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August 15, 2017

Mr. Paul Grittner
Wisconsin Department of Natural Resources
101 S. Webster Street
Post Office Box 7921
Madison Wisconsin 53707-7921

Via Email: paul.grittner@wisconsin.gov

Reference: *Review of Site Investigation Work Plan*
Mid-America Steel Drum Company Inc/Kitzinger
2529 E Norwich Avenue, St. Francis, WI
WDNR FID #241063570; BRRTS # 02-41-560089

KEY ENGINEERING GROUP, LTD.
File No. 1703-0866

Dear Mr. Grittner:

Key Engineering Group, Ltd (KEY) received your letter dated June 5, 2017 pertaining to a *Work Plan for Completion of Site Evaluation* (*Work Plan*) dated April 24, 2017. The *Work Plan* was prepared for the property located at 2529 E Norwich Avenue, St. Francis, Wisconsin (site, or subject property).

On behalf of Mid-America Steel Drum Company (Mid-America), KEY has prepared the following responses to each of the items presented in your June 5, 2017 letter. A *Revised Work Plan for Completion of Site Evaluation* is enclosed.

Background
A release of volatile organic compounds (VOCs), including chlorinated solvents was reported at the subject property. Site investigation activity completed by KEY at the subject property revealed predominantly chlorinated solvents and daughter compounds resulting from anaerobic degradation in soil and groundwater samples.

DF, Inc. operated at the parcel located north of the subject property between the late 1940s to the late 1990s. DF, Inc. reportedly stored and dispensed solvents using a 200 gallon above ground storage tank (AST) located on the adjacent parcel, near the current location of MW-2. In addition, a vapor degreaser and paint booth were operated at the DF, Inc. facility in buildings abutting the subject property.

A machine shop reportedly operated at the southwest corner of the subject property until the mid to late 1970s (Janard 2010). This parcel faced South Pennsylvania Avenue and appears to have been incorporated into the Kitzinger property. No information has been found that indicates what activity had taken place at this facility or if a release of any regulated substance occurred.

Drum reconditioning is known to have occurred at the subject property. There appears to be significant, long-term use (approximately 50 years) of solvents at the adjacent DF, Inc. property.

In addition, a solvent degreaser was used at the adjacent DF, Inc. site that likely contained contaminants detected in samples collected at the subject property. The similar releases that appear to occur within 70 feet of each other suggests the possibility of commingled plumes.

1) ***Describe how the relevant items listed under Wis. Admin. Code § NR 716.07 were evaluated to ensure that the scope and detail of the proposed field investigation are appropriate to the complexity of the site.***

Wisconsin Administrative Code (WAC) Chapter NR 716.11 presents an overview of the elements generally required to complete a field investigation. Among these relevant items, the responsible party or owner of a source property is required to determine the nature, degree, and extent of the hazardous substances or environmental pollution in all affected media, horizontally and vertically. In addition, determining the mass of contamination at the source area, evaluating potential receptors, and estimating groundwater flow rates for dissolved phase impacts, are necessary. KEY intends to gather the necessary information for a complete site investigation and submit a Site Investigation Report for WDNR review.

When considering previous activity at parcels adjacent to the subject property and the soil and groundwater sample locations and analytical results, there appears to be possible commingled hydrocarbon impacts. As investigation data is gathered, this data must be evaluated to allow a determination whether separate source plumes have been encountered and the relationships between those plumes.

As noted in Item 1 above, this is a complex site. The subject property is located among other release sites in close proximity. Other sources and/or other plumes may be encountered during the investigation proposed in the *Work Plan*. Accordingly, KEY recommends a phased approach to delineate the impacts that resulted from a release at the subject property. Ultimately, KEY will complete a field investigation that will conform with NR 716.11 and submit a Site Investigation Report for WDNR review and concurrence. The Site Investigation Report will detail the extent of and degree of impacts, and will meet NR 716.15.

2) ***Wis. Admin. Code §§ NR 716.11(3)(a) to (d) defines the purpose of the field investigation which are described below. When preparing a revised work plan ensure that the proposed investigation will achieve these objectives.***

a) ***Determine the nature, degree, and extent (both areal and vertical) of pollution.***

KEY will support our client in determining the nature, degree, and extent of VOC impacts that resulted from the release that occurred at the subject property. KEY will advise the responsible party to comply with NR 700 and KEY supports a path to eventual case closure.

i) ***Groundwater samples collected from SPM-4 indicates that significant groundwater contamination is present below the water table; the extent of this contamination is not defined. Additional sampling activities to define the extent of groundwater contamination (including the vertical extent as required by Wis. Admin. Code § NR 716.11(5)(f)) must be proposed. This will likely require the installation of additional piezometers.***

SPM-4 is screened at a depth of 25 to 35 feet bgs within an interval of fine to coarse sand and gravel (Table 1, LF Green October 2016). The fine to coarse sand and gravel is overlain by silt, and the well screen is submerged, suggesting the coarse sediment might be a confined or semi-confined aquifer. The *Revised Work Plan* contains additional piezometers that will be screened in the fine to coarse sand and gravel aquifer (where encountered).

ii) ***The soil sample collected at KGP-1indicates that a surface release may have occurred in this area. Additional soil sampling will need to be conducted in the vicinity of this boring to assess whether groundwater contamination can be attributed to a surface spill originating here, or if other sources need to be considered. The horizontal extent of soil contamination in this part of the property must be further investigated.***

The analytical results for a soil sample collected at KGP-1 suggest a release occurred at this area, or a nearby release flowed over the ground surface or through granular fill on native fine-grained soil to the vicinity of KGP-1. The *Revised Work Plan* presents additional delineation to evaluate potential soil and groundwater impacts south, southeast, and east of KGP-1.

iii) ***It appears that the extent of shallow groundwater at the subject property is estimated based on sampling data collected from KMW-1, KMW-2, KMW-3, and SMW-3 and their relative locations on the site. However, the DNR would not be able to assess the accuracy of this estimate until the source of the contamination has been identified and onsite groundwater flow is determined. Additional groundwater wells located between SMW-3 and the three perimeter wells will likely be required to accurately determine the extent of contamination.***

The *Revised Work Plan* presents additional groundwater monitoring wells to evaluate potential sources, and soil and groundwater impacts south, southeast, and east of SMW-3.

iv) ***The need for offsite investigation must be determined by considering whether contamination on your property is migrating offsite. Wis. Admin. Code § NR 716.11(4) also requires that the extent of any off-site impacts be investigated. You should include available offsite sampling data, including data collected at the down gradient 'D F Inc' site at 2517 E Norwich Avenue, as part of your evaluation as to whether you must propose offsite investigation.***

KEY will conduct a land survey to locate the on-site and select off-site monitoring wells horizontally and vertically. The revised survey will allow an evaluation of groundwater elevations and interpreted flow direction in the vicinity of the subject property. Additionally, KEY will coordinate with adjacent property owners to secure access to measure depth to groundwater and collect groundwater samples. The data will

be used collectively to evaluate the extent of groundwater impacts and attempt to describe whether and how plumes are commingled.

A Site Investigation Report will be prepared and submitted to the WDNR for review. The Site Investigation Report will conform with NR 716.15 and remedial action options will be evaluated based on the investigation activity.

b) Provide sufficient information to evaluate remedial options for addressing the contamination. The need for remediation has not been discussed, or how the information obtained by proposed site investigation activities will be useful for determining a remedial strategy.

By completing the site investigation, KEY intends to define the extent of impacts to soil and groundwater, identify receptors, utility corridors, and preferred flow pathways. Monitored natural attenuation will be a remedial option that will be considered if the groundwater plume is not threatening a receptor.

Remedial options will be continually evaluated on a preliminary basis. Relevant data will be gathered to allow consideration of potentially applicable remedial options.

c) Determine hydraulic conductivity.

Approximately 10 percent of the monitoring wells installed at the subject property will undergo hydraulic conductivity testing (likely, falling-head slug tests). A semi-random selection of newly installed wells, piezometers, adjacent-site monitoring wells that were previously tested, and wells screened over different soil types will be chosen for hydraulic conductivity testing.

d) Estimate the mass of contamination in the source area. It is not clear how the source area(s) has been identified or defined. Explain whether the current investigation has identified the source of contamination on this property and how will the proposed sampling activities help to define or identify known or potential source area(s). Per Wis. Admin. Code § NR 716.11(5)(e), the extent of contaminated soil, saturated material, and groundwater in the source area must be defined.

The mass of hydrocarbon impacts will be estimated when the extent of contamination is defined. An attempt to identify the sources and/or source areas will be submitted in the Site Investigation Report, along with figures and tables that illustrate the method and rationale behind the estimated mass of hydrocarbons.

3) As required by Wis. Admin. Code § NR 716.09(2)(f)8, discuss how the proposed sampling activities will relate to the results of the previous investigation. Explain how the newly obtained sampling data will be used to define the degree and extent of contamination and choose a remedial action (which could include natural attenuation).

The proposed sampling will relate to the previous sampling (on- and off-site) by attempting to complete (but not limited to) the following:

- identify the source of the chlorinated hydrocarbon impacts,
- establish greater precision regarding the extent of soil and groundwater impacts,
- evaluate the extent to hydrocarbon impacts vertically,

- determine the significance of the commingling of plumes, and
- determine the decrease in impacts over time.

This information is intended to allow the preparation of a Site Investigation Report and support an evaluation of remedial options. Additional investigation activity not presented in the enclosed *Work Plan* may be may be necessary to comply with WAC Chapter NR 716.

4) ***Wis. Admin. Code § NR 716.09(2)(f)2 requires that when sample locations cannot be specified in advance within a work plan that a description of the strategy that will be used to determine these locations in the field be provided. The 'Work Plan for Completion of Site Evaluation' proposed the installation of a piezometer at a location based on groundwater sample analysis and an evaluation of site conditions. This does not sufficiently describe what data would be used to locate the piezometer, where it could potentially be installed, to what depth it would be advanced, or how the piezometer would aid in completing the investigation. More detailed information must be provided regarding how samples locations will be chosen before the DNR could approve a work plan that proposes sampling at unspecified locations.***

The locations of the proposed piezometers are presented in the enclosed *Work Plan*. The piezometers will be preferentially screened in a fine to coarse sand and gravel encountered in SPM-4 at approximately 25 feet bgs. If the granular soil interval is not encountered at penetration depth of 45 feet for a proposed piezometer, the borehole will be grouted to 31 feet bgs, 1 foot of filter sand will be placed, and a 5-foot well screen will be set at 30 feet bgs.

5) ***The screening criteria listed in "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin" (DNR Publication RR-800) should be considered when assessing the vapor intrusion risk posed by chlorinated volatile organic compounds. This may require you to consider whether buildings located off the source property have a potential risk of vapor intrusion that would need to be investigated in order to satisfy the requirement of Wis. Admin. Code § 716.11(5)(g).***

The vapor intrusion pathway will be considered during the site investigation activity. As stated in Publication RR-800 *Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin*, if source soil for chlorinated VOCs is encountered within 100 feet of a building, or if groundwater impacts that exceed the Wisconsin Administrative Code Chapter NR 140 Enforcement Standard are present beneath a building, the vapor intrusion pathway must be investigated.

6) ***The DNR cannot determine the adequacy of proposed field investigation activities if available data is not provided to the Department and if it is not clear how that data was assessed to develop the scope of work. In order to support the proposed work plan, and to comply with 716.15(4)(g), soil boring logs, abandonment forms, and monitoring well construction and development forms must be provided to document drilling activities conducted by Key Engineering Group, LTD., in 2013. It is also strongly recommended that cross sections and isoconcentration maps are included in the revised work plan to document known site conditions and to justify proposed sampling activities. These figures will be required as part of a site investigation report as outlined in Wis. Admin. Code § 716.15(4)(c) and 716.15(4)(d).***

The proposed scope of work presented in the *Work Plan* may be inadequate to fully define the extent of soil and groundwater impacts at the site. If the additional delineation activity presented in the enclosed Work Plan does not define the extent, additional sampling will be completed to define the extent.

Cross sections and isoconcentration maps are not typically included in a work plan and are not required to be submitted before the extent is defined. As the investigation at the site proceeds and additional data is gathered, boring logs, cross sections, groundwater elevation contour maps, isoconcentration maps, etc. will be submitted in status reports and/or in a Site Investigation Report.

7) ***While developing a work plan consider that if natural attenuation is expected to address residual contamination eight consecutive quarterly groundwater sampling events are typically required to demonstrate an attenuating groundwater plume to satisfy closure requirements.***

Natural attenuation will be considered as a remedy to address residual hydrocarbon impacts to groundwater. KEY is aware of current WDNR guidance that recommends eight consecutive quarters of groundwater monitoring to demonstrate stable or decreasing trends in groundwater impact. If eight quarters of attenuation monitoring is the preferred remedial option, this will be incorporated in the Remedial Action Plan.

If you have any additional questions, please do not hesitate to call Kurt McClung at 414 225-0592, or Ken Wein at 414 978-4841.

Sincerely,

KEY ENGINEERING GROUP, LTD.

Kurt McClung, PG, PE
Senior Engineer

Ken Wein, CHMM
Principal

cc: Mike Higgins, Mid-America Steel Drum Company

Enclosure: *Revised Work Plan for Completion of Site Evaluation*

REFERENCES

Janard, Inc. *Phase I Environmental Site Assessment- Kitzinger Cooperage Corp.* December 2010.

LF Green Development, LLC. *Site Investigation Work Plan, Former D-F Property.* BRRTS 02-41-097173. October 7, 2016.

Moraine Environmental, Inc. *Request foe Case Closure Evaluation, St Francis Auto Wreckers Site.* BRRTS 02-41-000269. April 11, 2016.

WDNR Publication RR-800. *Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin*, June 24, 2015.

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REVISED WORK PLAN FOR COMPLETION OF SITE EVALUATION

Mid-America Steel Drum
Company, Inc.
8570 South Chicago Road
Oak Creek, Wisconsin
FID# 241021220
BRRTS #: 02-41-000934

August 15, 2017

PREPARED FOR:

Mr. Mike Higgins
Mid-America Steel Drum
8570 South Chicago Road
Oak Creek, Wisconsin 53154

WORK PLAN FOR COMPLETION OF SITE EVALUATION

Former Kitzinger Site
2529 East Norwich Avenue
St. Francis, Wisconsin
FID# 241063570
BRRTS #: 02-41-560089
BRRTS #: 03-41-196554

August 15, 2017

PREPARED FOR:

Mr. Mike Higgins
Mid-America Steel Drum
8570 South Chicago Road
Oak Creek, Wisconsin 53154

KEY ENGINEERING GROUP, LTD.

Mr. Kurt McClung, PG. PE.
Senior Engineer

Mr. Kenneth W. Wein
Principal

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1.0 INTRODUCTION

This *Revised Work Plan for Completion of Additional Site Evaluation* at the Former Kitzinger Site in St. Francis, Wisconsin, was prepared for Mid-America Drum Company by Key Engineering Group, Ltd. (KEY). The subject property is currently an industrial site operated by Mid-America Drum Company.

1.1 Site Description

The subject site occupies approximately 4.78 acres. The site is developed with an industrial facility that occupies nearly half of the site. The site is bound on the north by a closed City of South Milwaukee Landfill, to the south by vacant land, to the east by railroad tracks, and to the west by residences.

1.2 Site History

Based upon information included in reports submitted to WDNR, the northeast portion of the site has been operated as a drum recycling/reclamation facility by Kitzinger Cooperage Corp since approximately 1951. Prior to 1951, this parcel may have operated as a steel drum reconditioning facility under the name of Barker Barrel. The southwest portion of the facility along Pennsylvania Avenue, was owned by others and operated as a machine shop until the late 1970s.

1.3 Site Topography and Drainage

The site topography and drainage features were evaluated by reviewing the *U.S. Geological Survey, South Milwaukee, Wisconsin, 7.5 Minute Series (topographic) Quadrangle Map.* The topography in the vicinity of the subject site appears to be slightly sloped toward the north. The elevation of the subject site is approximately 690 feet above mean sea level. Lake Michigan is located approximately one-mile northeast of the subject site.

1.4 Site Pedology, Geology, and Hydrogeology

Various available publications and maps for pedologic, geologic, and hydrogeologic information for the area were reviewed.

The pedology (soils) at the subject site was reviewed in the *Soil Survey - Milwaukee and Waukesha Counties, Wisconsin*. According to the *General Soil Map*, site soils were identified as belonging to the Ozaukee-Morley-Mequon association, and consist of well-drained to somewhat poorly drained soils that have a subsoil of clay and silty clay, and silty clay loam glacial till

The general geologic profile in the vicinity of the subject site consists of glacial end moraine deposits (till) overlying undifferentiated dolomite bedrock of the Silurian System (*Glacial Deposits of Wisconsin*, 1976, and Skinner and Borman, 1973). The depth to dolomite bedrock is approximately 100 to 200 feet bgs (Trotta and Cotter, 1973).

Three (3) aquifers are located in the vicinity of the subject site. The aquifers are, in order of depth, the sand and gravel aquifer located within the glacial till, the Niagaran aquifer located in the Silurian dolomite overlying the Maquoketa Shale, and the sandstone aquifer located in the Ordovician and Cambrian age rocks underlying the Maquoketa Shale. The sandstone aquifer lies on Precambrian rocks and is confined above by the Maquoketa Shale.

Groundwater in the vicinity of the subject site likely flows east toward Lake Michigan. The regional groundwater flow direction is also to the east toward Lake Michigan (Skinner and Borman, 1973). Local conditions, such as buried utility lines and tunnels, roadways, building foundations, and fill soils may affect local groundwater flow direction.

1.5 Additional Investigation Objective

The objective of the scope of work is to determine the current concentrations of volatile organic compounds (VOCs) in groundwater at the site, evaluate possible migration across property boundaries, and close data gaps through additional delineation. A baseline groundwater sampling event will be conducted to evaluate current groundwater quality at the site.

Historical delineation data exhibit trichloroethene (TCE), tetrachloroethene (PCE), cis-1,2-dichloroethene (cis-1,2-DCE), and 1,1,1-trichloroethane (1,1,1-TCA) concentrations in soil above their respective Wisconsin Administrative Code Chapter (WAC Chapter) NR 720 Residual Contaminant Levels (NR 720 RCLs) for the Groundwater Pathway. Figure 1 depicts a summary of the soil sampling analytical results.

Historically, several chlorinated and petroleum-based VOCs were detected in groundwater above WAC Chapter NR 140 Enforcement Standards (NR 140 ES). After collecting a baseline groundwater sampling event, a minimum of two groundwater monitoring wells and a piezometer will be installed at the site in an effort to complete the delineation of soil and groundwater impacts. The monitoring wells are planned to be installed at the north and west property boundaries where we believe the extent still needs more definition. The proposed piezometer will be nested with an existing monitoring well to evaluate vertical gradients. The location of the piezometer will be determined based on site conditions and the proposed groundwater sampling results.

1.6 Vapor Intrusion Assessment

A vapor intrusion assessment will be conducted as a result of the shallow groundwater table and the presence of VOCs in groundwater. Depth to groundwater is less than 5 feet below ground surface (bgs). KEY will complete the vapor assessment and provide an opinion on whether vapor intrusion is considered a risk to the subject site building. Currently, the dissolved-phase hydrocarbon plume is not known to extend beneath the subject site building on the former Kitzinger site, and vapor intrusion is not suspected to be an imminent threat.

2.0 WELL INSTALLATION AND GROUNDWATER MONITORING

2.1 Soil Boring Drilling and Soil Sample Collection

The proposed test boring, monitoring wells, and piezometers will be drilled with a truck-mounted drilling rig using hollow stem augers (HSAs). The proposed drilling rationale is described below:

Boring/Well Type	Quantity	Rationale
Soil Boring	1	Evaluate horizontal extent E of apparent source Evaluate soil impact near existing building
Monitoring Well (water table observation well)	3	Define extent of shallow gw impact along S Pennsylvania Ave, Define extent of shallow gw impact E of MW-8 Define extent of shallow gw impact SE of SMW-3
Piezometer	2	Define/evaluate vertical extent of gw impact E of MW-8 Define/evaluate vertical extent of gw impact along S Pennsylvania Ave

With the anticipated groundwater flow to the northeast to east, the locations of the soil boring, monitoring wells, and piezometers are intended to delineate the extent of VOCs in soil and dissolved-phase VOCs. The attached figures depict the approximate locations for the boring and wells. Site conditions may warrant adjustment of the location of any drilling location.

Piezometer SPM-4 is screened at a depth of 25 to 35 feet bgs within an interval of fine to coarse sand and gravel (Table 1, LF Green October 2016). The fine to coarse sand and gravel is overlain by silt, and the well screen is submerged, suggesting the coarse sediment might be a confined or semi-confined aquifer. If the fine to coarse sand and gravel aquifer is encountered at the proposed piezometer locations, the piezometers will be screened in this water-bearing unit to:

- evaluate horizontal gradients in the sand and gravel,
- determine if the flow direction contrasts with the upper silt and clay water-bearing unit, and
- evaluate vertical gradients.

Soil samples will be collected in accordance with American Society of Testing and Materials (ASTM) D1586, *Standard Method for Penetration Test and Split-Barrel Sampling of Soil*. Soil samples will be collected with a 2-foot long stainless steel split-spoon sampler at 2½-foot intervals.

A representative from KEY will classify soil samples based on grain size and texture, and maintain a soil boring log for each boring location. Boring logs will include the Standard Penetration Test blow counts, depth and thickness of each soil stratum; a description of each stratum including color, USCS classification, soil moisture, density or consistency; olfactory observations; depth interval from which samples are collected, sample number and sample recovery; field screening results; samples selected for laboratory analysis; and the depth at which groundwater is encountered.

A portion of each soil sample which may be submitted for laboratory analysis will be placed into laboratory supplied containers, preserved, and stored on ice. A portion of each sample will be placed into a sealable plastic bag for field screening.

2.2 Soil Sample Field Screening

Soil samples will be field screened for the presence of volatile organic compounds (VOCs) with a photo ionization detector (PID). The PID will be equipped with a 10.6 electron volt (eV) lamp and will be calibrated as required by the manufacturer.

The sample will be allowed to warm prior to field screening. The tip of the PID will be inserted into the headspace of the filed-screening sample container, and the highest reading on the PID recorded.

As described in the table above, KEY proposes one soil boring, four additional monitoring wells, and two piezometers.; one along the north property boundary (located northeast of KMW-1) and one located at the South Pennsylvania Avenue right-of-way at the west property boundary (south of MW-14).

Since groundwater is expected at depths of about 2 to 3 feet bgs, KEY proposes to collect soil samples between 0 to 5 feet and submit for analysis of VOCs.

2.3 Well Development

The new wells will be developed to remove sediment produced by construction and to establish a hydraulic connection between the well and groundwater. The wells will be developed in accordance with NR 141 using a bailer or pump. For wells that cannot be purged dry, the wells will first be purged of approximately 10 water volumes until the well produces sediment-free water. For wells that can be purged dry, development will consist of slowly purging the well dry and allowing recovery until the water is sediment free.

2.4 Groundwater Sampling

A decontaminated Teflon® bailer or sampling pump will be used to collect groundwater samples from the monitoring wells. The groundwater samples will be transferred to laboratory supplied containers and stored on ice. Groundwater samples would be analyzed for VOCs.

Access to select off-site wells will be solicited of the responsible party for adjacent release sites. Depth to groundwater measurements and potentially groundwater samples will be collected from monitoring wells and piezometers located near the subject site. The purpose for depth to groundwater measurements and groundwater sampling at off-site wells will be to assist in determining dissolved-phase plume characteristics and evaluating whether groundwater impacts emanating from separate sources are commingling.

The results of groundwater sampling and analysis will be included in reports submitted to the WDNR.

2.5 Survey and Groundwater Elevation Measurements

The elevation and horizontal location of the existing and proposed drilling locations will be surveyed with respect to a known benchmark. Elevations of the ground surface and top of the PVC casing will be surveyed. The depth to groundwater will be measured with an electronic water level indicator during each groundwater sampling event. Groundwater elevations will be contoured on a scale drawing of the site and the groundwater flow will be interpreted.

2.6 Hydraulic Conductivity Testing

Falling-head hydraulic conductivity testing will be performed on a representative group of monitoring wells and piezometers at the subject property. Slug tests completed at off-site wells will also be tested to compare the methods used at off-site locations. The raw data and results of the on-site and off-site slug testing will be interpreted and reported in the Site Investigation Report.

2.7 Quality Assurance/Quality Control

The groundwater development and sampling equipment will be either a dedicated bailer, or a bailer decontaminated with an Alconox® detergent, distilled water wash, and a distilled water rinse. A trip blank supplied by the laboratory will be maintained with the collected samples and submitted for analysis during each round of sampling. The trip blank is a water sample prepared by the laboratory and analyzed to identify contamination which may occur due to outside influences.

KEY will follow chain of custody protocols from sample collection to laboratory analysis. Each sample will be identified and labeled with a field sample identification number consisting of a KEY project number, sample matrix identifier, sample location identifier, sample number identifier, samplers name, time, and date collected.

2.8 Documentation

The drilling and well development and sampling will be documented in the field by a KEY representative using a Soil Boring Log Information Form (WDNR Form 4400-122), Monitoring Well Construction Form (WDNR Form 4400-113A), and Monitoring Well Development Form (WDNR Form 4400-113B).

2.9 Management of Investigation Derived Wastes

Soil cuttings and water generated during well development and purging prior to sampling will be collected and placed in 55-gallon Wisconsin Department of Transportation (WDOT) approved drums. The drums will be properly labeled and disposed in accordance with Wisconsin waste disposal guidelines.

2.10 Health and Safety

A *Health and Safety Plan (HASP)* has been prepared and will be followed by KEY personnel. KEY subcontractor's will be responsible for site safety related to their own operations and will perform work under their HASP.

3.0 REPORTING

Upon review of the soil and groundwater data obtained during the activity described in this work plan, KEY will determine if there is a need to expand the site investigation. With groundwater flow expected to be toward the northeast, KEY believes the collection of groundwater flow information is important to assess the proper locations for any additional borings or wells, if additional wells are necessary to define the extent of dissolved phase impacts. Adjacent release sites suggest groundwater flow toward the northeast. The proposed wells to be installed at the north and west property boundaries are intended to complete the investigation of VOCs in shallow groundwater.

4.0 PROJECT TIMELINE

Project timeline as follows:

Task	Description	Timeline (weeks)
1	Well installation & Surveying	2-3 weeks
2	Groundwater sampling & analysis	2-3 weeks
3	WDNR submittal letter & opinion of current site conditions	2 weeks following receiving results

Tables

TABLE 1
Soil Sampling Analytical Results
Former Kitzinger Site
2529 East Norwich Avenue, St. Francis, Wisconsin
BRRTS 02-41-560089 and 03-41-196554

	Date Collected	Depth (feet bgs)	Benzene	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Naphthalene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	1,2,4-TMB	1,3,5-TMB	Vinyl Chloride	m&p-Xylene	o-Xylene
NR 720 RCL for Industrial Direct Contact			7,070	23,700	2,870	1,190,000	2,340,000	1,850,000	35,400	24,100	145,000	818,000	640,000	7,010	8,410	219,000	182,000	2,080	260,000	
NR 720 RCL for Groundwater Pathway			5.1	483.4	2.8	5	41.2	62.6	1,570	658.2	4.5	1,107.2	140.2	3.2	3.6	1,382.1		0.1	3,960	
KGP-1	6/28/13	2-4	<25.0	80.5	<25.0	<25.0	**87.7**	<25.0	<25.0	<25.0	**655**	<25.0	**193**	<25.0	**2,340**	<25.0	<25.0	<25.0	<50.0	<25.0
KGP-2	6/28/13	2-4	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<50.0	<25.0
KGP-3	6/28/13	2-4	<25.0	<25.0	<25.0	<25.0	**204**	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	**35.9J**	<25.0	<25.0	<25.0	<50.0	<25.0
KMW-1	6/28/13	2-4	<25.0	<25.0	<25.0	<25.0	**58.5J**	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	**49.3J**	<25.0	<25.0	<25.0	<50.0	<25.0
KMW-2	6/28/13	2-4	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<50.0	<25.0
KMW-3	6/28/13	2-4	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<50.0	<25.0

Notes
All results are expressed in micrograms per kilogram (µg/kg), equivalent to parts per billion (ppb).
Results presented in *italic* type exceed the NR 720 RCL for Industrial Direct Contact (applicable to 0 to 4 feet)
Results presented in **bold** type exceed the NR 720 RCL for Groundwater Pathway
All detections in soil are presented. VOCs detected in groundwater that have an NR 720 Groundwater Pathway RCL are also presented.
J - Results between the limit of detection and limit of quantitation
bgs - below ground surface
NS - No Standard
DCA - Dichloroethane
DCE - Dichloroethene
PCE - Tetrachloroethene
TCA - Trichloroethane
TCE - Trichloroethene
TMB - Trimethylbenzenes
VOCs - volatile organic compounds
NR 720 RCL - Wisconsin Administrative Code Chapter NR 720 Residual Contaminant Level (March 2017)

TABLE 2
Groundwater Sampling Analytical Results
Former Kitzinger Site
2529 East Norwich Avenue, St. Francis, Wisconsin
BRRTS 02-41-560089 and 03-41-196554

	Date Collected	Benzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Chloroethane	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Isopropylbenzene (Cumene)	p-Isopropyltoluene	Naphthalene	n-Propylbenzene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	1,2,4-TMB	1,3,5-TMB	Vinyl chloride	Xylenes
	NR 140 ES	5.0	NS	NS	NS	400	850	5.0	7.0	70	100	700	NS	NS	100	NS	5.0	800	200	5.0	5.0	480		0.2	2,000
	NR 140 PAL	0.5	NS	NS	NS	80	85	0.5	0.7	7.0	20	140	NS	NS	10	NS	0.5	160	40	0.5	0.5	96		0.02	400
SMW-3	7/11/13	<50.0	<40.0	<60.5	<42.4	*193*	**1,720**	**269**	**152**	**29,800**	<37.1	**898**	302	<39.7	<250	<50.0	**100**	**2,160**	**4,850**	<39.0	**311**	*392J*	*<250*	**9,520**	**4,730**
SMW-4	7/11/13	*1.6J*	7.5	3.5J	<1.1	7.9	*102*	*3.5*	*1.2J*	**398**	5.0	17.4	9.4	4.9	*15.7*	4.1	*4.7*	2.4J	33.6	*1.6J*	**77.1**	38.6	8.4J	**26.6**	30.2
SPM-4	7/11/13	<2,500	<2,000	<3,020	<2,120	<2,220	**14,200**	<2,380	**2,490J**	**409,000**	**2,630J**	<2,500	<1,700	<1,990	<12,500	<2,500	<2,360	**14,300**	**95,500**	<1,950	**37,100**	<2,860	<12,500	**14,300**	<7,250J
MW-2	7/11/13	<500	<400	<605	<424	<444	**2,990**	**518J**	<427	**79,400**	<371	<500	<341	<397	<2500	<500	<472	**1,440**	**7,860**	<390	<429	<572	<2,500	**3,420**	**1,740J**
MW-8	7/11/13	<0.50	5.9	17.6	1.1	3.7	44.6	*0.78J*	*1.7*	*30.7*	1.1	4.2	13.6	<0.40	<2.5	12.3	<0.47	0.51J	3.9	<0.39	*8.5*	9.9	<2.5	**56.5**	<1.70J
MW-14	7/11/13	<0.50	<0.40	<0.60	<0.42	<0.44	4.1	<0.48	<0.43	1.1	<0.37	<0.50	<0.34	<0.40	<2.5	<0.50	*3.1*	<0.44	12.4	<0.39	**84.7**	<0.57	<2.5	<0.18	<1.32
KMW-1	7/12/13	<0.50	<0.40	<0.60	<0.42	<0.44	<0.28	<0.48	<0.43	1.3	<0.37	<0.50	<0.34	<0.40	<2.5	<0.50	<0.47	<0.44	<0.44	<0.39	<0.43	<0.57	<2.5	<0.18	<1.32
KMW-2	7/12/13	<0.50	<0.40	<0.60	<0.42	<0.44	<0.28	<0.48	<0.43	<0.42	<0.37	<0.50	<0.34	<0.40	<2.5	<0.50	<0.47	<0.44	<0.44	<0.39	<0.43	<0.57	<2.5	<0.18	<1.32
KMW-3	7/12/13	<0.50	<0.40	<0.60	<0.42	<0.44	<0.28	<0.48	<0.43	<0.42	<0.37	<0.50	<0.34	<0.40	<2.5	<0.50	<0.47	<0.44	<0.44	<0.39	<0.43	<0.57	<2.5	<0.18	<1.32

Notes
All results are expressed in micrograms per liter (µg/L), equivalent to parts per billion (ppb).
Results presented in *underlined italic type* exceed the NR 140 PAL
Results presented in **bold type** exceed the NR 140 ES
J - Results between the limit of detection and limit of quantitation
NS - No Standard
DCA - Dichloroethane
DCE - Dichloroethene
PCE - Tetrachloroethene
TCA - Trichloroethane
TCE - Trichloroethene
TMB - Trimethylbenzenes
VOCs - volatile organic compounds
NR 140 PAL - Wisconsin Administrative Code Chapter NR 140 Preventive Action Limit (February 2017)
NR 140 ES - Wisconsin Administrative Code Chapter NR 140 Enforcement Standard (February 2017)

Figures

NORWICH AVENUE

S. PENNSYLVANIA AVENUE

ASPHALT

ASPHALT

BRICK, METAL & FRAME BUILDING

SHEET METAL BLDG.

FRAME BLDG. (RAZED)

GRASS

MW-15

MW-2

MW-8

SMW-4

SPM-4

KGP-1

SGP-2

SMW-3

MW-14

KGP-2

KMW-1

GRAVEL PARKING LOT

KGP-3

KMW-2

KMW-3

GRASS

ESTIMATED EXTENT OF CHLORINATED VOCS IN SOIL EXCEEDING THE NR 720 RCL FOR GROUNDWATER PATHWAY

LEGEND

- MONITORING WELL (KEY)
- SOIL PROBE (KEY)
- MONITORING WELL BY OTHERS
- SOIL PROBE BY OTHERS
- PROPOSED PIEZOMETER
- PROPOSED MONITORING WELL
- PROPOSED SOIL BORING

NOTES:

ALL SOIL SAMPLES COLLECTED FROM THE 2 TO 4 FOOT BELOW GROUND SURFACE INTERVAL.

J – ESTIMATED CONCENTRATION ABOVE THE ADJUSTED METHOD DETECTION LIMIT AND BELOW THE ADJUSTED REPORTING LIMIT.

ug/kg – MICROGRAMS PER KILOGRAM.

ALL SAMPLE RESULTS ARE ABOVE THEIR RESPECTIVE PROTECTION OF GROUNDWATER RCL, BUT RESPECTIVE DIRECT CONTACT EXPOSURE RCL.

WDNR WEBSITE – RESIDUAL CONTAMINANT LEVEL (RCL) SPREADSHEET AS OF JUNE 2013.

PARAMETERS	KGP-1	KGP-2	KGP-3
cis-1,2-DICHLOROETHENE	87.7	204	58.5J
TETRACHLOROETHENE	655	ND	ND
1,1,1-TRICHLOROETHANE	193	ND	ND
TRICHLOROETHENE	2,340	35.9J	49.3J

SCALE IN FEET

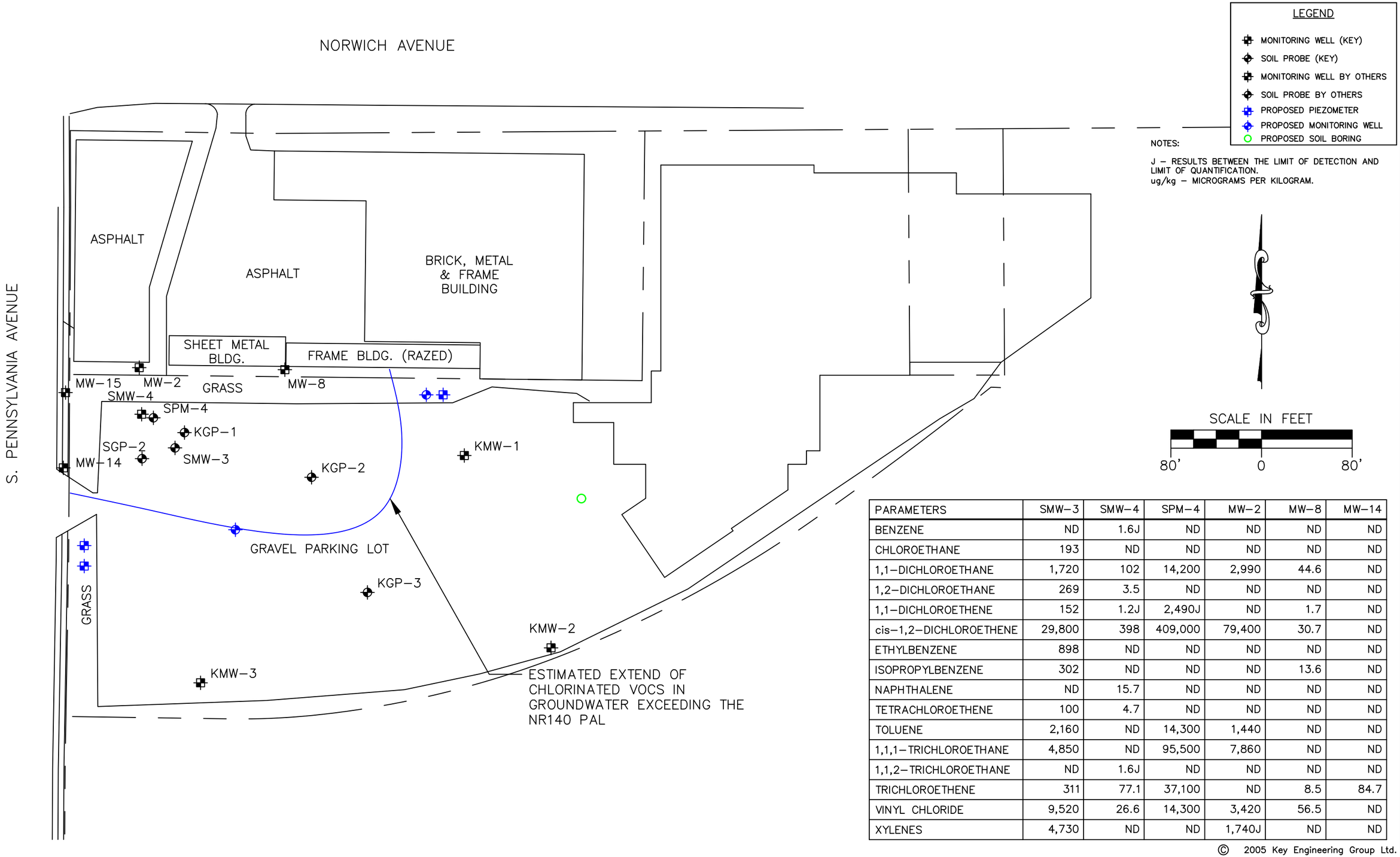
80' 0 80'

DESIGNED BY KDM	DATE 7-10-2017
DRAWN BY RJN	PROJECT 2306004
APPROVED BY KWW	SHEET NO. 1
CADFILE G:\ACAD\2306004\2017 Revisions\FIGURE 1.dwg	
XREF LMAN	

FIGURE 1
SOIL ANALYTICAL RESULTS SUMMARY
FORMER KITZINGER SITE
2529 E. NORWICH AVENUE
SAINT FRANCIS, WISCONSIN

KEY ENGINEERING GROUP LTD.
735 NORTH WATER STREET, SUITE 510
MILWAUKEE, WI 53202
414.224.8300 (tel) • 414.224.8383 (fax)

Aug 15, 2017 - 8:26am G:\ACAD\2306004\2017 Revisions\FIGURE 1.dwg



PARAMETERS	SMW–3	SMW–4	SPM–4	MW–2	MW–8	MW–14
BENZENE	ND	1.6J	ND	ND	ND	ND
CHLOROETHANE	193	ND	ND	ND	ND	ND
1,1–DICHLOROETHANE	1,720	102	14,200	2,990	44.6	ND
1,2–DICHLOROETHANE	269	3.5	ND	ND	ND	ND
1,1–DICHLOROETHENE	152	1.2J	2,490J	ND	1.7	ND
cis–1,2–DICHLOROETHENE	29,800	398	409,000	79,400	30.7	ND
ETHYLBENZENE	898	ND	ND	ND	ND	ND
ISOPROPYLBENZENE	302	ND	ND	ND	13.6	ND
NAPHTHALENE	ND	15.7	ND	ND	ND	ND
TETRACHLOROETHENE	100	4.7	ND	ND	ND	ND
TOLUENE	2,160	ND	14,300	1,440	ND	ND
1,1,1–TRICHLOROETHANE	4,850	ND	95,500	7,860	ND	ND
1,1,2–TRICHLOROETHANE	ND	1.6J	ND	ND	ND	ND
TRICHLOROETHENE	311	77.1	37,100	ND	8.5	84.7
VINYL CHLORIDE	9,520	26.6	14,300	3,420	56.5	ND
XYLENES	4,730	ND	ND	1,740J	ND	ND

DESIGNED BY KDM	DATE 7–10–2017
DRAWN BY RJN	PROJECT 2306004
APPROVED BY KWW	SHEET NO. 1
CADFILE G:\ACAD\2306004\2017 Revisions\FIGURE 2.dwg XREF LMAN	

FIGURE 2
GROUNDWATER ANALYTICAL RESULTS SUMMARY
FORMER KITZINGER SITE
2529 E. NORWICH AVENUE
SAINT FRANCIS, WISCONSIN

KEY ENGINEERING GROUP LTD.
735 NORTH WATER STREET, SUITE 510
MILWAUKEE, WI 53202
414.224.8300 (tel) • 414.224.8383 (fax)

Aug 15, 2017 – 8:29am G:\ACAD\2306004\2017 Revisions\FIGURE 2.dwg

Appendix 1

TABLE 4.3

SOIL ANALYTICAL RESULTS[1]
D-F INCORPORATED
ST. FRANCIS, WISCONSIN
PAGE 1 OF 6

Sample Location[2]	SB01 [3]	SB02 [3]	SB03 [3]	SB04[3]	SB05 [3]	SB06 [3]	SB07 [3]	SB08 [3]	SB09 [3]	SB10 [3]	SB11 [3]
x-Coordinate	4869.91	4832.18	4833.91	4869.4	4870.54	4871.17	4873.34	4876.58	4838.1	4837.02	4835.91
y-Coordinate	4853.79	4852.9	4892.94	4893.13	4933.09	4973.05	5014	5052.49	5052.94	5013.15	4971.89
Ground Elevation	666.16	665.68	664.93	665.25	664.50	663.54	662.66	661.81	662.51	663.03	663.54
Date Sampled	7/21/97	7/21/97	7/21/97	7/22/97	7/22/97	7/22/97	7/22/97	7/22/97	7/22/97	7/22/97	7/22/97
Sample Depth	2-4'	2-4'	4-6'	4-6'	4-6'	1-2'	2-4'	4-6'	4-6'	2-4'	2-4'
Percent Solids	81	88	76	68	87	52	47	85	92	95	84
Parameters											
Diesel Range Organics (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Petroleum Volatile Orgnic Compounds											
Benzene	<2.4	<4.6	<13	<15	<46	<48	<22	<2.4	<4.4	<11	<12
Toluene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
Ethyl Benzene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
Total Xylenes	<18	<35	<98	<110	<350	<360	<165	<18	<33	<80	<90
m,p-xylenes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene and Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	<12	<23	<65	<74	<230	<240	<110	<12	<22	<53	<60
1,3,5-Trimethylbenzene	<12	<23	<65	<74	<230	<240	<110	<12	<22	<53	<60
Chlorinated Ethenes											
Tetrachloroethene	35	44	86	<37	250	<120	<55	<6.0	<11	35	37
Trichloroethene	540	660	990	1,500	4,800	2,100	1,900	46	390	770	1,000
cis-1,2-Dichloroethene	120	160	250	1,600	3,300	1,700	<55	9.4	130	320	680
trans-1,2-Dichloroethene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
1,1-Dichloroethene	<6.0	<12	<33	<37	<120	<120	130	<6.0	<11	<27	<30
Vinyl Chloride	<6	<12	<33	<37	<120	<120	1,200	<6.0	<11	<27	<30
Chlorinated Ethanes											
1,1,1-Trichloroethane	40	41	140	59	140	<120	<55	<6.0	27	<27	<30
1,2-Dichloroethane	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
1,1-Dichloroethane	27	13	72	130	<120	<120	1,500	<6.0	18	<27	<30
Chloroethane	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
Other Volatile Organic Compounds											
Bromochloromethane	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
Chloromethane	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
Chloroform	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
n-butylbenzene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
sec-Butylbenzene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
tert-Butylbenzene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
Isopropylbenzene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
n-Propylbenzene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
p-Isopropyltoluene	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30
Naphthalene	<30	<58	<160	<190	<580	<600	<275	<30	<55	<130	<150
Methylene Chloride	<6.0	<12	<33	<37	<120	<120	<55	<6.0	<11	<27	<30

Notes:

[1] All concentrations given in units of ug/kg (ppb).

[2] See Figure 2 for sampling location.

[3] Samples collected by ERM

[4] Samples collected by Maxim

Key:

NA = Not analyzed.

TABLE 4.3

SOIL ANALYTICAL RESULTS[1]
D-F INCORPORATED
ST. FRANCIS, WISCONSIN

Sample Location[2]	SB12 [3]	SB13 [3]	SB14 [3]	SB15 [3]	SB15	SB16 [3]	SB17 [3]	SB18 [3]	SB19 [3]	SB20[3]	SB21[3]
x-Coordinate	4833.44	4919.39	4912.59	4900.54	4900.54	4936.32	4950.98	4965.83	4937.35	5040.94	4840.19
y-Coordinate	4932.56	5051.41	5012.41	4968.52	4968.52	4916.19	4923.58	4923.87	4899.18	4944.98	5010.92
Ground Elevation	664.22	660.81	661.91	663.52	663.52	658.88	658.80	658.81	659.14	659.23	663.10
Date Sampled	7/22/97	7/22/97	7/23/97	7/23/97	7/23/97	7/24/97	7/24/97	7/24/97	7/24/97	7/24/97	7/24/97
Sample Depth	0-2'	0-2'	2-4'	2-4'	9-11'	0-2'	0-2'	0-2'	0-2'	16-17'	10-12'
Percent Solids	78	89	49	63	82	87	92	90	91	82	74
Parameters											
Diesel Range Organics (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	TOC=11,000	TOC=13,000
Petroleum Volatile Orgnic Compounds										NA	NA
Benzene	<13	<2.0	<20	<2.0	<100	<2.3	<2.2	<2.2	<2.2	NA	NA
Toluene	<32	<5.0	<50	<5.0	600	<5.8	<5.5	<5.6	<5.5	NA	NA
Ethyl Benzene	<32	<5.0	220	<5.0	3,400	<5.8	<5.5	<5.6	<5.5	NA	NA
Total Xylenes	<96	<15	<150	<15	18,000	<17	<16	<17	<17	NA	NA
m,p-xylenes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene and Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	<64	<10	<100	<10	2,800	<12	<11	<11	<11	NA	NA
1,3,5-Trimethylbenzene	<64	<10	<100	<10	700	<12	<11	<11	<11	NA	NA
Chlorinated Ethenes										NA	NA
Tetrachloroethene	110	<5.0	770	<5.0	<250	6.7	<5.5	<5.6	<5.5	NA	NA
Trichloroethene	1,100	6.2	<50	350	<250	560	200	210	340	NA	NA
cis-1,2-Dichloroethene	620	<5.0	220	9.2	<250	160	210	82	240	NA	NA
trans-1,2-Dichloroethene	<32	<5.0	<50	<5.0	<250	16	<5.5	<5.6	<5.5	NA	NA
1,1-Dichloroethene	<32	<5.0	<50	<5.0	<250	33	<5.5	<5.6	<5.5	NA	NA
Vinyl Chloride	<32	<5	<50	<5.0	<250	120	<5.5	<5.6	<5.5	NA	NA
Chlorinated Ethanes										NA	NA
1,1,1-Trichloroethane	<32	<5.0	1,900	250	<250	6.9	8.9	<5.6	22	NA	NA
1,2-Dichloroethane	<32	<5.0	<50	<5.0	<250	<5.8	<5.5	<5.6	<5.5	NA	NA
1,1-Dichloroethane	<32	<5.0	590	290	<250	64	33	74	36	NA	NA
Chloroethane	<32	<5.0	<50	<5.0	<250	<5.8	<5.5	5.9	<5.5	NA	NA
Other Volatile Organic Compounds										NA	NA
Bromochloromethane	<32	<5.0	<50	<5.0	<250	<5.8	<5.5	<5.6	<5.5	NA	NA
Chloromethane	<32	<5.0	<50	<5.0	<250	<5.8	<5.5	<5.6	<5.5	NA	NA
Chloroform	<32	<5.0	<50	<5.0	<250	<5.8	<5.5	<5.6	<5.5	NA	NA
n-butylbenzene	<32	<5.0	<50	<5.0	<250	<5.8	<5.5	<5.6	<5.5	NA	NA
sec-Butylbenzene	<32	<5.0	<50	<5.0	1,200	<5.8	<5.5	<5.6	<5.5	NA	NA
tert-Butylbenzene	<32	<5.0	<50	<5.0	1,300	<5.8	<5.5	<5.6	<5.5	NA	NA
Isopropylbenzene	<32	<5.0	<50	<5.0	700	<5.8	<5.5	<5.6	<5.5	NA	NA
n-Propylbenzene	<32	<5.0	<50	<5.0	2,000	<5.8	<5.5	<5.6	<5.5	NA	NA
p-Isopropyltoluene	<32	<5.0	<50	<5.0	1,500	<5.8	<5.5	<5.6	<5.5	NA	NA
Naphthalene	<160	<25	<250	<25	<1300	<29	<27	<28	<28	NA	NA
Methylene Chloride	<32	<5.0	<50	<5.0	<250	<5.8	<5.5	<5.6	<5.5	NA	NA

Notes:

[1] All concentrations given in units of ug/kg (ppb).

[2] See Figure 2 for sampling location.

[3] Samples collected by ERM

[4] Samples collected by Maxim

Key:

NA = Not analyzed.

TABLE 4.3

SOIL ANALYTICAL RESULTS[1]
D-F INCORPORATED
ST. FRANCIS, WISCONSIN
PAGE 3 OF 6

Sample Location[2]	GP1[4]	GP2[4]	GP3[4]	GP4[4]	GP5[4]	GP6[4]	GP7[4]	GP8[4]	GP9[4]	GP10[4]	GP11[4]
x-Coordinate	4941	4942	5317.42	5299.48	5314.9	5039	4871.27	4869.27	4865	4894	4926.4
y-Coordinate	4887	4897	4891	4870.9	4853.86	4852	4852.51	4874.01	4964	4963	5058
Ground Elevation	659.00	659.00	657.59	657.59	657.59	660.00	665.44	665.44	663.70	663.70	657.81
Date Sampled	1/22/96	1/22/96	1/22/96	1/22/96	1/22/96	1/22/96	11/11/96	11/11/96	11/11/96	11/11/96	11/11/96
Sample Depth	3.5-5.5'	3.5-5.5'	3.5-5.5'	3.0-5.0'	0-6'	0-4'	4-5'	4-5'	4-5'	4-6'	2-6'
Percent Solids	82	77	89	83	85	85	81	91	66	86	39
Parameters											
Diesel Range Organics (mg/kg)	NA	NA	<10	<10	<10	460	NA	NA	NA	NA	NA
Petroleum Volatile Orgnic Compounds											
Benzene	<5000	<5100	139	<30	<29	<60	30	31	41	460	<13
Toluene	43,100	96,500	<29	<30	<29	<60	160	150	200	960	<9.0
Ethyl Benzene	31,200	53,800	29	<30	<29	<60	28	28	33	320	<8.0
Total Xylenes	160,500	313,400	86	40	46	122	156	161	226	1,870	182
m,p-xylenes	114,000	221,000	39.5	<30	<29	<60	110	110	130	1,300	120
o-Xylene and Styrene	46,500	92,400	46.2	39.9	45.9	122	46	51	96	570	62
Styrene	NA	NA	NA	NA	NA	NA	<8.0	<8.0	<8.0	<120	<8.0
1,2,4-Trimethylbenzene	64,400	121,000	<29	<30	<29	<60	29	39	63	440	16
1,3,5-Trimethylbenzene	14,700	34,900	<29	<30	<29	<60	27	28	68	330	<10
Chlorinated Ethenes											
Tetrachloroethene	24,100	<5100	<29	<30	<29	133	240	31	200	1,900	<11
Trichloroethene	176,000	<5100	<29	<30	<29	2,010	2,800	990	2,900	36,000	140
cis-1,2-Dichloroethene	338,000	572,000	141	<30	<29	<60	300	300	9,300	13,000	370
trans-1,2-Dichloroethene	<5000	<5100	<29	<30	<29	<60	<24	<24	230	<360	<24
1,1-Dichloroethene	<5000	7,280	<29	<30	<29	<60	<10	<10	<10	<150	<10
Vinyl Chloride	<5000	<5100	59	<30	<29	<60	<6.0	<6.0	130	<90	<6.0
Chlorinated Ethanes											
1,1,1-Trichloroethane	84,700	76,100	<29	<30	40	<60	93	72	320	1,700	23
1,2-Dichloroethane	<5000	<5100	1,040	<30	<29	<60	<6.0	<6.0	<6	<90	<6.0
1,1-Dichloroethane	6,640	16,000	<29	<30	<29	<60	31	<7.0	740	430	580
Chloroethane	<5000	<5100	<29	<30	<29	<60	<5.0	<5.0	<5.0	<75	<5.0
Other Volatile Organic Compounds											
Bromochloromethane	<5000	<5100	<29	<30	<29	<60	<8.0	<8.0	380	<120	<8.0
Chloromethane	<5000	<5100	<29	<30	<29	<60	<22	<22	<22	<330	<22
Chloroform	<5000	<5100	<29	<30	<29	<60	<9.0	<9.0	<9.0	<140	<9.0
n-butylbenzene	45,000	71,000	<29	<30	<29	<60	<11	<11	<11	<170	<11
sec-Butylbenzene	12,300	14,500	<29	<30	<29	<60	<6.0	<6.0	120	510	<6.0
tert-Butylbenzene	<5000	<5100	<29	<30	<29	<60	50	54	92	<150	<10
Isopropylbenzene	<5000	8,870	<29	<30	<29	<60	<6.0	<6.0	100	<90	<6.0
n-Propylbenzene	14,700	25,500	<29	<30	<29	<60	65	57	87	860	<6.0
p-Isopropyltoluene	7,830	17,700	<29	<30	<29	<60	<8.0	<8.0	51	<120	<8.0
Naphthalene	10,300	11,700	<29	<30	59	2,580	110	140	150	1,600	230
Methylene Chloride	<5000	<5100	<29	<30	<29	<60	<6.0	<6.0	<6.0	<90	<6.0

Notes:

[1] All concentrations given in units of ug/kg (ppb).

[2] See Figure 2 for sampling location.

[3] Samples collected by ERM

[4] Samples collected by Maxim

Key:

NA = Not analyzed.

TABLE 4.3

SOIL ANALYTICAL RESULTS[1]
D-F INCORPORATED
ST. FRANCIS, WISCONSIN
PAGE 4 OF 6

Sample Location[2]	GP12[4]	GP13[4]	GP14[4]	GP15[4]	GP16[4]	GP17[4]	GP18[4]	GP19[4]	GP20[4]	GP21[4]	MW-1/B-01[4]
x-Coordinate	4959	4994	4919	4919	4963	4963	4995	5094	4951	4905.94	5313.22
y-Coordinate	5000.5	4945	4885	4908	4886.81	4908.81	5037	5047	4852	4853.02	4908.88
Ground Elevation	657.25	657.50	659.00	659.00	659.00	659.00	659.23	659.23	659.00	659.00	658.90
Date Sampled	11/11/96	11/11/96	11/11/96	11/11/96	11/11/96	11/11/96	11/11/96	11/11/96	11/12/96	11/12/96	4/23/96
Sample Depth	4	4'	2-4'	4'	4'	4'	4'	5'	2'	2.1	6-8'
Percent Solids	64	83	52	52	69	64	83	72	80	44	87
Parameters											
Diesel Range Organics (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA	23	12,000	NA
Petroleum Volatile Orgnic Compounds											
Benzene	66	56	670	150	330	71	29	30	31	8,600	272
Toluene	270	250	1,100	840	17,000	300	150	45	200	270,000	<29
Ethyl Benzene	53	42	430	120	7,000	72	160	22	44	150,000	<29
Total Xylenes	224	232	2,390	690	42,000	370	1,430	139	290	570,000	NA
m,p-xylenes	160	160	1,600	470	23,000	260	940	90	180	340,000	NA
o-Xylene and Styrene	64	72	790	220	19,700	110	490	179	110	230,000	39
Styrene	<8.0	<16	<120	<32	700	<16	<8.0	130	<8.0	<800	NA
1,2,4-Trimethylbenzene	71	30	440	95	16,000	31	280	31	60	290,000	<29
1,3,5-Trimethylbenzene	76	50	600	140	9,100	62	170	28	41	83,000	<29
Chlorinated Ethenes											
Tetrachloroethene	<11	56	580	<44	<110	<22	73	<11	19	72,000	<29
Trichloroethene	1,100	4,800	56,000	13,000	<110	2,800	2,000	<11	180	1,100,000	69
cis-1,2-Dichloroethene	1,100	1,500	62,000	15,000	<790	2,800	210	<79	940	1,700,000	60
trans-1,2-Dichloroethene	<24	160	5,000	470	<240	140	<24	<24	<24	<240	<29
1,1-Dichloroethene	<10	210	17,000	1,400	<100	390	<10	<10	<10	17,000	<29
Vinyl Chloride	<6.0	460	17,000	2,900	<60	2,800	<6	<6	<6	9,400	<29
Chlorinated Ethanes											
1,1,1-Trichloroethane	110	99	1,300	1,000	230	97	<16	<16	1,100	<1600	NA
1,2-Dichloroethane	150	<12	7,000	4,000	<60	710	<6.0	<6.0	<6.0	17,000	587
1,1-Dichloroethane	790	1,000	11,000	12,000	2,000	2,700	<7.0	<7.0	63	91,000	<29
Chloroethane	<5.0	<10	<75	<20	<50	<10	<5.0	<5.0	<5.0	<500	<29
Other Volatile Organic Compounds											
Bromochloromethane	<8.0	<16	<120	890	<80	<16	<8.0	<8.0	<8.0	35,000	<29
Chloromethane	<22	<44	<330	<88	<220	<44	<22	<22	95	<2200	<44
Chloroform	<9.0	<18	<140	<36	<90	<18	<9.0	<9.0	<9.0	11,000	<18
n-butylbenzene	<11	<22	<170	<44	18,000	<22	46	<11	<11	100,000	<29
sec-Butylbenzene	120	<12	<90	<24	7,800	<12	77	56	50	48,000	<29
tert-Butylbenzene	62	<20	1,300	<40	6,700	130	75	73	<10	29,000	1,070
Isopropylbenzene	77	<12	<90	<24	6,300	<12	600	<6	<6	39,000	<29
n-Propylbenzene	94	120	1,500	370	5,700	<12	78	<6.0	68	56,000	<29
p-Isopropyltoluene	21	<16	<120	<32	20,000	<16	55	<8.0	<8.0	38,000	<29
Naphthalene	230	210	2,500	660	4,900	270	150	150	140	52,000	<29
Methylene Chloride	<6.0	<12	<90	<240	<60	<12	<6.0	<6.0	<6.0	<600	<29

Notes:

[1] All concentrations given in units of ug/kg (ppb).

[2] See Figure 2 for sampling location.

[3] Samples collected by ERM

[4] Samples collected by Maxim

Key:

NA = Not analyzed.

TABLE 4.3

SOIL ANALYTICAL RESULTS[1]
D-F INCORPORATED
ST. FRANCIS, WISCONSIN
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Sample Location[2]	MW-1/B-01[4]	B-03/MW-2[4]	B-04[4]	B-05/MW-3[4]	B-06[4]	B-07[4]	B-08/MW-4[4]	B-09/MW-5[4]	B-09/MW-5[4]
x-Coordinate	5313.22	4866.27	4837.00	5041.79	4936.00	4994.86	4995.44	4833.94	4833.94
y-Coordinate	4908.88	4852.51	4858	4911.64	4960	5000.33	5052.72	5043.32	5043.32
Ground Elevation	658.90	666.12	665.44	659.32	659.00	659.00	658.57	662.66	662.66
Date Sampled	4/23/96	4/23/96	4/23/96	4/23/96	4/24/96	4/24/96	4/24/96	4/24/96	4/24/96
Sample Depth	12-14'	10-12'	6-8'	8-10'	2-4'	4-6'	12-14'	4-6'	12-14'
Percent Solids	77	71	71	88	46	68	83	90	85
Parameters									
Diesel Range Organics (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Petroleum Volatile Orgnic Compounds									
Benzene	<28	<5,507	<2,841	<29	<8,726	<564	41	920	<29
Toluene	<28	132,000	5,720	<29	26,000	2,980	<30	1,160	817
Ethyl Benzene	<28	101,000	60,400	<29	60,700	13,500	<30	574	1,340
Total Xylenes	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-xylenes	<28	334,000	253,000	<29	294,000	76,800	<30	396	1,580
o-Xylene and Styrene	40	205,000	193,000	92	380,000	29,700	<30	634	860
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	<28	89,000	85,000	<29	114,000	27,300	<30	737	<29
1,3,5-Trimethylbenzene	<28	23,500	25,400	<29	38,300	10,000	>30	179	<29
Chlorinated Ethenes									
Tetrachloroethene	<28	93,100	<2,841	<29	<8,726	<564	<30	<29	<29
Trichloroethene	43	3,310,000	<2,841	40	<8,726	<564	75	509	79
cis-1,2-Dichloroethene	<28	131,000	<2,841	112	<8,726	761	17,700	722	5,100
trans-1,2-Dichloroethene	<28	<5,507	<2,841	<29	<8,726	<564	178	<28	<29
1,1-Dichloroethene	<28	20,700	<2,841	<29	<8,726	<564	40	<29	<29
Vinyl Chloride	<28	<5,507	<2,841	<29	<8,726	<564	939	<29	1,830
Chlorinated Ethanes									
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	<28	28,600	<2,841	<29	<8,726	<564	51	<29	33
1,1-Dichloroethane	<28	19,000	<2,841	<29	<8,726	<564	956	73	863
Chloroethane	<28	<5,507	<2,841	<29	<8,726	<564	<30	<28	<29
Other Volatile Organic Compounds									
Bromochloromethane	<28	<5507	<2,841	<29	<8,726	<564	<30	<28	<29
Chloromethane	<28	<5507	<2,841	<29	<8,726	<564	30	<28	<29
Chloroform	<28	<5507	<2,841	<29	<8,726	<564	<30	<28	<29
n-butylbenzene	<28	42,400	63,600	<29	67,800	25,000	<30	482	<29
sec-Butylbenzene	<28	10,700	22,300	<29	15,000	7,060	<30	357	<29
tert-Butylbenzene	545	17,000	12,300	<29	<8,726	2,810	<30	333	<29
Isopropylbenzene	<28	6,510	11,300	<29	11,600	3,780	<30	188	<29
n-Propylbenzene	<28	21,400	26,700	<29	30,900	8,780	<30	404	<29
p-Isopropyltoluene	<28	8,940	29,500	<29	17,900	6,250	<30	231	<29
Naphthalene	<28	10,700	6,760	<29	<8,726	1,590	<30	428	<29
Methylene Chloride	<28	11,300	<2,841	<29	<8,726	<564	<30	<29	<29

Notes:

[1] All concentrations given in units of ug/kg (ppb).

[2] See Figure 2 for sampling location.

[3] Samples collected by ERM

[4] Samples collected by Maxim

Key:

NA = Not analyzed.

TABLE 4.3

SOIL ANALYTICAL RESULTS[1]
D-F INCORPORATED
ST. FRANCIS, WISCONSIN

Sample Location[2]	MW-6 [4]	MW-7[4]	MW-8[4]	MW-9[4]	MW-10 [4]	MW-11 [4]	MW-12[4]	MW-13 [4]
x-Coordinate	4835.33	4940.16	5001.55	5318.49	4829	4768	4770	4770
y-Coordinate	4962.79	4899.73	4852.52	5044.04	4760	4810	4918	5045
Ground Elevation	663.85	659.13	663.35	659.2	668.4	667.8	665.2	664.9
Date Sampled	11/13/96	11/13/96	11/12/96	11/13/96	11/11/96	11/12/96	11/12/96	11/11/96
Sample Depth	6-8'	2-4'	4'	6-10'	4'	5-6'	4'	4'
Percent Solids	85	60	81	87	86	85	87	86
Parameters	TOC=69000					TOC = 142,000	TOC = 84,000	
Diesel Range Organics (mg/kg)	<0.61	NA	150	NA	NA	<0.61	130	NA
Petroleum Volatile Orgnic Compounds								
Benzene	52	2,900	240	23	27	29	27	42
Toluene	330	120,000	1,700	37	50	150	59	170
Ethyl Benzene	50	260,000	410	<8.0	25	25	32	31
Total Xylenes	306	430,000	3,700	111	NA	131	NA	NA
m,p-xylenes	210	1,000,000	2,000	71	95	91	120	130
o-Xylene and Styrene	96	430,000	2,390	120	108	41	114	63
Styrene	<16	<400	690	80	61	<8.0	48	<8.0
1,2,4-Trimethylbenzene	82	1,100,000	16,000	20	41	23	110	55
1,3,5-Trimethylbenzene	57	430,000	9,000	22	31	27	45	35
Chlorinated Ethenes								
Tetrachloroethene	410	2,600	<110	<11	150	<11	<11	20
Trichloroethene	6,200	5,800	<110	<11	530	<11	<11	<11
cis-1,2-Dichloroethene	2,000	370,000	<790	<79	99	<79	<79	<79
trans-1,2-Dichloroethene	<48	<1200	<240	<24	<24	<24	<24	<24
1,1-Dichloroethene	<20	5,300	<100	<10	<10	<10	<10	<10
Vinyl Chloride	<12	780	<60	<6.0	<6.0	<6.0	<6.0	<6.0
Chlorinated Ethanes								
1,1,1-Trichloroethane	780	120,000	<160	<16	<16	<16	<16	<16
1,2-Dichloroethane	<12	<300	<60	<6.0	<6.0	<6.0	<6.0	<6.0
1,1-Dichloroethane	450	16,000	<70	<7.0	<7.0	<7.0	<7.0	<7.0
Chloroethane	<10	<250	<50	<5.0	<5.0	<5.0	<5.0	<5.0
Other Volatile Organic Compounds								
Bromochloromethane	<16	18,000	<80	<8.0	<8.0	<8.0	<8.0	<8.0
Chloromethane	<44	<1100	<220	<22	<22	85	<22	94
Chloroform	<18	1,300	<90	<9.0	<9.0	<9.0	<9.0	<9.0
n-butylbenzene	<22	740,000	17,000	<11	<11	<11	<11	<11
sec-Butylbenzene	<12	420,000	22,000	<10	47	<6	41	40
tert-Butylbenzene	<20	210,000	8,800	53	72	<10	61	<10
Isopropylbenzene	<12	310,000	3,100	<6.0	<6	<6	57	54
n-Propylbenzene	130	280,000	7,100	<6.0	63	58	63	66
p-Isopropyltoluene	<16	690,000	25,000	<8.0	<8	<8	<8	<8
Naphthalene	230	170,000	4,900	120	160	110	220	250
Methylene Chloride	<12	<300	<60	<6.0	<6.0	<6.0	<6.0	<6.0

Notes:

[1] All concentrations given in units of ug/kg (ppb).

[2] See Figure 2 for sampling location.

[3] Samples collected by ERM

[4] Samples collected by Maxim

Key:

NA = Not analyzed.

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS
Former D-F Incorporated Property
St. Francis, Wisconsin
Project Reference #13097

Soil Boring Identification:					SGP-1	SGP-2	SMW-3	SMW-4	SGP-5	SGP-6
Sample Depth (ft):					9 -10	7.5 - 10	9 - 10	9 - 10	3.5 - 6.5	3 - 6
Parameter	Unit	NR 720 / NR 720.19	NR 746		Collection Date					
		(1) RCL	(2) Table 1	(3) Table 2	09/17/12	09/17/12	09/17/12	09/17/12	10/02/12	10/02/12
Benzene	µg/kg	5.5	8,500	1,100	<890	<890	<890	<890	<8.9	<8.9
Bromobenzene	µg/kg	NS	NS	NS	<1400	<1400	<1400	<1400	<14	<14
Bromodichloromethane	µg/kg	0.24 GW	NS	NS	<1200	<1200	<1200	<1200	<12	<12
Bromoform	µg/kg	45 GW	NS	NS	<2000	<2000	<2000	<2000	<20	<20
tert-Butylbenzene	µg/kg	NS	NS	NS	<5400	<5400	<5400	<5400	<54	<54
sec-Butylbenzene	µg/kg	NS	NS	NS	<5100	**10400 J**	<5100	**6800 J**	<51	<51
n-Butylbenzene	µg/kg	NS	NS	NS	**6600 J**	**19900**	**8000 J**	**13900 J**	<48	<48
Carbon tetrachloride	µg/kg	5.0 GW	NS	NS	<1200	<1200	<1200	<1200	<12	<12
Chlorobenzene	µg/kg	150 GW	NS	NS	<940	<940	<940	<940	<9.4	<9.4
Chloroethane	µg/kg	NS	NS	NS	<14200	<14200	<14200	<14200	<142	<142
Chloroform	µg/kg	39 GW	NS	NS	<4600	<4600	<4600	<4600	<46	<46
Chloromethane	µg/kg	2.7 GW	NS	NS	<20700	<20700	<20700	<20700	<207	<207
2-Chlorotoluene	µg/kg	2700 GW	NS	NS	<8400	<8400	<8400	<8400	<84	<84
4-Chlorotoluene	µg/kg	2700 GW	NS	NS	<7600	<7600	<7600	<7600	<76	<76
1,2-Dibromo-3-chloropropane	µg/kg	24 GW	NS	NS	<7700	<7700	<7700	<7700	<77	<77
Dibromochloromethane	µg/kg	760 DC	NS	NS	<950	<950	<950	<950	<9.5	<9.5
1,4-Dichlorobenzene	µg/kg	110 GW	NS	NS	<5200	<5200	<5200	<5200	<52	<52
1,3-Dichlorobenzene	µg/kg	NS	NS	NS	<5300	<5300	<5300	<5300	<53	<53
1,2-Dichlorobenzene	µg/kg	1800 GW	NS	NS	<5100	<5100	<5100	<5100	<51	<51
Dichlorodifluoromethane	µg/kg	21972 GW	NS	NS	<1200	<1200	<1200	<1200	<12	<12
1,2-Dichloroethane	µg/kg	4.9	600	540	<1300	<1300	**(1,2,3) 2220 J**	<1300	<13	<13
1,1-Dichloroethane	µg/kg	2900 GW	NS	NS	<1100	**(1) 4400**	**(1) 11900**	<1100	<11	<11
1,1-Dichloroethene	µg/kg	5.0 GW	NS	NS	<2200	<2200	**(1) 2900 J**	<2200	<22	<22
cis-1,2-Dichloroethene	µg/kg	55 GW	NS	NS	**(1) 17400**	**(1) 116000**	**(1) 264000**	**(1) 3300 J**	<14	**25.8 J**
trans-1,2-Dichloroethene	µg/kg	98 GW	NS	NS	<2200	<2200	<2200	<2200	<22	<22
1,2-Dichloropropane	µg/kg	1.9 GW	NS	NS	<1100	<1100	<1100	<1100	<11	<11
2,2-Dichloropropane	µg/kg	NS	NS	NS	<3300	<3300	<3300	<3300	<33	<33
1,3-Dichloropropane	µg/kg	640 GW	NS	NS	<1100	<1100	<1100	<1100	<11	<11
Di-isopropyl ether	µg/kg	NS	NS	NS	<4700	<4700	<4700	<4700	<47	<47
EDB (1,2-Dibromoethane)	µg/kg	0.033 GW	NS	NS	<1700	<1700	<1700	<1700	<17	<17
Ethylbenzene	µg/kg	2,900	4,600	NS	**(1,2) 17100 J**	**(1,2) 106000**	**(1,2) 55000**	**(1,2) 21300**	**205**	<55
Hexachlorobutadiene	µg/kg	120 GW	NS	NS	<9500	<9500	<9500	<9500	<95	<95
Isopropylbenzene	µg/kg	NS	NS	NS	<5300	**9600 J**	<5300	<5300	<53	<53
p-Isopropyltoluene	µg/kg	NS	NS	NS	<4500	**11500 J**	<4500	**5300 J**	<45	<45
Methylene chloride	µg/kg	1.6 GW	NS	NS	<11900	<11900	<11900	<11900	<119	<119
Methyl-tert-butyl-ether	µg/kg	6270000 DC	NS	NS	<1200	<1200	<1200	<1200	<12	<12
Naphthalene	µg/kg	427 GW	2,700	NS	<10700	**(1,2) 14700 J**	**(1,2) 11100 J**	**(1,2) 16000 J**	<107	<107
n-Propylbenzene	µg/kg	NS	NS	NS	<5300	**18800**	**8100 J**	**10400 J**	<53	<53
1,1,2,2-Tetrachloroethane	µg/kg	0.1 GW	NS	NS	<2000	<2000	<2000	<2000	<20	<20
1,1,1,2-Tetrachloroethane	µg/kg	7.4 GW	NS	NS	<4100	<4100	<4100	<4100	<41	<41
Tetrachloroethene	µg/kg	4.1 GW	NS	NS	**(1) 2500 J**	**(1) 4200 J**	**(1) 390000**	**(1) 4200 J**	<24	<24
Toluene	µg/kg	1,500	38,000	NS	**(1) 30400**	**(1,2) 126000**	**(1,2) 70000**	**(1) 11700 J**	**189**	<50
1,2,4-Trichlorobenzene	µg/kg	540 GW	NS	NS	<7400	<7400	<7400	<7400	<74	<74
1,2,3-Trichlorobenzene	µg/kg	NS	NS	NS	<12900	<12900	<12900	<12900	<129	<129
1,1,1-Trichloroethane	µg/kg	280 GW	NS	NS	**(1) 62000**	**(1) 3400 J**	**(1) 305000**	**(1) 2150 J**	<11	<11
1,1,2-Trichloroethane	µg/kg	11 GW	NS	NS	<1600	<1600	<1600	<1600	<16	<16
Trichloroethene	µg/kg	3.7 GW	NS	NS	**(1) 3300 J**	<1700	**(1) 330000**	**(1) 3400 J**	<17	<17
Trichlorofluoromethane	µg/kg	29000 GW	NS	NS	<4300	<4300	<4300	<4300	<43	<43
1,2,4-Trimethylbenzene	µg/kg	28000 GW	83,000	NS	**(1) 29400**	**(1,2) 112000**	**(1) 59000**	**(1) 49000**	**182 J**	<80
1,3,5-Trimethylbenzene	µg/kg	13000 GW	11,000	NS	**7200 J**	**(1,2) 34000**	**(1,2) 16000**	**(1,2) 14300 J**	**70 J**	<48
Vinyl chloride	µg/kg	0.13 GW	NS	NS	<1600	**(1) 11300**	**(1) 2590 J**	<1600	<16	<16
Total Xylenes	µg/kg	4,100	42,000	NS	**(1,2) 80200**	**(1,2) 415000**	**(1,2) 269000**	**(1,2) 91900**	**1170**	<86

Notes:
J = analyte detected between Limit of Detection and Limit of Quantitation
µg/kg = micrograms per kilogram (equivalent to parts per billion)
NA = Not Analyzed NS = No Standard
NR 720 RCL = DNR, Chapter NR 720, Generic Residual Contaminat Levels Based on Protection of Groundwater Quality.
NR 746 Table 1 = DNR, Chapter NR 746, Table 1 soil screening level: Indicators of Residual Petroleum Products in Soil Pores.
NR 746 Table 2 = DNR, Chapter NR 746, Table 2: Protection of Human Health from Direct Contact with Contaminated Soil.
NR 720.19 RCL = RCLs calculated in accordance with Ch. NR 720.19 and WDNR document PUB-RR-682 and present in EPA approved QAPP (October 2010). Most strigent pathway (**groundwater [GW]** or **direct contact [DC]**) presented when state standards are not available.

Exceedances:
BOLD = detected compound
(1) = concentration exceeds suggested NR 720 Generic RCLs for VOC Compounds in Soil
(2) = concentration exceeds suggested NR 746 Indicators of Residual Petroleum Product in Soil Pores (Table 1)
(3) = concentration exceeds suggested NR 746 Protection of Human Health from Direct Contact with Contaminated Soil (Table 2)

TABLE 3
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS
Former D-F Incorporated Property
St. Francis, Wisconsin
Project Reference # 13097

Monitoring Well Identification:		NR 140		SMW-3	SMW-4	SPM-4	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-11	MW-12	MW-13	MW-14	MW-15
Parameter	Unit	ES	PAL	Collection Date																
				10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12	10/15/12
Benzene	µg/L	5.0	0.5	<250	**(1,2) 5.8 J**	<2500	<0.5	<1000	**(2) 0.91 J**	**(2) 2.22**	**(2) 1.96**	**(1,2) 5.4 J**	Free Product - Not Sampled	<2.5	<0.5	Well Not Found - No Site Access	Well Not Found - No Site Access	Well Not Found - No Site Access	<50	Free Product - Not Sampled
Bromobenzene	µg/L	NS	NS	<370	<7.4	<3700	<0.74	<1480	<0.74	<0.74	<0.74	<7.4		<3.7	<0.74				<74	
Bromodichloromethane	µg/L	0.6	0.06	<340	<6.8	<3400	<0.68	<1360	<0.68	<0.68	<0.68	<6.8		<3.4	<0.68				<68	
Bromoform	µg/L	4.4	0.44	<215	<4.3	<2150	<0.43	<860	<0.43	<0.43	<0.43	<4.3		<2.15	<0.43				<43	
tert-Butylbenzene	µg/L	NS	NS	<355	<7.1	<3550	<0.71	<1420	**1.48 J**	<0.71	<0.71	<7.1		<3.55	<0.71				<71	
sec-Butylbenzene	µg/L	NS	NS	<500	<10	<5000	<1	<2000	<1	<1	<1	<10		**16.9**	<1				<100	
n-Butylbenzene	µg/L	NS	NS	<450	**17.9 J**	<4500	<0.9	<1800	<0.9	<0.9	<0.9	<9		**5.7 J**	<0.9				<90	
Carbon Tetrachloride	µg/L	5.0	0.5	<235	<4.7	<2350	<0.47	<940	<0.47	<0.47	<0.47	<4.7		<2.35	<0.47				<47	
Chlorobenzene	µg/L	100	10	<255	<5.1	<2550	<0.51	<1020	<0.51	**2.8**	<0.51	<5.1		<2.35	<0.51				<51	
Chloroethane	µg/L	400	80	<700	**48**	<7000	<1.4	<2800	**2.93 J**	**27**	<1.4	**(1,2) 400**		**9.8 J**	<1.4				<140	
Chloroform	µg/L	6.0	0.6	<245	<4.9	<2450	<0.49	<980	<0.49	<0.49	<0.49	<4.9		<2.45	<0.49				<49	
Chloromethane	µg/L	30	3.0	<950	<19	<9500	<1.9	<3800	<1.9	<1.9	<1.9	<19		<9.5	<1.9				<190	
2-Chlorotoluene	µg/L	NS	NS	<350	<7	<3500	<0.7	<1400	<0.7	<0.7	<0.7	<7		<3.5	<0.7				<70	
4-Chlorotoluene	µg/L	NS	NS	<220	<4.4	<2200	<0.44	<880	<0.44	<0.44	<0.44	<4.4		<2.2	<0.44				<44	
1,2-Dibromo-3-Chloropropane	µg/L	0.2	0.02	<1400	<28	<14000	<2.8	<5600	<2.8	<2.8	<2.8	<28		<14	<2.8				<280	
Dibromochloromethane	µg/L	60	6.0	<275	<5.5	<2750	<0.55	<1100	<0.55	<0.55	<0.55	<5.5		<2.75	<0.55				<55	
1,4-Dichlorobenzene	µg/L	75	15	<490	<9.8	<4900	<0.98	<1960	<0.98	<0.98	<0.98	<9.8		<4.9	<0.98				<98	
1,3-Dichlorobenzene	µg/L	600	120	<435	<8.7	<4350	<0.87	<1740	<0.87	<0.87	<0.87	<8.7		<4.35	<0.87				<87	
1,2-Dichlorobenzene	µg/L	600	60	<380	<7.6	<3800	<0.76	<1520	<0.76	<0.76	<0.76	<7.6		<3.8	<0.76				<76	
Dichlorodifluoromethane	µg/L	1,000	200	<900	<18	<9000	<1.8	<3600	<1.8	<1.8	<1.8	<18		<9	<1.8				<180	
1,2-Dichloroethane	µg/L	5.0	0.5	**(1,2) 320 J**	**(1,2) 30.1**	<2500	**(1,2) 9.3**	<1000	**(2) 0.55 J**	**(2) 2.31**	**(2) 0.92 J**	<5		<2.5	<0.5				<50	
1,1-Dichloroethane	µg/L	850	85	**(1,2) 1840**	**(2) 116**	**(1,2) 12800 J**	<0.98	**(1,2) 4500 J**	**2.59 J**	**14.1**	**35**	<9.8		**67**	<0.98				<98	
1,1-Dichloroethene	µg/L	7.0	0.7	<300	<6	<3000	<0.6	<1200	<0.6	<0.6	<0.6	<6		<3	<0.6				<60	
cis-1,2-Dichloroethene	µg/L	70	7.0	**(1,2) 31100**	**(1,2) 640**	**(1,2) 283000**	<0.74	**(1,2) 120000**	**6.4**	**1.75 J**	**(2) 30.7**	<7.4		**(2) 21.6**	<0.74				<74	
trans-1,2-Dichloroethene	µg/L	100	20	<395	**16.6 J**	<3950	<0.79	<1580	<0.79	<0.79	<0.79	<7.9		<3.95	<0.79				<79	
1,2-Dichloropropane	µg/L	5.0	0.5	<200	<4	<2000	<0.4	<800	<0.4	<0.4	<0.4	<4		<2	<0.4				<40	
2,2-Dichloropropane	µg/L	NS	NS	<950	<19	<9500	<1.9	<3800	<1.9	<1.9	<1.9	<19		<9.5	<1.9				<190	
1,3-Dichloropropane	µg/L	NS	NS	<355	<7.1	<3550	<0.71	<1420	<0.71	<0.71	<0.71	<7.1		<3.55	<0.71				<71	
Di-isopropyl ether	µg/L	NS	NS	<345	<6.9	<3450	<0.69	<1380	<0.69	<0.69	<0.69	<6.9		<3.45	<0.69				<69	
EDB (1,2-Dibromoethane)	µg/L	0.05	0.005	<315	<6.3	<3150	<0.63	<1260	<0.63	<0.63	<0.63	<6.3		<3.15	<0.63				<63	
Ethylbenzene	µg/L	700	140	**(1,2) 950 J**	**(2) 199**	<3900	<0.78	<1560	<0.78	<0.78	<0.78	<7.8		<3.9	<0.78				<78	
Hexachlorobutadiene	µg/L	NS	NS	<1100	<22	<11000	<2.2	<4400	<2.2	<2.2	<2.2	<22		<11	<2.2				<220	
Isopropylbenzene	µg/L	NS	NS	<460	**15.2 J**	<4600	<0.92	<1840	**1.44 J**	**0.95 J**	<0.92	<9.2		**11.8 J**	<0.92				<92	
p-Isopropyltoluene	µg/L	NS	NS	<460	**12.8 J**	<4600	<0.92	<1840	<0.92	<0.92	<0.92	<9.2		<4.6	<0.92				<92	
Methylene Chloride	µg/L	5.0	0.5	<550	<11	<5500	<1.1	<2200	<1.1	<1.1	<1.1	<11		<5.5	<1.1				<110	
Methyl Tert Butyl Ether (MTBE)	µg/L	60	12	<400	<8	<4000	<0.8	<1600	<0.8	<0.8	<0.8	<8		<4	<0.8				<80	
Naphthalene	µg/L	100	10	<1050	**(1,2) 135**	<10500	<2.1	<4200	<2.1	<2.1	<2.1	<21		<10.5	<2.1				<210	
n-Propylbenzene	µg/L	NS	NS	<295	**22.7**	<2950	<0.59	<1180	<0.59	<0.59	<0.59	<5.9		**9.4 J**	<0.59				<59	
1,1,2,2-Tetrachloroethane	µg/L	0.2	0.02	<265	<5.3	<2650	<0.53	<1060	<0.53	<0.53	<0.53	<5.3		<2.65	<0.53				<53	
1,1,1,2-Tetrachloroethane	µg/L	70	7.0	<500	<10	<5000	<1	<2000	<1	<1	<1	<10		<5	<1				<100	
Tetrachloroethene	µg/L	5.0	0.5	**(1,2) 820**	<4.4	<2200	<0.44	<880	<0.44	<0.44	<0.44	<4.4		<2.2	<0.44				<44	
Toluene	µg/L	800	160	**(1,2) 2500**	**(2) 320**	**(1,2) 19000**	<0.53	**(1,2) 1740 J**	<0.53	<0.53	<0.53	<5.3		<2.65	<0.53				<53	
1,2,4-Trichlorobenzene	µg/L	70	14	<750	<15	<7500	<1.5	<3000	<1.5	<1.5	<1.5	<15		<7.5	<1.5				<150	
1,2,3-Trichlorobenzene	µg/L	NS	NS	<650	<13	<6500	<1.3	<2600	<1.3	<1.3	<1.3	<13		<6.5	<1.3				<130	
1,1,1-Trichloroethane	µg/L	200	40	**(1,2) 6700**	**(2) 77**	**(1,2) 96000**	<0.85	**(1,2) 17900**	<0.85	**1.28 J**	**3.3**	<8.5		<4.25	<0.85				<85	
1,1,2-Trichloroethane	µg/L	5.0	0.5	<235	<4.7	<2350	<0.47	<940	<0.47	<0.47	<0.47	<4.7		<2.35	<0.47				<47	
Trichloroethene (TCE)	µg/L	5.0	0.5	**(1,2) 1600**	**(1,2) 36**	**(1,2) 26000**	<0.47	**(1,2) 1820 J**	<0.47	**(1,2) 6.5**	**(1,2) 35**	<4.7		**(2) 3 J**	<0.47				**(1,2) 102 J**	
Trichlorofluoromethane	µg/L	3,490	698	<850	<17	<8500	<1.7	<3400	<1.7	<1.7	<1.7	<17		<8.5	<1.7				<170	
1,2,4-Trimethylbenzene	µg/L	**	**	**440 J**	**257**	<4000	<0.8	<1600	<0.8	<0.8	<0.8	**13.9 J**		<4	<0.8				<80	
1,3,5-Trimethylbenzene	µg/L	**	**	<370	**76**	<3700	<0.74	<1480	<0.74	<0.74	<0.74	<7.4		<3.7	<0.74				<74	
Total Trimethylbenzenes	µg/L	480	96	**(1,2) 440 J**	**(2) 333**	<4000	<0.8	<1600	<0.8	<0.8	<0.8	**13.9 J**		<4	<0.8				<80	
Vinyl Chloride	µg/L	0.2	0.02	**(1,2) 9700**	**(1,2) 122**	**(1,2) 12600**	**(1,2) 1.27**	**(1,2) 1820**	**(1,2) 35**	**(1,2) 2.73**	**(1,2) 17.5**	**(1,2) 2.2 J**		**(1,2) 160**	<0.18				<18	
Xylenes (total)	µg/L	2,000	400	**(1,2) 4790**	**(2) 1380**	**(1,2) 8800 J**	<1.1	<2200	<1.1	<1.1	<1.1	**92**		<5.5	<1.1				<110	

Notes:
J = analyte detected between Limit of Detection and Limit of Quantitation
µg/L = micrograms per liter (equivalent to parts per billion)
NA = Not Analyzed NS =No Standard
NR 140 ES = Wisconsin Administrative Code, Chapter NR 140 Enforcement Standard
NR 140 PAL = Wisconsin Administrative Code, Chapter NR 140 Preventive Action Limit
Exceedances: **BOLD** = detected compound
(1) = concentration exceeds Chapter NR 140 ES
(2) = concentration exceeds Chapter NR 140 PAL