt of site investigation analytical soil and groundwater data.

Air Migration Pathway

Based on currently available data, PCE impacts may exist in the subsurface soils beneath the building and paved parking lot area. The building is constructed with a slab on grade foundation (i.e. no basement or crawl space). Under these conditions, it is not believed that the air migration pathway is complete and no air sampling is envisioned or proposed as part of this investigation. Ambient air monitoring will be performed as part of health and safety precautions during drilling activities and field screening of subsurface soils. This potential pathway will be re-evaluated upon completion of the site investigation work being proposed.

Underground Utilities

Utility corridors have been documented at numerous sites to be preferential pathways for contaminant migration due to the use of coarse backfill within the utility trench. The locations of the major underground utilities are not known. At this time, the utilities will be marked out prior to initiating drilling activities. Some of the proposed Geoprobe locations may be slightly modified in the field to assist in evaluating potential contaminant distribution in the vicinity of the marked utilities. Information on the depths of the utilities will be obtained from the specific utility owners.



### 3.0 SAMPLING AND ANALYSIS PROGRAM

Based on the initial evaluation of potential exposure/migration pathways provided in Section 2.0, additional soil and ground water investigation will be performed to delineate the vertical and horizontal extent of impacts. The proposed additional investigation work is discussed below followed by a summary of the analytical requirements.

#### 3.1 Additional Soil Sampling Investigation

A total of ten (10) additional soil borings will be performed to assist in defining the local stratigraphy and vertical and horizontal extent of soil impacts. The proposed boring locations are shown on Figure 2, however, these may be modified slightly in the field based on site conditions.

The soil borings (GP-1 through GP-4) will be advanced using the geoprobe method to a depth of 20 feet bgs or ground water, whichever is shallower. Two hand-augered borings (HA-1 and HA-2) will be advanced within the facility. These borings will be advanced with a concrete core through the slab and a hand auger to collect the soil samples to a depth of approximately 5 feet depending upon conditions. In addition, six shallow borings (MW-1 through MW-6) and one deep boring (MW-1D) will be completed as monitoring wells. These borings will be advanced with hollow-stem augers. Soil core from all borings will be collected on a continuous basis, field screened for total organic vapors with a photoionization detector (PID) and visually logged using the Unified Soil Classification System (USCS).

One soil sample will be collected for chemical analysis from boring locations GP-1 through GP-4, HA-1, HA-2 and MW-1 through MW-4. The sampling interval will be selected based on visual observations and field screening. Rationale for selection of these locations for soil sampling is provided in Table 1. If there is no visual evidence of impacts and there are no noted PID field screening measurements, the 1' to 2' depth interval will be sampled. Samples will be collected as "grab" samples. Appropriate aliquots will be placed directly into laboratory prepared containers, preserved as necessary and placed on ice. A subset of 3 soil borings will include a second sample, at a separate depth interval, which will provide the best vertical and horizontal definition of impacts.

All 13 soil samples will be analyzed for VOCs. In addition, a subset of 3 samples will be analyzed for Total Organic Carbon (TOC) to assist in calculating site specific soil cleanup objectives, if necessary.

#### 3.2 Ground Water Investigation

The extent of potential ground water impacts will be defined by the collection of ground water samples via the geoprobe soil borings and through the installation of permanent monitoring wells. Field methods for each are described below.

### 3.2.1 Geoprobe Ground Water Sampling

One ground water sample will be collected from each geoprobe boring location, assuming ground water is encountered. A ground water sample will be collected directly through the geoprobe rods using a peristaltic pump. If a sufficient amount of water is not available for direct sampling, a temporary, 1-inch PVC well will be constructed using general NR 141 protocols with a temporary surface casing. The well will then be allowed to equilibrate and will be checked after several days for a sufficient volume of water for sampling. A ground water sample will then be collected using a narrow, disposable bailer. The temporary well would then be removed and the hole properly abandoned with granular bentonite.

### 3.2.2 Permanent Well Installations

A total of seven monitoring wells will be drilled and constructed at locations shown on Figure 2. Rational for the selection of each location are provided in Table 2. Well installation, sampling and slug testing procedures are detailed below.

#### 3.2.2.1 Well Installation Procedures

Monitoring wells will be drilled using the hollow-stem auger drilling method. Drilling of the shallow wells (MW-1, MW-2, MW-3, MW-4, MW-5 and MW-6) will extend to approximately 20 feet bgs. Drilling of the deeper well (MW-1D) will extend to approximately 40 feet bgs. The vertical soil profile will be sampled using a split spoon or continuous core barrel, logged and screened in the field for total organic vapors using a PID.

Once the target depth is reached, each well will be constructed of 2-inch, inner-diameter PVC (schedule 40) casing with 10-feet of 0.010 slot screen for the shallow wells and 5-feet of screen for the deep well. The longer screens are intended to straddle the water table. Each well will be completed by placing a 10/20 silica sand filter pack to approximately one foot above the top of the screen followed by approximately two feet of fine sand (100 mesh). A minimum 2-foot bentonite pellet seal will then be placed and hydrated. The remainder of the annulus for the wells will be filled with granular bentonite. The surface completions will be flush mounts which will be anchored with concrete.

Monitoring wells will be developed using the purge and bail method. Purging will continue until a minimum of five casing

volumes of water are removed or until field parameters of pH, specific conductance and temperature show stable conditions.

The monitoring wells will be surveyed in by a Wisconsin licensed surveyor. The ground elevation will be surveyed to an accuracy of 0.1 feet and the top of casing elevation will be surveyed to an accuracy of 0.01 feet.

All proper documentation for drilling and well construction will be submitted on the required WDNR forms.

### 3.2.2.2 Ground Water Sampling Procedures

Ground water samples will be collected on a quarterly basis for one year using the following procedures:

- The water table elevation will be measured using an electronic water level probe.
- Three casing volumes of water will be purged from the well using a dedicated PVC bailer at which point field parameter measurements of pH, specific conductivity and temperature will be initiated. Purging will continue until stable conditions are documented. If the well bails dry before three casing volumes can be purged, the well will be allowed to recover at which point field parameter measurements will be initiated.
- Ground water measurements of DO and ORP will be obtained down-well in the field.
- Samples will be collected with dedicated bottom filling bailers and transferred directly into laboratory prepared containers for off-site analysis. Preservatives and bottle sizes are specified in Section 3.3.

All ground water samples will be analyzed for VOC's. Two of the four rounds of ground water samples will be analyzed for natural attenuation parameters of TOC, sulfate, sulfide, nitrate and dissolved gasses (methane, ethane, ethane).

One duplicate will be collected per round of sampling for quality assurance/quality control purposes (see Section 4.0). All samples will be properly preserved and placed on ice for subsequent transport to the laboratory under a completed chain-of-custody for

analysis. The purge water will be properly containerized for subsequent disposal.

### 3.2.2.3 Slug Testing Procedures

Each well will be slug tested to provide estimates of aquifer hydraulic conductivity in the vicinity of each well. Slug tests will be performed using the In-Situ Mini Troll electronic transducer and data logger system. The transducer/data logger will be placed down the well. A slug of solid PVC will then be placed down the well to displace water upward in the casing. Simultaneously with the introduction of the slug, the transducer will be activated and water level measurements will be recorded as the displaced water column re-equilibrates to static, or near static conditions at which point the transducer will be turned off. The test will then be repeated by removing the slug from the well which will in turn drop the water level in the casing. The transducer will be reactivated to measure the recovering water levels.

The resulting slug test data will be subsequently analyzed using the Bouwer and Rice (1976) method. It is noted that for the shallow wells, only the "slug out" data will be analyzed since the well screen and sand pack in these wells will not be fully saturated. Data from the "slug in" tests will, therefore, be unrepresentative of actual aquifer conditions since some water will also be displaced into the unsaturated sand pack. Both "slug in" and "slug out" tests will be analyzed for the deeper well since the screen and sand pack for this well will be fully saturated.

### 3.3 Summary of Analytical Requirements

Table 3 summarizes the proposed analytical requirements. It includes sample container and preservative specifications, holding times, analytical methods and target detection limits to be used for this site investigation.

## 4.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PROCEDURES

### 4.1 Field QA/QC Procedures

In accordance with NR 716.13(11) the following QA/QC procedures will be performed as part of field investigation activities:

- A chain of custody will be maintained for all samples collected for chemical analysis.
- All samples collected (soil and ground water) will be properly preserved and immediately placed on ice for subsequent transport to the analytical laboratory.
- For ground water samples, one duplicate will be collected as part of the proposed round of sampling.
- One trip blank originating from the analytical laboratory will accompany the sample bottle shipment to and from the field. The trip blank sample will be analyzed as part of the sample batch by the laboratory.
- All non-dedicated sampling equipment will be thoroughly cleaned between each use using an Alconox-water wash followed by a distilled water rinse.
- Documentation of all field activities will be kept in a bound notebook. This will include routine and non-routine maintenance and calibrations performed on instruments used during the field investigation.

### 4.2 Analytical Laboratory QA/QC

To ensure proper analytical laboratory QA/QC, KPRG will use a Wisconsin certified environmental laboratory. The analytical laboratory will be selected through a commodity bidding process as required under the Dry Cleaner Environmental Response Fund (DERF) program. A copy of selected laboratories QA/QC program can be provided upon request.

## 5.0 INVESTIGATION DERIVED WASTE MANAGEMENT

Investigation derived waste (IDW) generated as part of this site investigation will be managed in accordance with WDNR General Interim Guidelines for Management of Investigative Waste (1993). Solid and liquid IDW are discussed separately below.

### 5.1 Solid IDW

Soils generated as part of the geoprobe and well drilling programs will be containerized in 55-gallon drums and labeled as IDW (including date and origin). The drums will be stored in an area of the facility as directed by the property owner. The drummed soils will be sampled, profiled and sent off-site for proper disposal at the end of site investigation activities.

### 5.2 Liquid IDW

Liquids generated as part of this site investigation will include decontamination water, well development water and purge water from sampling. All of these fluids will be accumulated in 55-gallon drums and labeled as IDW (including date and origin). The drums will be stored in an area of the facility as directed by the property owner. The drummed water will be sampled, profiled and sent off-site for proper disposal at the end of site investigation activities.

## 6.0 SITE INVESTIGATION REPORT

Upon receipt of all analytical data, a site investigation report will be prepared in accordance with requirements specified in NR 716.15. The report will include, but not be limited to:

- Transmittal Letter
- Executive Summary
- General Project Information (names and addresses of owners, operators and consultant and facility address)
- Background Information
- Documentation of Field Activities
- Description of Local Geology/Hydrogeology
- Summary of Analytical Results
- Calculation of SSRCLs
- Migration Pathway Analysis
- Supporting Visual Aids (maps, geologic cross-sections, ground water flow map(s), areal distribution of impacts maps, etc.)
- Conclusions/Recommendations

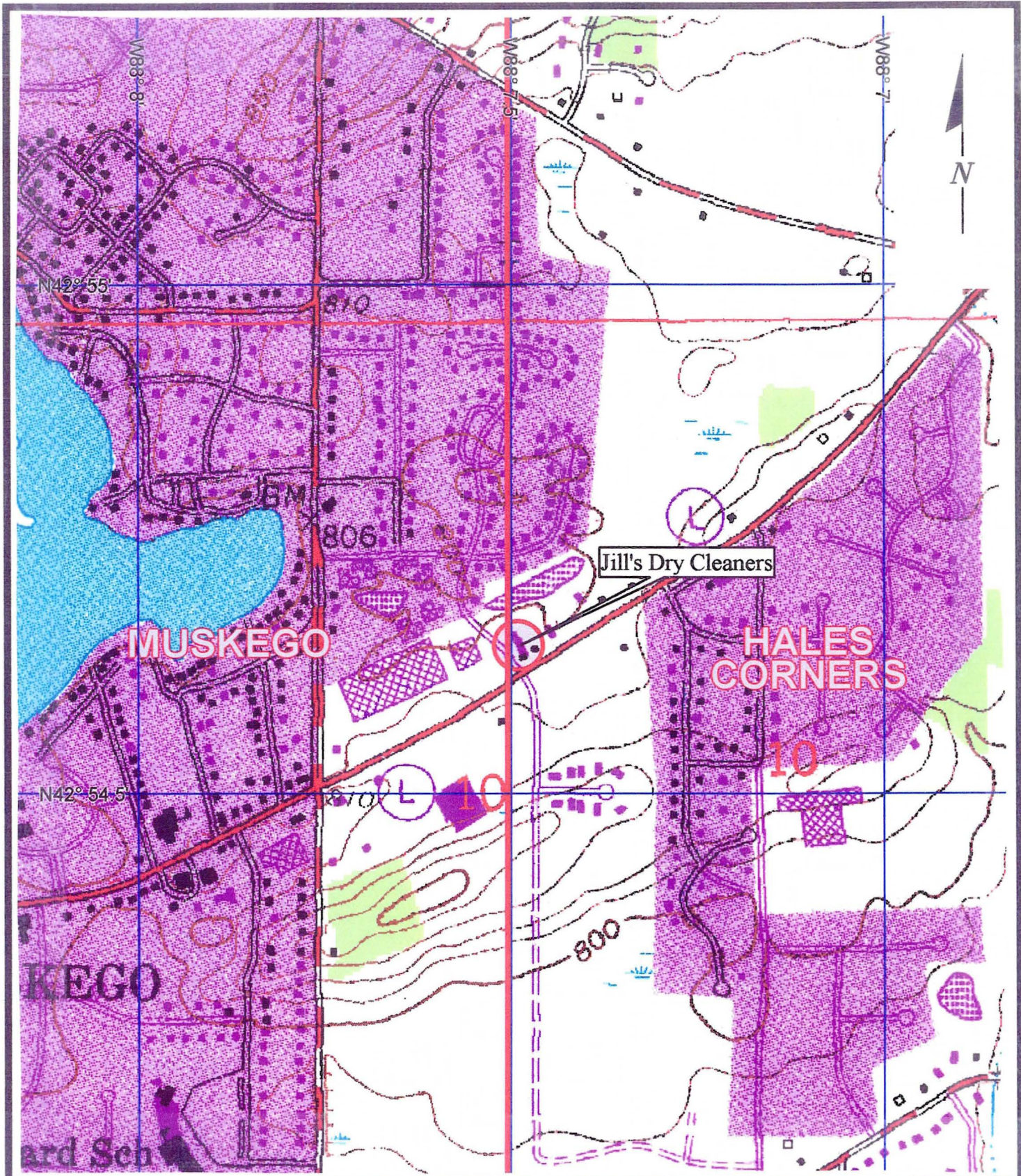
Supporting documentation such as laboratory analytical packages and well/borehole documentation completed on the appropriate WDNR forms will be provided as appendices to the report.

## 7.0 PROJECT SCHEDULE

A project duration of 12 months is anticipated from the time of WDNR approval of the Work Plan. Approximately 2 weeks will be required for commodity bidding, contracting and scheduling. Initial field activities are anticipated to require up to 1 week to complete. Assuming a standard analytical laboratory turn around, all analytical data from this field effort should be available by the end of the 5<sup>th</sup> week of the project. This data will be evaluated for completeness and a determination will be made whether additional investigation work may be needed to complete the areal extent of impacts evaluation. Any additional work will require approval by the WDNR project manager prior to initiation. After the initial field effort, three additional rounds of ground water samples will be collected on a quarterly basis. A site investigation report will be completed within 3 weeks of receipt of all analytical data after the quarterly sampling is complete.



## **FIGURES**



ENVIRONMENTAL CONSULTATION & REMEDIATION

JILL'S DRY CLEANERS

**K P R G**

KPRG and Associates, Inc.

GENERAL SITE LOCATION MAP

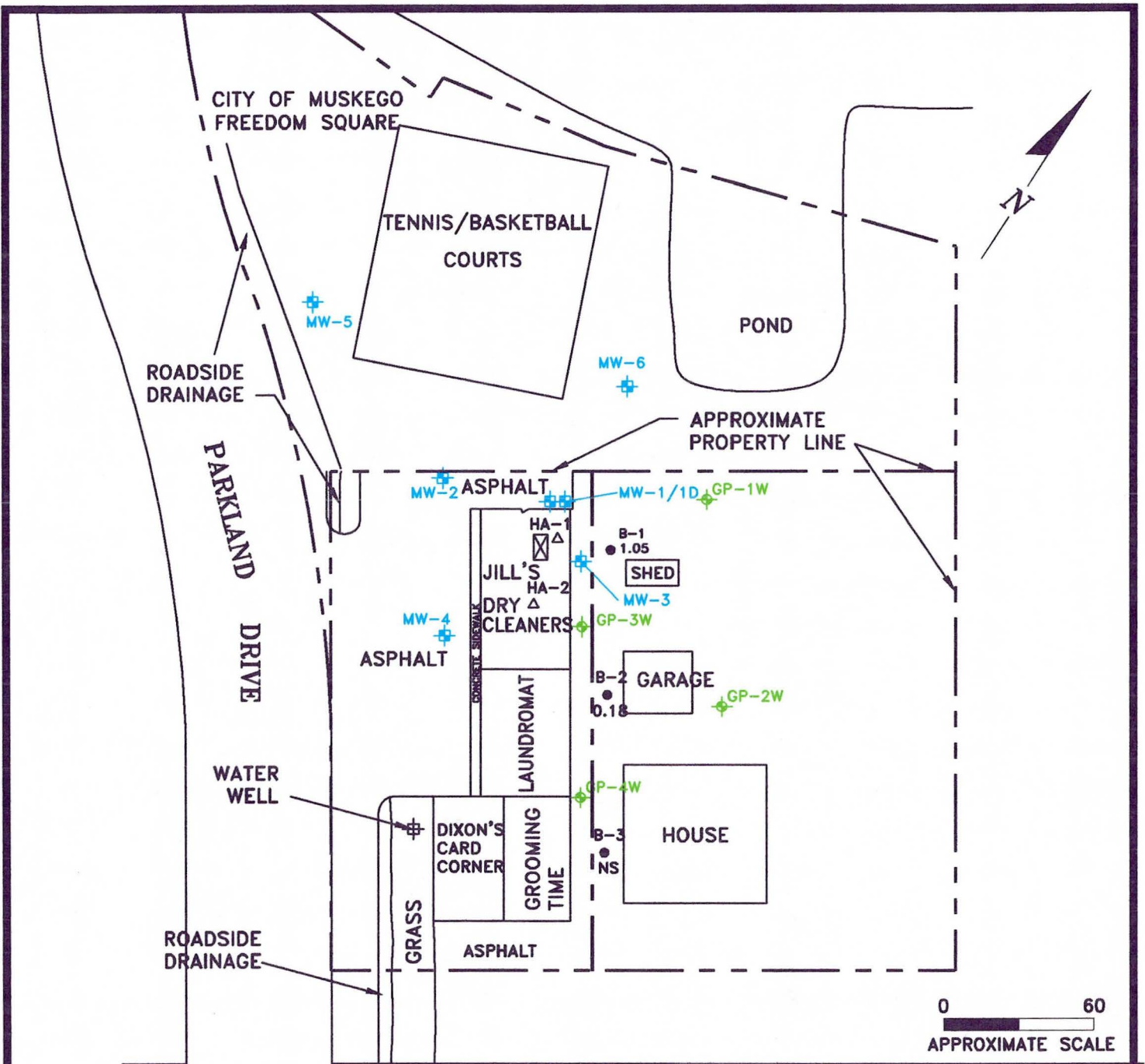
14665 West Lieben Road, Suite 28 Brookfield, Wisconsin 53005 Telephone 262-761-0475 Facsimile 262-761-0476  
 414 Plaza Drive, Suite 108 Woodmont, Illinois 60590 Telephone 630-325-1300 Facsimile 630-325-1593  
 1058 Killarney Drive Dyer, Indiana 46311 Telephone 219-865-6848 Facsimile 219-865-8587

Scale: 1:9,600

Date: November 7, 2005

KPRG Project No. 13905

FIGURE 1



**LEGEND**

- ☒ LOCATION OF DRY CLEANING MACHINE
- B-1 BENCHMARK ENVIRONMENTAL BORING WITH PCE SOIL CONCENTRATIONS IN mg/kg
- HA-1 PROPOSED HAND AUGER BORING
- GP-2 PROPOSED GEOPROBE BORING. "W" DESIGNATES A WATER SAMPLE ALSO COLLECTED AT THE LOCATION
- MW-4 PROPOSED MONITORING WELL LOCATION

ENVIRONMENTAL CONSULTATION & REMEDIATION

**K P R G**

KPRG and Associates, Inc.

14665 West Lisbon Road, Suite 28 Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478  
414 Plaza Drive, Suite 108 Westmont, Illinois 60089 Telephone 630-325-1300 Facsimile 630-325-1593

SITE MAP WITH PROPOSED BORING AND MONITORING WELL LOCATIONS

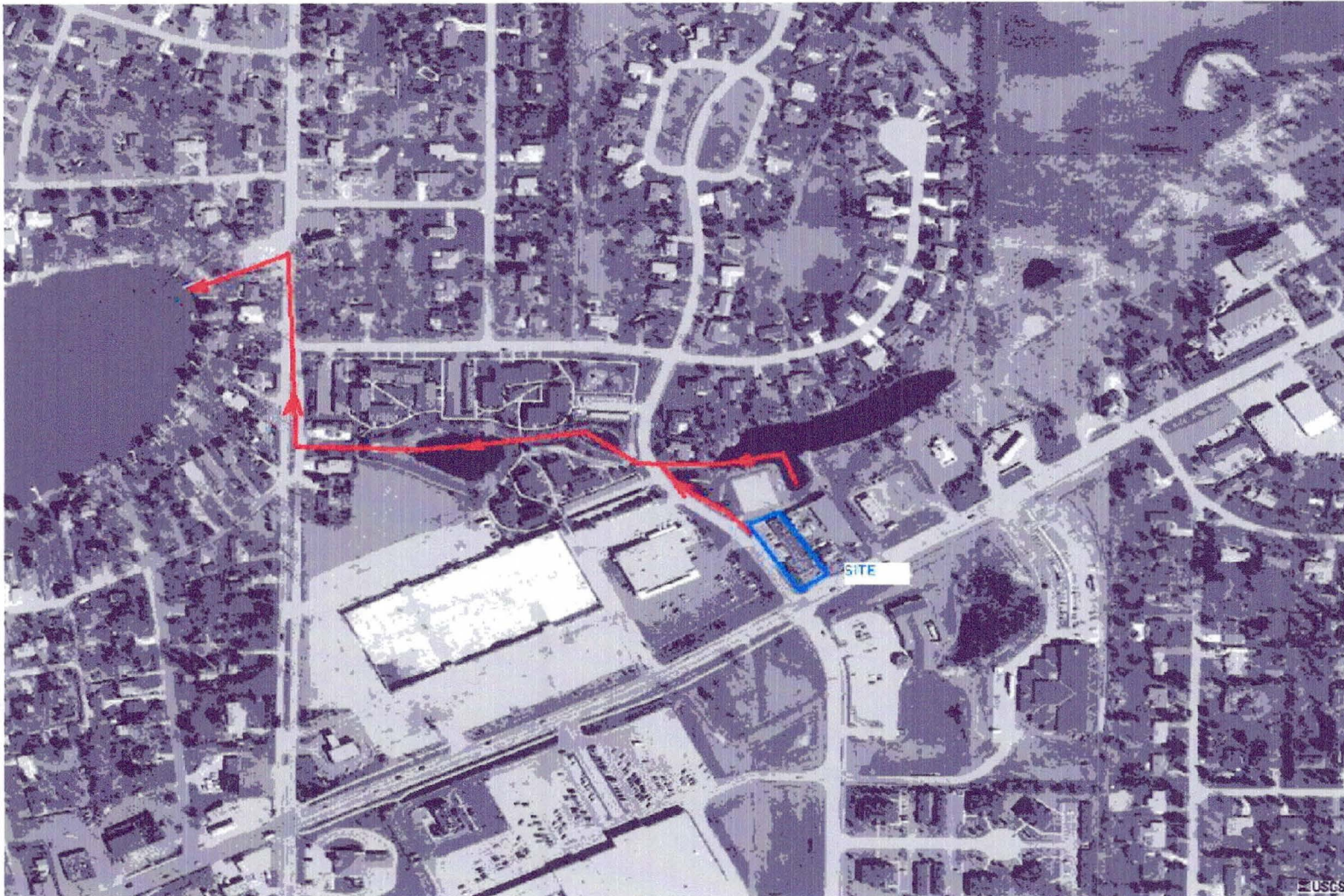
JILL'S DRY CLEANERS  
MUSKEGO, WISCONSIN

Scale: 1"=60'

Date: November 7, 2005

KPRG Project No. 13905

FIGURE 2



ENVIRONMENTAL CONSULTATION & REMEDIATION		LOCAL SURFACE DRAINAGE MAP	
<b>K P R G</b> <small>KPRG and Associates, Inc.</small> <small>14665 West Lisbon Road, Suite 28 Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478</small> <small>414 Plaza Drive, Suite 106 Westmont, Illinois 60550 Telephone 630-325-1300 Facsimile 630-325-1563</small>		Jill's Dry Cleaners Muskego, WI	
		Scale:	Date: November 7, 2005
		KPRG Project No.: 13905	FIGURE 3

## **TABLES**

**Table 1. Proposed Soil Boring Program Rationale**

SOIL BORING	DEPTH (ft)	ANALYSES	RATIONALE
GP-1	20	VOC	Define soil impacts to the east-northeast of previous boring B-1.
GP-2	20	VOC	Define soil impacts to the east of previous boring B-2.
GP-3	20	VOC, TOC	Define soil impacts to the east of building.
GP-4	20	VOC, TOC	Define soil impacts to the east of building.
HA-1	5	VOC	Define soil impacts beneath building floor.
HA-2	5	VOC	Define soil impacts beneath building floor.
MW-1	20	VOC, TOC	Define soil impacts to the north.
MW-2	20	VOC	Define soil impacts to the northwest.
MW-3	20	VOC	Define soil impacts to the east.
MW-4	20	VOC	Define soil impacts to the south-southwest.

Notes:

- 1) One soil sample will be collected from each of the above boring locations as discussed in Section 3.1.
- 3) A subset of three additional samples, from all borings, will be collected at a separate depth interval to assist in the vertical extent of soil impacts.
- 4) Ground water samples will be collected through each geoprobe boring as discussed in Section 3.2.1.
- 5) VOC - Volatile Organic Compounds
- 6) TOC - Total Organic Carbon

**Table 2. Proposed Monitoring Well Network and Rationale.**

WELL NO.	APPROX. DEPTH (feet bgs)	SCREEN LENGTH (feet)	RATIONALE
MW-1	20	10	Monitoring well set immediately downgradient of PCE storage area and at north end of building.
MW-2	20	10	Monitoring well set side/down gradient to the west of PCE storage area.
MW-3	20	10	Monitoring well set side/down gradient to the east of PCE storage area at property boundary.
MW-4	20	10	Upgradient well to determine background ground water quality.
MW-5	20	10	Evaluation of potential off-site, down-gradient impacts prior to surface water receptors.
MW-6	20	10	Evaluation of potential off-site, down-gradient impacts prior to surface water receptors.
MW-1D	40	5	Piezometer clustered next to shallow well MW-1 to assist in evaluating potential vertical extent of impacts.

Notes:

- 1) Ground water flow direction not documented but anticipated to be in a northerly direction influenced by the noted pond and surface water drainage ditch (see Section 2.1).
- 2) Soil samples will be collected for chemical analysis during the drilling of wells MW-1 through MW-4 to assist in defining the areal extent of soil impacts to the east, north and west (see Table 1).

**Table 3. Summary of Analytical Requirements**

MATRIX	ANALYTICAL PARAMETERS	NUMBER OF SAMPLES	SAMPLE BOTTLES	PRESERVATIVES	HOLDING TIME	ANALYTICAL METHOD	DETECTION LIMITS
Soil	Volatile Organic Compounds	13	1 - 2 oz. glass	Methanol, Cool to <4°C	21 days	SW-846 Method 8260B	Varies
	Total Organic Carbon	3	1 - 4 oz. glass	Cool to <4°C	28 days	SW-846 Method 9060	30 mg/kg
Water	Volatile Organic Compounds	36	3 - 40 ml. glass vials	Hydrochloric acid, Cool to <4°C	14 days to extraction	SW-846 Method 8260B	Varies
	Nitrate	16	1- 250 ml. plastic	None, Cool to <4°C	48 hours	EPA 300.0	0.50 mg/l
	Sulfide	16	1- 125 ml. plastic	Sodium Hydroxide/Zinc Acetate	7 days	SM 4500	0.2 mg/l
	Sulfate	16	1- 250 ml. plastic	None, Cool to <4°C	28 days	EPA 300.0	2.0 mg/l
	Dissolved Gasses (ethene/ethane/methane)	16	2 - 40 ml. glass vials	Hydrochloric acid, Cool to <4°C	14 days	Modified 8015	7 ug/l
	Total Organic Carbon (TOC)	16	1- 250 ml. plastic	None, Cool to <4°C	14 days	EPA 310.2	10 mg/l

Note: 25 to 35 grams of soil must be collected for VOC analyses.



## **APPENDICES**

**APPENDIX A**

**Olson Property Transaction Boring Logs**



140 East Ryan Road  
Oak Creek, Wisconsin 53154

Email: info@glalabs.com  
(414) 570-9460 FAX (414) 570-9461

25 March 2005

Mark Neuses  
Benchmark Environmental Services  
42199 N. Lake Ave.  
Antioch, IL 60002  
RE: Olson Outdoor

Enclosed are the results of analyses for samples received by the laboratory on 03/18/05. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

**Great Lakes Analytical**

Andrea Stathas  
Project Manager

- Route 10:  
 Solid Waste     Haz. Waste  
 Emergency Response     Underground Tanks  
 Wastewater     Water Resources  
 Other \_\_\_\_\_

Facility/Project Name: Olson Outdoor Power Equipment License/Permit/Monitoring Number: \_\_\_\_\_ Boring Number: B-1

Boring Drilled By (Firm name and name of crew chief): Terra Trace Date Drilling Started: 03/18/05 Date Drilling Completed: 03/18/05 Drilling Method: Geoprobe  
Dennis MM DD YY MM DD YY

DNR Facility Well No.: \_\_\_\_\_ Unique Well No.: \_\_\_\_\_ Common Well Name: \_\_\_\_\_ Final Static Water Level: \_\_\_\_\_ Feet MSL Surface Elevation: 760 Feet MSL Borehole Diameter: 2 inches

Boring Location: State Plane \_\_\_\_\_ N. \_\_\_\_\_ E S/C/N | Lat 42° 54' 60 Local Grid Location (if applicable):  N  E  
1/4 of 1/4 of Section \_\_\_\_\_, T 5 N R 20 EW Long 088° 07' 17 Feet  S \_\_\_\_\_ Feet  W

Country: Waukesha DNR County Code: \_\_\_\_\_ Civil Town/City/Village: Muskego

Sample Number	Sample Length Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties				RQD/Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	
1	46'		2	Organic topsoil				< 1 ppm	10%				
			4	trace stone									
2	42'		6	Silty clay				< 1 ppm	20%				
			8	silty clay									
3	46'		10	silty sand				< 1 ppm	10%				
			12	clay									
				Soil sampled at 6' BSG									

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Mark G. Neuses Firm: Benchmark Environmental Svc.

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

- Route 10:
- Solid Waste
  - Emergency Response
  - Wastewater
  - Haz. Waste
  - Underground Tanks
  - Water Resources
  - Other

Facility/Project Name: Olson Outdoor Power Equipment License/Permit/Monitoring Number: \_\_\_\_\_ Boring Number: B-2

Boring Drilled By (Firm name and name of crew chief): Terra Trace Date Drilling Started: 03/18/05 Date Drilling Completed: 03/18/05 Drilling Method: Geoprobe

Dennis

DNR Facility Well No: \_\_\_\_\_ Well Unique Well No: \_\_\_\_\_ Common Well Name: \_\_\_\_\_ Final Static Water Level: \_\_\_\_\_ Feet MSL Surface Elevation: 760 Feet MSL Borehole Diameter: 2 inches

Boring Location: State Plane \_\_\_\_\_ N, \_\_\_\_\_ E S/C/N Lat 42° 54' 60 Local Grid Location (If applicable): \_\_\_\_\_ N \_\_\_\_\_ E  
 \_\_\_\_\_ 1/4 of \_\_\_\_\_ 1/4 of Section \_\_\_\_\_, T 5 N R 20 W Long 088° 07' 17 Feet \_\_\_\_\_ S \_\_\_\_\_ Feet \_\_\_\_\_ W

County: Waukesha DNR County Code: \_\_\_\_\_ Civil Town/City/ or Village: Muskego

Sample Number	Length Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200		
1	44'		2	organic topsoil				< 1 ppm							
			4	silty clay											
2	48'		6	silty clay				1 ppm			20%				
			8	silty clay											
3	48'		10	silty clay											
			12	clay				< 1 ppm			10%				
				soil sampled at 6 1/2' BSG											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Mark G. Neuses Firm: Benchmark Environmental Svc.

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Facility/Project Name: Olson Outdoor Power Equipment License/Permit/Monitoring Number: \_\_\_\_\_ Boring Number: B-3

Boring Drilled By (Firm name and name of crew chief): Terra Trace - Dennis Date Drilling Started: 03/18/05 Date Drilling Completed: 03/18/05 Drilling Method: Geoprobe

DNR Facility Well No.: \_\_\_\_\_ Well Name: \_\_\_\_\_ Common Well Name: \_\_\_\_\_ Final Static Water Level: \_\_\_\_\_ Feet MSL Surface Elevation: 760 Feet MSL Borehole Diameter: 2 inches

Boring Location: State Plane \_\_\_\_\_ N \_\_\_\_\_ E S/C/N Lat 42° 54' 60 Local Grid Location (if applicable): \_\_\_\_\_  N \_\_\_\_\_  E  
1/4 of \_\_\_\_\_ 1/4 of Section \_\_\_\_\_ T 5 R 20  W Long 088° 07' 17 Feet  S \_\_\_\_\_ Feet  W

County: Waukesha DNR County Code: \_\_\_\_\_ Civil Town/City/ or Village: Muskego

Sample Number	Length Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					ROD/ Comments
									Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	
1	46'		2	Organic topsoil				< 1 ppm		10%				
			4	silty clay										
2	46'		6	silty clay				< 1 ppm		10%				
			8	Silty clay										
3	48'		10	silty clay				< 1 ppm		10%				
			12	dense clay										
				No sample taken										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Mark G. Neuses Firm: Benchmark Environmental Svc

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

**APPENDIX B**

**Olson Property Transaction Analytical Data**



**GREAT  
LAKES  
ANALYTICAL**

140 East Ryan Road  
Oak Creek, Wisconsin 53154

Email: info@glalabs.com  
(414) 570-9460 FAX (414) 570-9461

Benchmark Environmental Services  
42199 N. Lake Ave.  
Antioch, IL 60002

Project: Olson Outdoor  
Project Number: 05248  
Project Manager: Mark Neuses

Reported:  
03/25/05 13:11

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B1	W503155-01	Soil	03/18/05 11:00	03/18/05 14:20
B2	W503155-02	Soil	03/18/05 11:00	03/18/05 14:20

**Sample Receipt Notes**

Please note that the chain of custody (COC) included with this report is considered part of the report. The data user should review any comments or notes made on the COC. Any receipt issues found by the laboratory that are not noted on the COC will be stated below.

Great Lakes Analytical—Oak Creek

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

*Andrea Stathas*

Andrea Stathas, Project Manager





140 East Ryan Road  
Oak Creek, Wisconsin 53154

Email: info@glalabs.com  
(414) 570-9460 FAX (414) 570-9461

Benchmark Environmental Services 42199 N. Lake Ave. Antioch, IL 60002	Project: Olson Outdoor Project Number: 05248 Project Manager: Mark Neuses	Reported: 03/25/05 13:11
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**WDNR Volatile Organic Compounds by Method 8260  
Great Lakes Analytical-Oak Creek**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
B1 (W503155-01) Soil Sampled: 03/18/05 11:00 Received: 03/18/05 14:20 <span style="float:right">QC</span>									
Benzene	ND	25.0	ug/kg dry	.50	5030056	03/22/05	03/22/05	EPA 8260B	
Bromobenzene	ND	25.0	"	"	"	"	"	"	
Bromodichloromethane	ND	25.0	"	"	"	"	"	"	
n-Butylbenzene	ND	25.0	"	"	"	"	"	"	
sec-Butylbenzene	ND	25.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	25.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	25.0	"	"	"	"	"	"	
Chlorobenzene	ND	25.0	"	"	"	"	"	"	
Chloroethane	ND	25.0	"	"	"	"	"	"	
Chloroform	ND	25.0	"	"	"	"	"	"	
Chloromethane	ND	25.0	"	"	"	"	"	"	
2-Chlorotoluene	ND	25.0	"	"	"	"	"	"	
4-Chlorotoluene	ND	25.0	"	"	"	"	"	"	
Dibromochloromethane	ND	25.0	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	25.0	"	"	"	"	"	"	
1,2-Dibromoethane	ND	25.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	25.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	25.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	25.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	25.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	52.3	25.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	25.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	25.0	"	"	"	"	"	"	
1,3-Dichloropropane	ND	25.0	"	"	"	"	"	"	
2,2-Dichloropropane	ND	25.0	"	"	"	"	"	"	
Di-isopropyl ether	ND	25.0	"	"	"	"	"	"	
Ethylbenzene	ND	25.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	25.0	"	"	"	"	"	"	
Isopropylbenzene	ND	25.0	"	"	"	"	"	"	
p-Isopropyltoluene	ND	25.0	"	"	"	"	"	"	
Methylene chloride	ND	100	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	25.0	"	"	"	"	"	"	
Naphthalene	ND	25.0	"	"	"	"	"	"	
n-Propylbenzene	ND	25.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	25.0	"	"	"	"	"	"	
Tetrachloroethene	1030	25.0	"	"	"	"	"	"	
Toluene	ND	25.0	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	25.0	"	"	"	"	"	"	

Great Lakes Analytical-Oak Creek

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*Andrea Stathas*

Andrea Stathas, Project Manager



140 East Ryan Road  
Oak Creek, Wisconsin 53154

Email: info@glalabs.com  
(414) 570-9460 FAX (414) 570-9461

Benchmark Environmental Services  
42199 N. Lake Ave.  
Antioch, IL 60002

Project: Olson Outdoor  
Project Number: 05248  
Project Manager: Mark Neuses

Reported:  
03/25/05 13:11

WDNR Volatile Organic Compounds by Method 8260  
Great Lakes Analytical—Oak Creek

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>B1 (W503155-01) Soil</b> Sampled: 03/18/05 11:00 Received: 03/18/05 14:20 <span style="float:right">QC</span>									
1,1,1-Trichloroethane	ND	25.0	ug/kg dry	50	5030056	03/22/05	03/22/05	EPA 8260B	
1,1,2-Trichloroethane	ND	25.0	"	"	"	"	"	"	
Trichloroethene	111	25.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	25.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	25.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	25.0	"	"	"	"	"	"	
Vinyl chloride	ND	25.0	"	"	"	"	"	"	
Total Xylenes	ND	25.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		94.3 %	65.4-150	"	"	"	"	"	
Surrogate: Dibromofluoromethane		97.0 %	71.1-141	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		143 %	66.8-137	"	"	"	"	"	H
Surrogate: Toluene-d8		128 %	68.5-146	"	"	"	"	"	

**B2 (W503155-02) Soil** Sampled: 03/18/05 11:00 Received: 03/18/05 14:20 QC

Benzene	ND	25.0	ug/kg dry	50	5030056	03/22/05	03/22/05	EPA 8260B	
Bromobenzene	ND	25.0	"	"	"	"	"	"	
Bromodichloromethane	ND	25.0	"	"	"	"	"	"	
n-Butylbenzene	ND	25.0	"	"	"	"	"	"	
sec-Butylbenzene	ND	25.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	25.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	25.0	"	"	"	"	"	"	
Chlorobenzene	ND	25.0	"	"	"	"	"	"	
Chloroethane	ND	25.0	"	"	"	"	"	"	
Chloroform	ND	25.0	"	"	"	"	"	"	
Chloromethane	ND	25.0	"	"	"	"	"	"	
2-Chlorotoluene	ND	25.0	"	"	"	"	"	"	
4-Chlorotoluene	ND	25.0	"	"	"	"	"	"	
Dibromochloromethane	ND	25.0	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	25.0	"	"	"	"	"	"	
1,2-Dibromoethane	ND	25.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	25.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	25.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	25.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	25.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	25.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	25.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	25.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	25.0	"	"	"	"	"	"	
1,3-Dichloropropane	ND	25.0	"	"	"	"	"	"	
2,2-Dichloropropane	ND	25.0	"	"	"	"	"	"	

Great Lakes Analytical—Oak Creek

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*Andrea Stathas*

Andrea Stathas, Project Manager



140 East Ryan Road  
Oak Creek, Wisconsin 53154

Email: info@glalabs.com  
(414) 570-9460 FAX (414) 570-9461

Benchmark Environmental Services 42199 N. Lake Ave. Antioch, IL 60002	Project: Olson Outdoor Project Number: 05248 Project Manager: Mark Neuses	Reported: 03/25/05 13:11
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**WDNR Volatile Organic Compounds by Method 8260  
Great Lakes Analytical-Oak Creek**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
B2 (W503155-02) Soil Sampled: 03/18/05 11:00 Received: 03/18/05 14:20 <span style="float:right">QC</span>									
Di-isopropyl ether	ND	25.0	ug/kg dry	50	5030056	03/22/05	03/22/05	EPA 8260B	
Ethylbenzene	ND	25.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	25.0	"	"	"	"	"	"	
Isopropylbenzene	ND	25.0	"	"	"	"	"	"	
p-Isopropyltoluene	ND	25.0	"	"	"	"	"	"	
Methylene chloride	ND	100	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	25.0	"	"	"	"	"	"	
Naphthalene	ND	25.0	"	"	"	"	"	"	
n-Propylbenzene	ND	25.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	25.0	"	"	"	"	"	"	
Tetrachloroethene	180	25.0	"	"	"	"	"	"	
Toluene	ND	25.0	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	25.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	25.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	25.0	"	"	"	"	"	"	
Trichloroethene	ND	25.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	25.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	25.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	25.0	"	"	"	"	"	"	
Vinyl chloride	ND	25.0	"	"	"	"	"	"	
Total Xylenes	ND	25.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		95.5 %	65.4-150	"	"	"	"	"	
Surrogate: Dibromofluoromethane		96.9 %	71.1-141	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		141 %	66.8-137	"	"	"	"	"	H
Surrogate: Toluene-d8		129 %	68.5-146	"	"	"	"	"	

Great Lakes Analytical-Oak Creek

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*Andrea Stathas*

Andrea Stathas, Project Manager



**GREAT  
LAKES  
ANALYTICAL**

140 East Ryan Road  
Oak Creek, Wisconsin 53154

Email: info@glalabs.com  
(414) 570-9460 FAX (414) 570-9461

Benchmark Environmental Services  
42199 N. Lake Ave.  
Antioch, IL 60002

Project: Olson Outdoor  
Project Number: 05248  
Project Manager: Mark Ncuses

Reported:  
03/25/05 13:11

**Percent Solids**

**Great Lakes Analytical--Oak Creek**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>B1 (W503155-01) Soil</b> Sampled: 03/18/05 11:00 Received: 03/18/05 14:20									
% Solids	83.2	0.200	%	1	5030069	03/24/05	03/25/05	5035 7.5	
<b>B2 (W503155-02) Soil</b> Sampled: 03/18/05 11:00 Received: 03/18/05 14:20									
% Solids	85.4	0.200	%	1	5030069	03/24/05	03/25/05	5035 7.5	

Great Lakes Analytical--Oak Creek

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*Andrea Stathas*

Andrea Stathas, Project Manager

Page 5 of 12



140 East Ryan Road  
Oak Creek, Wisconsin 53154

Email: info@glalabs.com  
(414) 570-9460 FAX (414) 570-9461

Benchmark Environmental Services 42199 N. Lake Ave. Antioch, IL 60002	Project: Olson Outdoor Project Number: 05248 Project Manager: Mark Neucus	Reported: 03/25/05 13:11
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**WDNR Volatile Organic Compounds by Method 8260 - Quality Control  
Great Lakes Analytical-Oak Creek**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch 5030056 - EPA 5030B (P/T)**

**Blank (5030056-BLK1)**

Prepared: 03/21/05 Analyzed: 03/23/05

Benzene	ND	25.0	ng/kg wot							
Bromobenzene	ND	25.0	"							
Bromodichloromethane	ND	25.0	"							
n-Butylbenzene	ND	25.0	"							
sec-Butylbenzene	ND	25.0	"							
tert-Butylbenzene	ND	25.0	"							
Carbon tetrachloride	ND	25.0	"							
Chlorobenzene	ND	25.0	"							
Chloroethane	ND	25.0	"							
Chloroform	ND	25.0	"							
Chloromethane	ND	25.0	"							
2-Chlorotoluene	ND	25.0	"							
4-Chlorotoluene	ND	25.0	"							
Dibromochloromethane	ND	25.0	"							
1,2-Dibromo-3-chloropropane	ND	25.0	"							
1,2-Dibromochloroethane	ND	25.0	"							
1,2-Dichlorobenzene	ND	25.0	"							
1,3-Dichlorobenzene	ND	25.0	"							
1,4-Dichlorobenzene	ND	25.0	"							
Dichlorodifluoromethane	ND	25.0	"							
1,1-Dichloroethane	ND	25.0	"							
1,2-Dichloroethane	ND	25.0	"							
1,1-Dichloroethene	ND	25.0	"							
cis-1,2-Dichloroethene	ND	25.0	"							
trans-1,2-Dichloroethene	ND	25.0	"							
1,2-Dichloropropane	ND	25.0	"							
1,3-Dichloropropane	ND	25.0	"							
2,2-Dichloropropane	ND	25.0	"							
Di-isopropyl ether	ND	25.0	"							
Ethylbenzene	ND	25.0	"							
Hexachlorobutadiene	ND	25.0	"							
Isopropylbenzene	ND	25.0	"							
p-Isopropyltoluene	ND	25.0	"							
Methylene chloride	ND	100	"							
Methyl tert-butyl ether	ND	25.0	"							

Great Lakes Analytical-Oak Creek

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Andreea Stathas, Project Manager



140 East Ryan Road  
Oak Creek, Wisconsin 53154

Email: info@glalabs.com  
(414) 570-9460 FAX (414) 570-9461

Benchmark Environmental Services  
42199 N. Lake Ave.  
Antioch, IL 60002

Project: Olson Outdoor  
Project Number: 05248  
Project Manager: Mark Neuses

Reported:  
03/25/05 13:11

WDNR Volatile Organic Compounds by Method 8260 - Quality Control  
Great Lakes Analytical-Oak Creek

Analytic	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5030056 - EPA 5030B (P/T)

Blank (5030056-BLKI)

Prepared: 03/21/05 Analyzed: 03/23/05

Naphthalene	ND	25.0	ug/kg wct							
n-Propylbenzene	ND	25.0	"							
1,1,2,2-Tetrachloroethane	ND	25.0	"							
Tetrachloroethene	ND	25.0	"							
Toluene	ND	25.0	"							
1,2,3-Trichlorobenzene	ND	25.0	"							
1,2,4-Trichlorobenzene	ND	25.0	"							
1,1,1-Trichloroethane	ND	25.0	"							
1,1,2-Trichloroethane	ND	25.0	"							
Trichloroethane	ND	25.0	"							
Trichlorofluoromethane	ND	25.0	"							
1,2,4-Trimethylbenzene	ND	25.0	"							
1,3,5-Trimethylbenzene	ND	25.0	"							
Vinyl chloride	ND	25.0	"							
Total Xylenes	ND	25.0	"							
Surrogate: 1,2-Dichloroethane-d4	3160		"	2500		126	65.4-150			
Surrogate: Dibromofluoromethane	2810		"	2500		112	71.1-141			
Surrogate: 4-Bromofluorobenzene	3770		"	2500		151	66.8-137			H
Surrogate: Toluene-d8	4740		"	2500		190	68.5-146			H

LCS (5030056-BS1)

Prepared: 03/21/05 Analyzed: 03/23/05

Benzene	1100	25.0	ug/kg wct	1000		110	82-129			
Bromobenzene	1110	25.0	"	1000		111	83.8-125			
Bromodichloromethane	1070	25.0	"	1000		107	81.1-137			
n-Butylbenzene	1200	25.0	"	1000		120	65.1-134			
sco-Butylbenzene	1010	25.0	"	1000		101	65.3-139			
tert-Butylbenzene	1140	25.0	"	1000		114	63.7-138			
Carbon tetrachloride	948	25.0	"	1000		94.8	58.3-137			
Chlorobenzene	1180	25.0	"	1000		118	79-128			
Chloroethane	913	25.0	"	1000		91.3	57.8-136			
Chloroform	1010	25.0	"	1000		101	77.2-141			
Chloromethane	844	25.0	"	1000		84.4	40.7-134			
2-Chlorotoluene	1110	25.0	"	1000		111	66-138			
4-Chlorotoluene	1150	25.0	"	1000		115	74.4-138			
Dibromochloromethane	1250	25.0	"	1000		125	71.5-112			H
1,2-Dibromo-3-chloropropane	1130	25.0	"	1000		113	70.5-124			

Great Lakes Analytical-Oak Creek

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*Andrea Stathas*

Andrea Stathas, Project Manager



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Oak Creek, Wisconsin 53154

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WDNR Volatile Organic Compounds by Method 8260 - Quality Control  
Great Lakes Analytical--Oak Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5030056 - EPA 5030B (P/T)										
LCS (5030056-BS1) Prepared: 03/21/05 Analyzed: 03/23/05										
1,2-Dibromoethane	1270	25.0	ug/kg wct	1000	127	84.8	84.8-118			H
1,2-Dichlorobenzene	1100	25.0	"	1000	110	90.7	90.7-124			
1,3-Dichlorobenzene	1080	25.0	"	1000	108	85.8	85.8-123			
1,4-Dichlorobenzene	1040	25.0	"	1000	104	82.2	82.2-120			
Dichlorodifluoromethane	753	25.0	"	1000	75.3	48.8	48.8-129			
1,1-Dichloroethane	1020	25.0	"	1000	102	79.4	79.4-138			
1,2-Dichloroethane	1030	25.0	"	1000	103	72.7	72.7-139			
1,1-Dichloroethene	898	25.0	"	1000	89.8	62.3	62.3-128			
cis-1,2-Dichloroethene	1070	25.0	"	1000	107	87.8	87.8-131			
trans-1,2-Dichloroethene	1010	25.0	"	1000	101	70.2	70.2-136			
1,2-Dichloropropane	1110	25.0	"	1000	111	90.5	90.5-126			
1,3-Dichloropropane	1190	25.0	"	1000	119	86.1	86.1-115			H
2,2-Dichloropropane	1020	25.0	"	1000	102	64.8	64.8-135			
Di-isopropyl ether	2070	25.0	"	1000	207	67.2	67.2-132			H
Ethylbenzene	1140	25.0	"	1000	114	73	73-140			
Hexachlorobutadiene	1170	25.0	"	1000	117	78.3	78.3-132			
Isopropylbenzene	1110	25.0	"	1000	111	63.5	63.5-144			
p-Isopropyltoluene	1180	25.0	"	1000	118	61.1	61.1-142			
Methylene chloride	890	100	"	1000	89.0	77.4	77.4-134			
Methyl tert-butyl ether	982	25.0	"	1000	98.2	73	73-131			
Naphthalene	1130	25.0	"	1000	113	71	71-136			
n-Propylbenzene	1100	25.0	"	1000	110	64.7	64.7-142			
1,1,2,2-Tetrachloroethane	1060	25.0	"	1000	106	75.9	75.9-124			
Tetrachloroethene	1230	25.0	"	1000	123	74.8	74.8-122			H
Toluene	1020	25.0	"	1000	102	71.3	71.3-127			
1,2,3-Trichlorobenzene	1100	25.0	"	1000	110	77.8	77.8-133			
1,2,4-Trichlorobenzene	1110	25.0	"	1000	111	74.6	74.6-125			
1,1,1-Trichloroethane	1130	25.0	"	1000	113	63.4	63.4-145			
1,1,2-Trichloroethane	1260	25.0	"	1000	126	88	88-122			H
Trichloroethene	1130	25.0	"	1000	113	83.9	83.9-128			
Trichlorofluoromethane	989	25.0	"	1000	98.9	64.9	64.9-143			
1,2,4-Trimethylbenzene	1190	25.0	"	1000	119	63.8	63.8-139			
1,3,5-Trimethylbenzene	1150	25.0	"	1000	115	60.2	60.2-142			
Vinyl chloride	803	25.0	"	1000	80.3	56.6	56.6-143			
Total Xylenes	3590	25.0	"	3000	120	75.5	75.5-129			

Great Lakes Analytical--Oak Creek

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*Andrea Stathas*

Andrea Stathas, Project Manager



140 East Ryan Road  
Oak Creek, Wisconsin 53154

Email: info@glalabs.com  
(414) 570-9460 FAX (414) 570-9461

Benchmark Environmental Services  
42199 N. Lake Ave.  
Antioch, IL 60002

Project: Olson Outdoor  
Project Number: 05248  
Project Manager: Mark Neuses

Reported:  
03/25/05 13:11

WDNR Volatile Organic Compounds by Method 8260 - Quality Control  
Great Lakes Analytical--Oak Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5030056 - EPA 5030B (P/T)

LCS (5030056-BS1)

Prepared: 03/21/05 Analyzed: 03/23/05

Surrogate: 1,2-Dichloroethane-d4	3230		ug/kg wet	2500		129	65.4-130			
Surrogate: Dibromofluoromethane	2790		"	2500		112	71.1-141			
Surrogate: 4-Bromofluorobenzene	3670		"	2500		144	66.8-137			H
Surrogate: Toluene-d8	4330		"	2500		173	68.5-146			H

LCS Dup (5030056-BS1)

Prepared: 03/21/05 Analyzed: 03/23/05

Benzene	1150	25.0	ug/kg wet	1000		115	82-129	4.44	16.1	
Bromobenzene	1180	25.0	"	1000		118	83.8-125	6.11	17.1	
Bromodichloromethane	1120	25.0	"	1000		112	81.1-137	4.57	16	
n-Butylbenzene	1310	25.0	"	1000		131	65.1-134	8.76	19.7	
sec-Butylbenzene	1090	25.0	"	1000		109	65.3-139	7.62	21.7	
tert-Butylbenzene	1180	25.0	"	1000		118	63.7-138	3.45	19.6	
Carbon tetrachloride	984	25.0	"	1000		98.4	58.3-137	3.73	22.1	
Chlorobenzene	1260	25.0	"	1000		126	79-128	6.56	13.4	
Chloroethane	1060	25.0	"	1000		106	57.8-136	14.9	40	
Chloroform	1090	25.0	"	1000		109	77.2-141	7.62	19.1	
Chloromethane	1100	25.0	"	1000		110	40.7-134	26.3	36	
2-Chlorotoluene	1190	25.0	"	1000		119	66-138	6.96	17.9	
4-Chlorotoluene	1220	25.0	"	1000		122	74.4-138	5.91	21.6	
Dibromochloromethane	1340	25.0	"	1000		134	71.5-112	6.95	11.1	H
1,2-Dibromo-3-chloropropane	1200	25.0	"	1000		120	70.5-124	6.01	18.2	
1,2-Dibromoethane	1360	25.0	"	1000		136	84.8-118	6.84	11.3	H
1,2-Dichlorobenzene	1180	25.0	"	1000		118	90.7-124	7.02	17.7	
1,3-Dichlorobenzene	1170	25.0	"	1000		117	85.8-123	8.00	20.7	
1,4-Dichlorobenzene	1110	25.0	"	1000		111	82.2-120	6.51	21.8	
Dichlorodifluoromethane	820	25.0	"	1000		82.0	48.8-129	8.52	13.4	
1,1-Dichloroethane	1080	25.0	"	1000		108	79.4-138	5.71	21.3	
1,2-Dichloroethane	1100	25.0	"	1000		110	72.7-139	6.57	15.7	
1,1-Dichloroethene	952	25.0	"	1000		95.2	62.3-128	5.84	27.8	
cis-1,2-Dichloroethene	1100	25.0	"	1000		110	87.8-131	2.76	17.3	
trans-1,2-Dichloroethene	1050	25.0	"	1000		105	70.2-136	3.88	20.2	
1,2-Dichloropropane	1190	25.0	"	1000		119	90.5-126	6.96	16.9	
1,3-Dichloropropane	1190	25.0	"	1000		119	86.1-115	0.00	10.1	H
2,2-Dichloropropane	1070	25.0	"	1000		107	64.8-135	4.78	22.2	
Di-isopropyl ether	2200	25.0	"	1000		220	67.2-132	6.09	11.6	H
Ethylbenzene	1170	25.0	"	1000		117	73-140	2.60	17.3	

Great Lakes Analytical--Oak Creek

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*Andrea Stathas*

Andrea Stathas, Project Manager





**GREAT  
LAKES  
ANALYTICAL**

140 East Ryan Road  
Oak Creek, Wisconsin 53154

Email: info@glalabs.com  
(414) 570-9460 FAX (414) 570-9461

Benchmark Environmental Services  
42199 N. Lake Ave.  
Antioch, IL 60002

Project: Olson Outdoor  
Project Number: 05248  
Project Manager: Mark Neuses

Reported:  
03/25/05 13:11

**WDNR Volatile Organic Compounds by Method 8260 - Quality Control**  
**Great Lakes Analytical—Oak Creek**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 5030056 - EPA 5030B (P/T)</b>									
<b>LCS Dup (5030056-BSDI)</b>									
					Prepared: 03/21/05 Analyzed: 03/23/05				
Hexachlorobutadiene	1240	25.0	ug/kg wet	1000	124	78.3-132	5.81	25.5	
Isopropylbenzene	1180	25.0	"	1000	118	63.5-144	6.11	17.1	
p-Isopropyltoluene	1290	25.0	"	1000	129	61.1-142	8.91	22	
Methylene chloride	1010	100	"	1000	101	77.4-134	12.6	17.4	
Methyl tert-butyl ether	1030	25.0	"	1000	103	73-131	4.77	11.3	
Naphthalene	1200	25.0	"	1000	120	71-136	6.01	23.5	
m-Propylbenzene	1150	25.0	"	1000	115	64.7-142	4.44	20.2	
1,1,2,2-Tetrachloroethane	1130	25.0	"	1000	113	75.9-124	6.39	16.3	
Tetrachloroethene	1280	25.0	"	1000	128	74.8-122	3.98	18.4	H
Toluene	1050	25.0	"	1000	105	71.3-127	2.90	16.8	
1,2,3-Trichlorobenzene	1190	25.0	"	1000	119	77.8-133	7.86	24.9	
1,2,4-Trichlorobenzene	1190	25.0	"	1000	119	74.6-125	6.96	15.2	
1,1,1-Trichloroethane	1170	25.0	"	1000	117	63.4-145	3.48	21.5	
1,1,2-Trichloroethane	1280	25.0	"	1000	128	88-122	1.57	10.1	H
Trichloroethene	1190	25.0	"	1000	119	83.9-128	5.17	16.2	
Trichlorofluoromethane	1040	25.0	"	1000	104	64.9-143	5.03	27.4	
1,2,4-Trimethylbenzene	1280	25.0	"	1000	128	63.8-139	7.29	19.9	
1,3,5-Trimethylbenzene	1280	25.0	"	1000	128	60.2-142	10.7	21.2	
Vinyl chloride	828	25.0	"	1000	82.8	56.6-143	3.07	40	
Total Xylenes	3880	25.0	"	3000	129	75.5-129	7.76	15	
Surrogate: 1,2-Dichloroethane-d4	3390	"	"	2500	136	65.4-150			
Surrogate: Dibromofluoromethane	2890	"	"	2500	116	71.1-141			
Surrogate: 4-Bromofluorobenzene	3900	"	"	2500	156	66.8-137			H
Surrogate: Toluene-d8	4440	"	"	2500	178	68.5-146			H

Great Lakes Analytical—Oak Creek

*Andrea Stathas*

Andrea Stathas, Project Manager

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Client: <u>Benchmark Environmental Svcs.</u>		Bill To: <u>Same</u>		TAT: <u>STD.</u> 4 DAY 3 DAY 2 DAY 1 DAY <24 HRS.	
Address: <u>23540 Beach Grove Rd</u>		Address:		<input checked="" type="checkbox"/> YES - TAT is critical <input type="checkbox"/> NO - TAT is not critical Received at laboratory: <input type="checkbox"/> ambient <input checked="" type="checkbox"/> ice	
Report to: <u>mark</u> E-mail:		Phone #: <u>(847) 638 5811</u> Fax #: <u>(847) 638 5815</u>		State & WT Program: <u>WI</u> Phone #: <u>( )</u> Fax #: <u>( )</u>	
Project Name: <u>Olsen Outdoor</u> Project #/PO#: <u>05248</u> Sampler: <u>mark</u>		Deliverable Package: <input type="checkbox"/> STD <input type="checkbox"/> Other		Delivery Method: GLA <input type="checkbox"/> Client <input type="checkbox"/> Shipped <input type="checkbox"/> Courier <input type="checkbox"/>	

FIELD ID, LOCATION	DATE COLLECTED	TIME COLLECTED	SAMPLE MATRIX	# of Bottles Preservative Used						TOTAL # OF BOTTLES	DO NOT DRY-WEIGHT CORRECT RESULTS	SAMPLES FIELD FILTERED <input type="checkbox"/> YES <input type="checkbox"/> NO	SAMPLE CONTROL CRACKED-BROKEN IMPROPERLY SEALED	LABORATORY ID NUMBER
				MeOH	NaHSO4	HCl	HNO3	H2SO4	NaOH					
1 A-1 PID: 41	3/18	1100pm	Soil	1						12		X		
2 B-2 PID: 41	3/18	↓	↓	1						12		X		
3 PID:														
4 PID:														
5 PID:														
6 PID:														
7 PID:														
8 PID:														
9 PID:														
10 PID:														

RELINQUISHED	DATE	RECEIVED	DATE	RELINQUISHED	DATE	RECEIVED	DATE
<u>Mark G. ...</u>	<u>3-18-05</u>	<u>White</u>	<u>3/18/05</u>				