State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 9/15)

Notice: Use this form to request **a written response (on agency letterhead)** from the Department of Natural Resources (DNR) regarding technical assistance, a post-closure change to a site, a specialized agreement or liability clarification for Property with known or suspected environmental contamination. A fee will be required as is authorized by s. 292.55, Wis. Stats., and NR 749, Wis. Adm. Code., unless noted in the instructions below. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records law [ss. 19.31 - 19.39, Wis. Stats.].

Definitions

"Property" refers to the subject Property that is perceived to have been or has been impacted by the discharge of hazardous substances.

"Liability Clarification" refers to a written determination by the Department provided in response to a request made on this form. The response clarifies whether a person is or may become liable for the environmental contamination of a Property, as provided in s. 292.55, Wis. Stats.

"Technical Assistance" refers to the Department's assistance or comments on the planning and implementation of an environmental investigation or environmental cleanup on a Property in response to a request made on this form as provided in s. 292.55, Wis. Stats.

"Post-closure modification" refers to changes to Property boundaries and/or continuing obligations for Properties or sites that received closure letters for which continuing obligations have been applied or where contamination remains. Many, but not all, of these sites are included on the GIS Registry layer of RR Sites Map to provide public notice of residual contamination and continuing obligations.

Select the Correct Form

This from should be used to request the following from the DNR:

- Technical Assistance
- Liability Clarification
- Post-Closure Modifications
- Specialized Agreements (tax cancellation, negotiated agreements, etc.)

Do <u>not</u> use this form if one of the following applies:

- Request for an **off-site liability exemption or clarification** for Property that has been or is perceived to be contaminated by one or more hazardous substances that originated on another Property containing the source of the contamination. Use DNR's Off-Site Liability Exemption and Liability Clarification Application Form 4400-201.
- Submittal of an Environmental Assessment for the **Lender Liability Exemption**, s 292.21, Wis. Stats., **if no response or review by DNR is requested**. Use the Lender Liability Exemption Environmental Assessment Tracking Form 4400-196.
- Request for an **exemption to develop on a historic fill site** or licensed landfill. Use DNR's Form 4400-226 or 4400-226A.
- **Request for closure** for Property where the investigation and cleanup actions are completed. Use DNR's Case Closure - GIS Registry Form 4400-202.

All forms, publications and additional information are available on the internet at: dnr.wi.gov/topic/Brownfields/Pubs.html.

Instructions

1. Complete sections 1, 2, 6 and 7 for all requests. Be sure to provide adequate and complete information.
2. Select the type of assistance requested: Section 3 for technical assistance or post-closure modifications, Section 4 for a written determination or clarification of environmental liabilities; or Section 5 for a specialized agreement.
3. Include the fee payment that is listed in Section 3, 4, or 5, unless you are a "Voluntary Party" enrolled in the Voluntary Party Liability Exemption Program **and** the questions in Section 2 direct otherwise. Information on to whom and where to send the fee is found in Section 8 of this form.
4. Send the completed request, supporting materials and the fee to the appropriate DNR regional office where the Property is located. See the map on the last page of this form. A paper copy of the signed form and all reports and supporting materials shall be sent with an electronic copy of the form and supporting materials on a compact disk. For electronic document submittal requirements see: http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf"

The time required for DNR's determination varies depending on the complexity of the site, and the clarity and completeness of the request and supporting documentation.

Section 1. Contact and Recipient Information

Requester Information

This is the person requesting technical assistance or a post-closure modification review, that his or her liability be clarified or a specialized agreement and is identified as the requester in Section 7. DNR will address its response letter to this person.

Last Name	First	MI	Organization/ Business Name
Pelc	Doris		

Mailing Address	City	State	ZIP Code
1680 Pilgrim Parkway	Elm Grove	WI	53122-1531

Phone # (include area code)	Fax # (include area code)	Email
(414) 217-6339		pelskal@hotmail.com

The requester listed above: (select all that apply)

- ☐ Is currently the owner
- ☐ Is considering selling the Property
- ☐ Is renting or leasing the Property
- ☒ Is considering acquiring the Property
- ☐ Is a lender with a mortgagee interest in the Property
- ☐ Other. Explain the status of the Property with respect to the applicant:

Contact Information (to be contacted with questions about this request) ☒ Select if same as requester

Contact Last Name	First	MI	Organization/ Business Name
Pelc	Doris		

Mailing Address	City	State	ZIP Code
1680 Pilgrim Parkway	Elm Grove	WI	53122-1531

Phone # (include area code)	Fax # (include area code)	Email
(414) 217-6339		pelskal@hotmail.com

Environmental Consultant (if applicable)

Contact Last Name	First	MI	Organization/ Business Name
Ebbott	Kendrick		Fehr-Graham Inc.

Mailing Address	City	State	ZIP Code
1237 Pilgrim Road	Plymouth	WI	53073

Phone # (include area code)	Fax # (include area code)	Email
(920) 892-2444	(920) 892-2620	kebbott@fehr-graham.com

Attorney (if applicable)

Contact Last Name	First	MI	Organization/ Business Name
Gallo	Donald		Husch Blackwell

Mailing Address	City	State	ZIP Code
20800 Swenson Drive, Suite 300	Waukesha	WI	53186

Phone # (include area code)	Fax # (include area code)	Email
(262) 956-6224		Donald.Gallo@huschblackwell.com

Property Owner (if different from requester)

Contact Last Name	First	MI	Organization/ Business Name
Shipshock	Harold		Master Drycleaners Inc.

Mailing Address	City	State	ZIP Code
N57 W26389 Mt. Dulac Drive	Sussex	WI	53089

Phone # (include area code)	Fax # (include area code)	Email
(414) 313-9168		tshipshock@hydro-flo.com

Section 2. Property Information

Property Name			FID No. (if known)
Master Drycleaning Inc.			241398630
BRRTS No. (if known)	Parcel Identification Number		
0241545142	384041800		
Street Address	City	State	ZIP Code
6326 W Bluemound Road	Wauwatosa	WI	53213

County	Municipality where the Property is located	Property is composed of:	Property Size Acres
Milwaukee	(●) City ( ) Town ( ) Village of Wauwatosa	(●) Single tax parcel ( ) Multiple tax parcels	0.22

1. Is a response needed by a specific date? (e.g., Property closing date) Note: Most requests are completed within 60 days. Please plan accordingly.

( ) No (●) Yes

Date requested by: 08/18/2017

Reason:

2. Is the "Requester" enrolled as a Voluntary Party in the Voluntary Party Liability Exemption (VPLE) program?

(●) No. **Include the fee that is required for your request in Section 3, 4 or 5.**

( ) Yes. **Do not include a separate fee.** This request will be billed separately through the VPLE Program.

Fill out the information in Section 3, 4 or 5 which corresponds with the type of request:
Section 3. Technical Assistance or Post-Closure Modifications;
Section 4. Liability Clarification; or Section 5. Specialized Agreement.

Section 3. Request for Technical Assistance or Post-Closure Modification

Select the type of technical assistance requested: **[Numbers in brackets are for WI DNR Use]**

- [ ] No Further Action Letter (NFA) (Immediate Actions) - NR 708.09, [183] - **Include a fee of $350.** Use for a written response to an immediate action after a discharge of a hazardous substance occurs. Generally, these are for a one-time spill event.
- [ ] Review of Site Investigation Work Plan - NR 716.09, [135] - **Include a fee of $700.**
- [ ] Review of Site Investigation Report - NR 716.15, [137] - **Include a fee of $1050.**
- [ ] Approval of a Site-Specific Soil Cleanup Standard - NR 720.10 or 12, [67] - **Include a fee of $1050.**
- [ ] Review of a Remedial Action Options Report - NR 722.13, [143] - **Include a fee of $1050.**
- [ ] Review of a Remedial Action Design Report - NR 724.09, [148] - **Include a fee of $1050.**
- [ ] Review of a Remedial Action Documentation Report - NR 724.15, [152] - **Include a fee of $350**
- [ ] Review of a Long-term Monitoring Plan - NR 724.17, [25] - **Include a fee of $425.**
- [ ] Review of an Operation and Maintenance Plan - NR 724.13, [192] - **Include a fee of $425.**

Other Technical Assistance - s. 292.55, Wis. Stats. [97] (For request to build on an abandoned landfill use Form 4400-226)

- [ ] Schedule a Technical Assistance Meeting - **Include a fee of $700.**
- [ ] Hazardous Waste Determination - **Include a fee of $700.**
- [x] Other Technical Assistance - **Include a fee of $700.** Explain your request in an attachment.

Post-Closure Modifications - NR 727, [181]

- [ ] Post-Closure Modifications: Modification to Property boundaries and/or continuing obligations of a closed site or Property; sites may be on the GIS Registry. This also includes removal of a site or Property from the GIS Registry. **Include a fee of $1050, and:**
  - [ ] Include a fee of $300 for sites with residual soil contamination; and
  - [ ] Include a fee of $350 for sites with residual groundwater contamination, monitoring wells or for vapor intrusion continuing obligations.

Attach a description of the changes you are proposing, and documentation as to why the changes are needed (if the change to a Property, site or continuing obligation will result in revised maps, maintenance plans or photographs, those documents may be submitted later in the approval process, on a case-by-case basis).

Skip Sections 4 and 5 if the technical assistance you are requesting is listed above and complete Sections 6 and 7 of this form.

Section 4. Request for Liability Clarification

Select the type of liability clarification requested. Use the available space given or attach information, explanations, or specific questions that you need answered in DNR's reply. Complete Sections 6 and 7 of this form. **[Numbers in brackets are for DNR Use]**

☐ "Lender" liability exemption clarification - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of $700.**

Provide the following documentation:

(1) ownership status of the real Property, and/or the personal Property and fixtures;

(2) an environmental assessment, in accordance with s. 292.21, Wis. Stats.;

(3) the date the environmental assessment was conducted by the lender;

(4) the date of the Property acquisition; for foreclosure actions, include a copy of the signed and dated court order confirming the sheriff's sale.

(5) documentation showing how the Property was acquired and the steps followed under the appropriate state statutes.

(6) a copy of the Property deed with the correct legal description; and,

(7) the Lender Liability Exemption Environmental Assessment Tracking Form (Form 4400-196).

(8) If no sampling was done, please provide reasoning as to why it was **not** conducted. Include this either in the accompanying environmental assessment or as an attachment to this form, and cite language in s. 292. 21(1)(c)2.,h.-i., Wis. Stats.:

h. The collection and analysis of representative samples of soil or other materials in the ground that are suspected of being contaminated based on observations made during a visual inspection of the real Property or based on aerial photographs, or other information available to the lender, including stained or discolored soil or other materials in the ground and including soil or materials in the ground in areas with dead or distressed vegetation. The collection and analysis shall identify contaminants in the soil or other materials in the ground and shall quantify concentrations.

i. The collection and analysis of representative samples of unknown wastes or potentially hazardous substances found on the real Property and the determination of concentrations of hazardous waste and hazardous substances found in tanks, drums or other containers or in piles or lagoons on the real Property.

☐ "Representative" liability exemption clarification (e.g. trustees, receivers, etc.) - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of $700.**

Provide the following documentation:

(1) ownership status of the Property;

(2) the date of Property acquisition by the representative;

(3) the means by which the Property was acquired;

(4) documentation that the representative has no beneficial interest in any entity that owns, possesses, or controls the Property;

(5) documentation that the representative has not caused any discharge of a hazardous substance on the Property; and

(6) a copy of the Property deed with the correct legal description.

☐ Clarification of local governmental unit (LGU) liability exemption at sites with: (select all that apply)

☐ hazardous substances spills - s. 292.11(9)(e), Wis. Stats. [649];

☐ Perceived environmental contamination - [649];

☐ hazardous waste - s. 292.24 (2), Wis. Stats. [649]; and/or

☐ solid waste - s. 292.23 (2), Wis. Stats. [649].

❖ **Include a fee of $700, a summary of the environmental liability clarification being requested, and the following:**

(1) clear supporting documentation showing the acquisition method used, and the steps followed under the appropriate state statute(s).

(2) current and proposed ownership status of the Property;

(3) date and means by which the Property was acquired by the LGU, where applicable;

(4) a map and the ¼, ¼ section location of the Property;

(5) summary of current uses of the Property;

(6) intended or potential use(s) of the Property;

(7) descriptions of other investigations that have taken place on the Property; and

(8) (for solid waste clarifications) a summary of the license history of the facility.

Section 4. Request for Liability Clarification (cont.)

☐ Lease liability clarification - s. 292.55, Wis. Stats. [646]

- ❖ **Include a fee of $700 for a single Property, or $1400 for multiple Properties and the information listed below:**

(1) a copy of the proposed lease;

(2) the name of the current owner of the Property and the person who will lease the Property;

(3) a description of the lease holder's association with any persons who have possession, control, or caused a discharge of a hazardous substance on the Property;

(4) map(s) showing the Property location and any suspected or known sources of contamination detected on the Property;

(5) a description of the intended use of the Property by the lease holder, with reference to the maps to indicate which areas will be used. Explain how the use will not interfere with any future investigation or cleanup at the Property; and

(6) all reports or investigations (e.g. Phase I and Phase II Environmental Assessments and/or Site Investigation Reports conducted under s. NR 716, Wis. Adm. Code) that identify areas of the Property where a discharge has occurred.

General or other environmental liability clarification - s. 292.55, Wis. Stats. [682] - Explain your request below.

- ❖ **Include a fee of $700 and an adequate summary of relevant environmental work to date.**

☐ No Action Required (NAR) - NR 716.05, [682]

- ❖ **Include a fee of $700.**

Use where an environmental discharge has or has not occurred, and applicant wants a DNR determination that no further assessment or clean-up work is required. Usually this is requested after a Phase I and Phase II environmental assessment has been conducted; the assessment reports should be submitted with this form. This is not a closure letter.

☐ Clarify the liability associated with a "closed" Property - s. 292.55, Wis. Stats. [682]

- ❖ **Include a fee of $700.**

- Include a copy of any closure documents if a state agency other than DNR approved the closure.

Use this space or attach additional sheets to provide necessary information, explanations or specific questions to be answered by the DNR.

Section 5. Request for a Specialized Agreement

Select the type of agreement needed. Include the appropriate draft agreements and supporting materials. Complete Sections 6 and 7 of this form. More information and model draft agreements are available at: dnr.wi.gov/topic/Brownfields/lgu.html#tabx4.

☐ Tax cancellation agreement - s. 75.105(2)(d), Wis. Stats. [654]

- ❖ **Include a fee of $700, and the information listed below:**

(1) Phase I and II Environmental Site Assessment Reports,
(2) a copy of the Property deed with the correct legal description; and,
(3) a draft 75.105 agreement based on the DNR's model (dnr.wi.gov/topic/brownfields/documents/mod75-105agrmt.pdf).

☐ Agreement for assignment of tax foreclosure judgement - s.75.106, Wis. Stats. [666]

- ❖ **Include a fee of $700, and the information listed below:**

(1) Phase I and II Environmental Site Assessment Reports,
(2) a copy of the Property deed with the correct legal description; and,
(3) a draft 75.105 agreement based on the DNR's model (dnr.wi.gov/topic/brownfields/documents/mod75-106agrmt.pdf).

☐ Negotiated agreement - Enforceable contract for non-emergency remediation - s. 292.11(7)(d) and (e), Wis. Stats. [630]

- ❖ **Include a fee of $1400, and the information listed below:**

(1) a draft schedule for remediation; and,
(2) the name, mailing address, phone and email for each party to the agreement.

Section 6. Other Information Submitted

Identify all materials that are included with this request.

Include one copy of any document from any state agency files that you want the Department to review as part of this request. The person submitting this request is responsible for contacting other state agencies to obtain appropriate reports or information.

☐ Phase I Environmental Site Assessment Report - Date: _____

☐ Phase II Environmental Site Assessment Report - Date: _____

☐ Legal Description of Property (required for all liability requests and specialized agreements)

☐ Map of the Property (required for all liability requests and specialized agreements)

Analytical results of the following sampled media: Select all that apply and include date of collection.

☐ Groundwater ☐ Soil ☐ Sediment ☐ Other medium - Describe: _____

Date of Collection: _____

☐ A copy of the closure letter and submittal materials

☐ Draft tax cancellation agreement

☐ Draft agreement for assignment of tax foreclosure judgment

☒ Other report(s) or information - Describe: May 25 2017 FG Report "Vapor System Commission Rprt /Indoor Air Rslts

For Property with newly identified discharges of hazardous substances only: Has a notification of a discharge of a hazardous substance been sent to the DNR as required by s. NR 706.05(1)(b), Wis. Adm. Code?

○ Yes - Date (if known): _____
○ No

Note: The Notification for Hazardous Substance Discharge (non-emergency) form is available at: dnr.wi.gov/files/PDF/forms/4400/4400-225.pdf.

Section 7. Certification by the Person who completed this form

☐ I am the person submitting this request (requester)

☒ I prepared this request for: Doris Pelc

Requester Name

I certify that I am familiar with the information submitted on this request, and that the information on and included with this request is true, accurate and complete to the best of my knowledge. I also certify I have the legal authority and the applicant's permission to make this request.

Kevin A. Elliott — Signature

7-20-17 — Date Signed

PROJECT MANAGER / P.G. — Title

920 892-2444 — Telephone Number (include area code)

Section 8. DNR Contacts and Addresses for Request Submittals

Send or deliver one paper copy and one electronic copy on a compact disk of the completed request, supporting materials, and fee to the region where the property is located to the address below. Contact a DNR regional brownfields specialist with any questions about this form or a specific situation involving a contaminated property. For electronic document submittal requirements see: http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf.

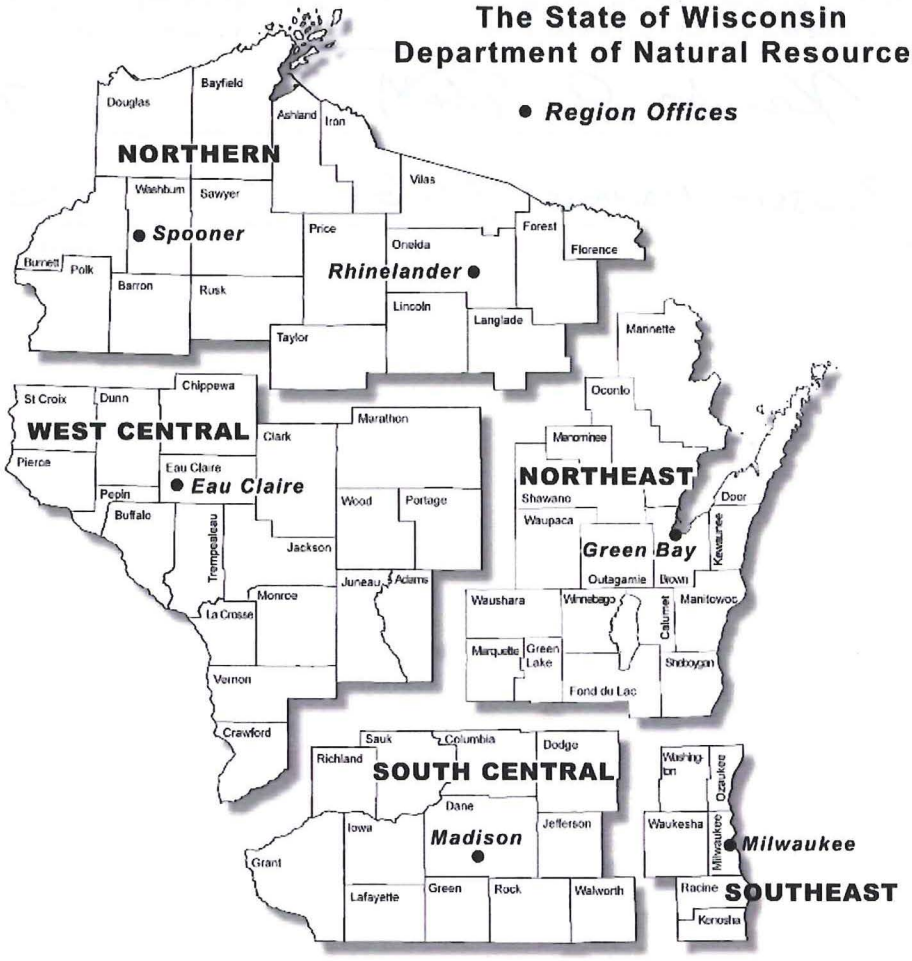
DNR NORTHERN REGION
Attn: RR Program Assistant
Department of Natural Resources
223 E Steinfest Rd Antigo, WI 54409

DNR NORTHEAST REGION
Attn: RR Program Assistant
Department of Natural Resources
2984 Shawano Avenue
Green Bay WI 54313

DNR SOUTH CENTRAL REGION
Attn: RR Program Assistant
Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg WI 53711

DNR SOUTHEAST REGION
Attn: RR Program Assistant
Department of Natural Resources
2300 North Martin Luther King Drive
Milwaukee WI 53212

DNR WEST CENTRAL REGION
Attn: RR Program Assistant
Department of Natural Resources
1300 Clairemont Ave.
Eau Claire WI 54702



Note: These are the Remediation and Redevelopment Program's designated regions. Other DNR program regional boundaries may be different.

DNR Use Only			
Date Received	Date Assigned	BRRTS Activity Code	BRRTS No. (if used)
DNR Reviewer	Comments		
Fee Enclosed? ◯ Yes ◯ No	Fee Amount $	Date Additional Information Requested	Date Requested for DNR Response Letter
Date Approved	Final Determination		

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL

July 20. 2017

Mr. John Hnat
WDNR
2300 N Dr. Martin Luther King Jr Dr.
Milwaukee, WI 53212

RE: Vapor Results and Request for WDNR Concurrence that Building is Acceptable for Occupancy, Master Dry Cleaners DERF Site, 6326 W. Bluemound Road, Wauwatosa, WI, BRRTS # 02-41-545142

Dear John:

Objective and Introduction

The purpose of this submittal is to present information to the WDNR so they can review and provide comments on occupation by a fast food restaurant of the above-referenced former drycleaning building.

Based on completed actions and chemical test results, the air chemistry inside the building is below threshold concentrations for human exposure. Subslab building vapors exceed theoretical levels that could pose a risk of potential exposure to building occupants, but an active subslab depressurization system (SSDS) has been installed and is operating to capture and vent to the roof subslab vapors.

Occupancy approval from local government officials has not been possible, as they have indicated they need to obtain information from the State that indicates occupancy is acceptable, based on the site conditions.

The desired outcome from this submittal is that the WDNR will send a letter to the property owner (Mr. Harold Shipshock, Master Drycleaning Inc.), the potential property tenant (Ms. Doris Pelc), and the municipality (City of Wauwatosa Health Department, Ms. Laura Conklin) indicating occupancy can be allowed from an indoor air quality perspective. Contact information and addresses for these three individuals are provided at the end of this letter, in the cc's.

Background Information and Environmental Remediation

The Site consists of a 0.22-acre parcel (90 by 108 feet) on the northeast corner of W. Bluemound Road and 64th Street (Figure 1). The property address is 6326 W. Bluemound Road, and there is a single slab on grade structure measuring roughly 28 feet by 40 feet on the parcel. Most of the lot is asphalt covered, with small grass strips adjacent to 64th Street. (Figure 2).

Surrounding properties include the Police Association building to the east (single story, slab on grade), residences with detached garages to the north and northeast (full basements typically). To the west is 64th street and to the south is Bluemound Road.

The property was developed in 1950 when a gas station was constructed. Drycleaning operations commenced circa 1970 and the business and property were acquired by the current owner, Mr. Shipshock, in 1973. Drycleaning on-site using tetrachloroethene (PCE) was performed from 1973 until 2015, when operations ceased.

Petroleum investigation and remediation activities were completed from 2006 until 2013, including excavation and disposal of contaminated soil around the former underground storage tanks south of the building. Following excavation, the soil and groundwater conditions indicated that while residual contamination was present, no further activities were necessary. Closure for the petroleum project (BRRTS # 03-41-547831) was obtained from the WDNR in March 2013. Closure included a requirement that the existing building floor plus exterior asphalt and concrete surfaces be maintained as a cap to prevent direct contact with remaining impacted soil. The cap was also necessary to minimize infiltration to groundwater through remaining petroleum-contaminated soil.

In 2015, Fehr Graham was hired to complete the remedial actions related to the released PCE. Remediation of the drycleaning chemical release has involved a multi-prong approach. The main effort has included injection of 3,200 pounds of Provect IR, a carbon and zero-valent iron amendment, that was pressure-injected using geoprobe borings into the subsurface around the south, east, and north sides of the drycleaner building in December 2015. A water-based mixture was pressure-injected into the saturated soil and groundwater from approximately 5 to 15 feet below grade. Provect IR optimizes the in-situ reductive dechlorination of PCE and can actively degrade contaminants for an estimated five to ten years. The Fehr-Graham January 28, 2016 Remedial Action Injection Documentation Report summarizes the completed injection activities, and the injection locations are shown on Figure 2.

Post-injection groundwater monitoring has been performed following the injection, with significant improvements observed in the groundwater chemistry since injection. Four post-injection sample events have been completed, and further groundwater monitoring is planned in 2017.

A secondary remedial action was completed to address remaining contamination beneath the building. Injection of Provect IR could not be performed beneath the building, due to the inability of the geoprobe to access the building interior. Instead, source contaminated soil removal actions were implemented in February 2016 and March 2017.

In February 2016, a floor sump that had been historically been connected to the sanitary sewer was excavated and removed, along with a small quantity of surrounding contaminated soil. Provect IR (250 pounds) was mixed with water and poured into the excavation, in an effort to remediate remaining contaminated soil below a depth of 4.5 feet that couldn't be removed in the initial excavation.

After completion of additional soil borings and subslab vapor testing activities, WDNR approval was obtained to complete further remedial excavation actions. In March 2017, approximately 8.7 tons of contaminated soil was removed from an excavation just outside the northwest corner of the building, adjacent to the sanitary sewer lateral (Figure 3). Based on obtained soil samples and visual observation of the sanitary sewer lateral connection, the connection to the building sanitary lateral was intact, and there does not appear to be any significant release of solvent from a broken sewer lateral to the surrounding soil. A report documenting these findings is in preparation, but the soil chemistry information has been provided as Table A.2.1, and is shown on Figure 3.

Soil excavation under the building was also performed the week of March 20, 2017. The excavation consisted of removal and landfill disposal of approximately 15 tons (325 square feet) of concrete from within the building, plus 42 tons of soil from beneath the building.

In addition, five drums of soil were removed from the area immediately beneath the former sump to a depth of eight feet below grade. Upon reaching the target depth, an aqueous solution containing 150 gallons of emulsified zero valent iron (EZVI) was blended into the remaining in place soils below approximately eight feet for additional treatment of residual PCE. Due to the presence of elevated levels of PCE in the drummed soil, this material was handled as hazardous waste, and properly discarded by Badger Disposal.

The excavation created an approximately 40-foot long by four-foot wide by six-foot deep trench that extended east / west beneath the north part of the building (Figure 3). The excavation followed the pathway of the former indoor sanitary sewer line, which was entirely removed beneath the building. In addition, concrete from another roughly 8-foot by 20-foot area east of the former floor sump, in the location of the former drycleaning machine and other PCE handling areas, was removed in case the floor contained residual trace levels of PCE. The entire interior excavated area was restored with new concrete flooring.

As documented in the May 25, 2017 Vapor System Commission Report and Indoor Air Test Results report (attached), upon completion of the indoor excavation, a subslab depressurization system was installed beneath the building. The system includes extraction pipes bedded in pea gravel, a sealed Stego-wrap barrier, and a roof-mounted fan that vents recovered air to the exterior. The floor was restored to grade with fresh concrete in the excavated areas. As summarized in the report, smoke testing, and a pressure field extension test were completed to demonstrate capture from all areas beneath the building.

Approximately two weeks after the system began continuous operation, the indoor air chemistry was measured using a 24-hour summa canister sample. Analysis was completed for drycleaning related compounds using the Niosh TO-15 analytical method. The results indicate detections of a trace amount of PCE (13.8 ug/m^3), but no other detections of chlorinated VOC compounds. These levels of PCE in the indoor air are far below regulatory threshold values for commercial buildings of 180 ug/m^3.

Proposed Building Use

The building has been vacant for approximately two years pending resolution of environmental issues. A tenant (Ms. Doris Pelc) has plans for conversion of the building into a restaurant specializing in hot dogs. Specific plans have not been provided pending indications from the municipality that occupancy could be possible. It is assumed the existing structure would be entirely remodeled, with new wall and floor coverings, fixtures, and plumbing.

In planning for eventual repurposing, during replacement of the building interior following the indoor excavation in March 2017, a floor drain was installed beneath the building floor. The drain is sloped to discharge to the existing sanitary sewer lateral in the northwest corner of the building. One existing wall sink from the approximate building center was also connected to the newly-installed indoor sewer lateral with subsurface piping. While the existing bathroom lateral was observed during the excavation, it was left intact, as it already connects to the existing sanitary lateral near the far northwest corner of the building.

Based on these efforts, at this time, it appears no further subsurface work will be necessary during the building reconstruction efforts. If redevelopment does require excavation, the recovered soil will be properly handled, and construction workers will be informed of the presence of residual contaminants / advised regarding proper personal protective equipment.

Questions to Address

The WDNR has indicated this request should identify the questions we want addressed.

Question One: Have the remedial and interim actions completed to date addressed the exposure pathways for the proposed use for the property?

The investigation results and the completed remedial actions have addressed all exposure pathways of concern.

1) Figure 3 and Table A.2.1 (attached) shows the excavation limits and the remaining soil chemistry results for material beneath the building and in the surrounding soil borings. No soil within the top four feet contains concentrations of PCE or TCE above the non-industrial direct contact threshold values. In addition, no petroleum is known to be present in the top four feet that exceeds direct contact threshold values.

   Soil at depth, including beneath the building at a depth of approximately seven feet below grade, contains concentrations of PCE and TCE above the non-industrial direct contact threshold values of 30,600 and 1,260 ug/kg. These elevated concentrations are only present in soil from depths greater than four feet, and are covered by seven feet of clean, imported fill, and a new concrete floor

2) Ingestion of contaminated groundwater is not a concern, as the site is connected to the municipal water supply. The water lateral enters the building on the northwest corner, and has been piped above grade, so it can be distributed to desired locations upon redevelopment.

3) The utility laterals have been evaluated via soil sampling, and results indicate soils near the utility lines are not impacted with significantly elevated concentrations of PCE or related degradation compounds. To be proactive with potential residual contaminant migration along the utility corridor, clay plugs have been installed along the northwest terminus of the outside excavation around the sanitary sewer lateral, and around the indoor sanitary sewer lateral, as shown on Figure 3.

4) Exposure of building occupants to elevated levels of contaminant vapors has been addressed by the installed SSDS. The system has been shown to draw adequate vacuum to capture vapors from beneath the entire building subslab. The indoor building air quality when the system is operating has been demonstrated to be compliant with chemical indoor air standards for a commercial building.

Question Two: What actions are needed for the property to remain protective for the proposed use?

1) Ongoing operation and maintenance of the SSDS is necessary to protect building occupants. The operation and maintenance plan provided in the May 25, 2017 Vapor System Commission Report should be followed to keep the system functioning. Basically, the system needs to be monitored regularly by observation of the liquid manometer to verify fan function.

2) As requested by the WDNR, approximately six months after occupancy, the indoor air chemistry should be chemically tested for chlorinated VOCs to verify the pre-occupancy results are still at acceptable concentrations. If the post-occupancy results are elevated, additional ventilation measures, or other actions may prove necessary.

3) The existing requirement for maintenance and inspection of the building floor and exterior asphalt and concrete surfaces will continue. Annual inspection and repair, if necessary, will be completed.

I trust this information meets your needs. Please let me know if you have any questions or need additional information. Feel free to call me at 920 892-2444 or e-mail me at kebbott@fehr-graham.com.

Sincerely,

Kendrick A. Ebbott, PG

Attachment: Figure 1: Site Location
Figure 2: Site Layout and Boring Locations
Figure 3: Remaining Soil Chemistry and Utility Excavation Limits
Table A.2.1 Soil Analytical Results Table VOC
May 25, 2017 Fehr Graham Vapor System Commission Report and Indoor Air Test Results

Cc: **Mr. Harold Shipshock**, Master Drycleaning Inc., Property Owner, N57 W26389 Mt. Dulac Drive, Sussex, WI 53089, email c/o son, tshipshock@hydro-flo.com
Ms. Doris Pelc, Potential Tenant / Redeveloper, 1680 Pilgrim Parkway, Elm Grove, WI 53122, email pelskal@hotmail.com
Ms. Laura Conklin, Wauwatosa Health Department, Health Officer, 7725 W. North Avenue, Wauwatosa, WI 53213-0068, email lconklin@wauwatosa.net
Mr. Don Gallo, Husch Blackwell, Donald.Gallo@huschBlackwell.com

N

W E

S

400 0 400

GRAPHIC SCALE IN FEET

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS IOWA WISCONSIN

MASTER DRYCLEANING INC.
6326 W. BLUEMOUND RD.
WAUWATOSA, WI 53213

DRWN: MKH DATE: 01/17/14 APPD: KE

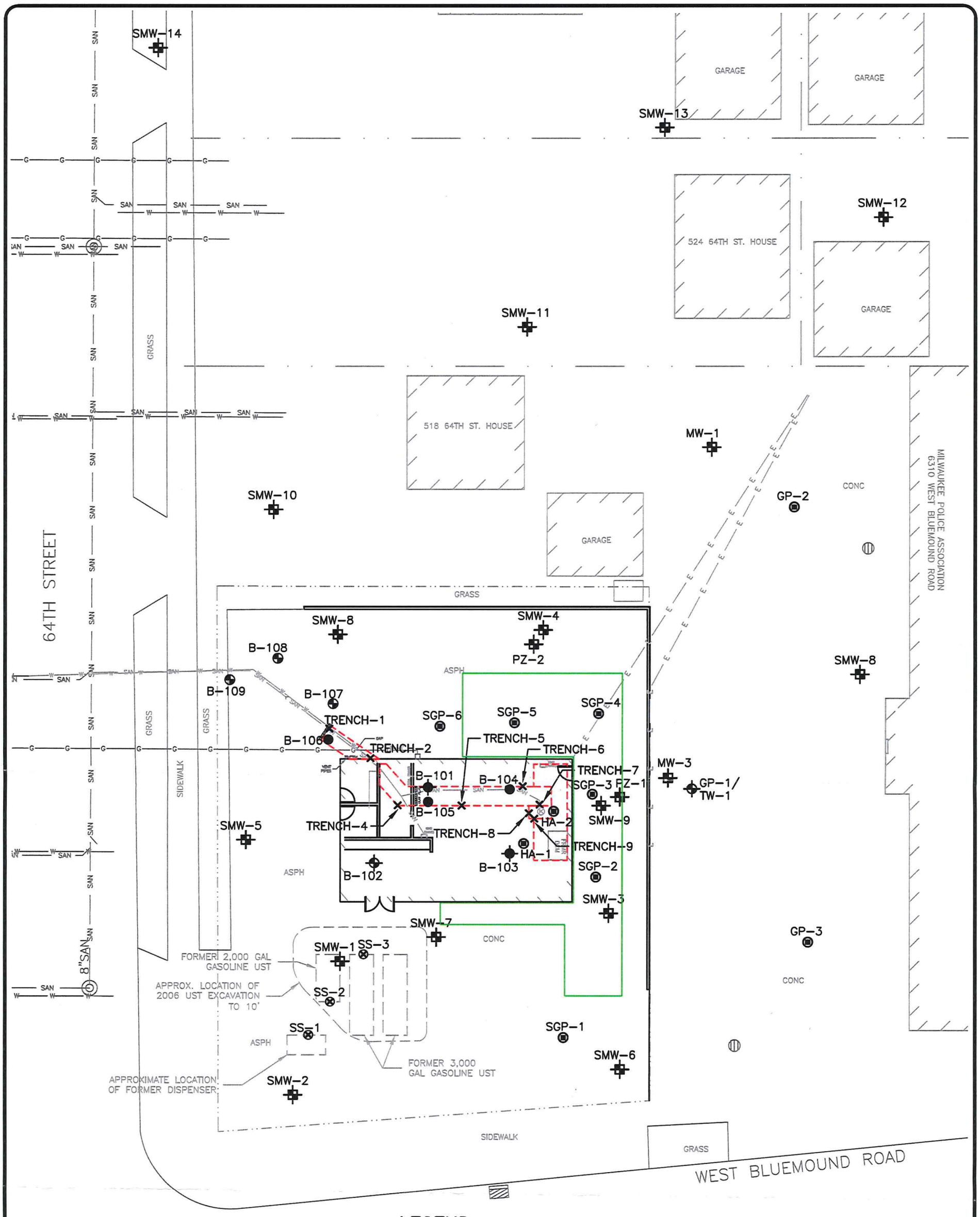
TITLE:

SITE LOCATION

BRRTS: 02-41-545142
JOB NO.: 15-1209
PLOT DATE: 6/28/17

FIGURE: 1

G:\C3D\15\15-1209 Master Clnr\Exhibits\BaseMap-Master-15.1209.dwg, _USGS-BASE MAP



LEGEND

- SOIL BORING (SIGMA)
- SOIL BORING (FEHR GRAHAM)
- REMOVED SOIL BORING
- TEMPORARY WELL
- REMOVED TEMPORARY WELL
- MONITORING WELL
- UST EXCAVATION SAMPLE
- UTILITY EXCAVATION SAMPLE
- UTILITY EXCAVATION OUTLINE
- REMOVED SUMP CROCK
- GEOPROBE INJECTION AREA

N W E S

20 0 20

GRAPHIC SCALE IN FEET

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL — ILLINOIS IOWA WISCONSIN

MASTER DRYCLEANING INC.
6326 W. BLUEMOUND RD.
WAUWATOSA, WI 53213

DRWN: MKH DATE: 01/17/14 APPD: KE

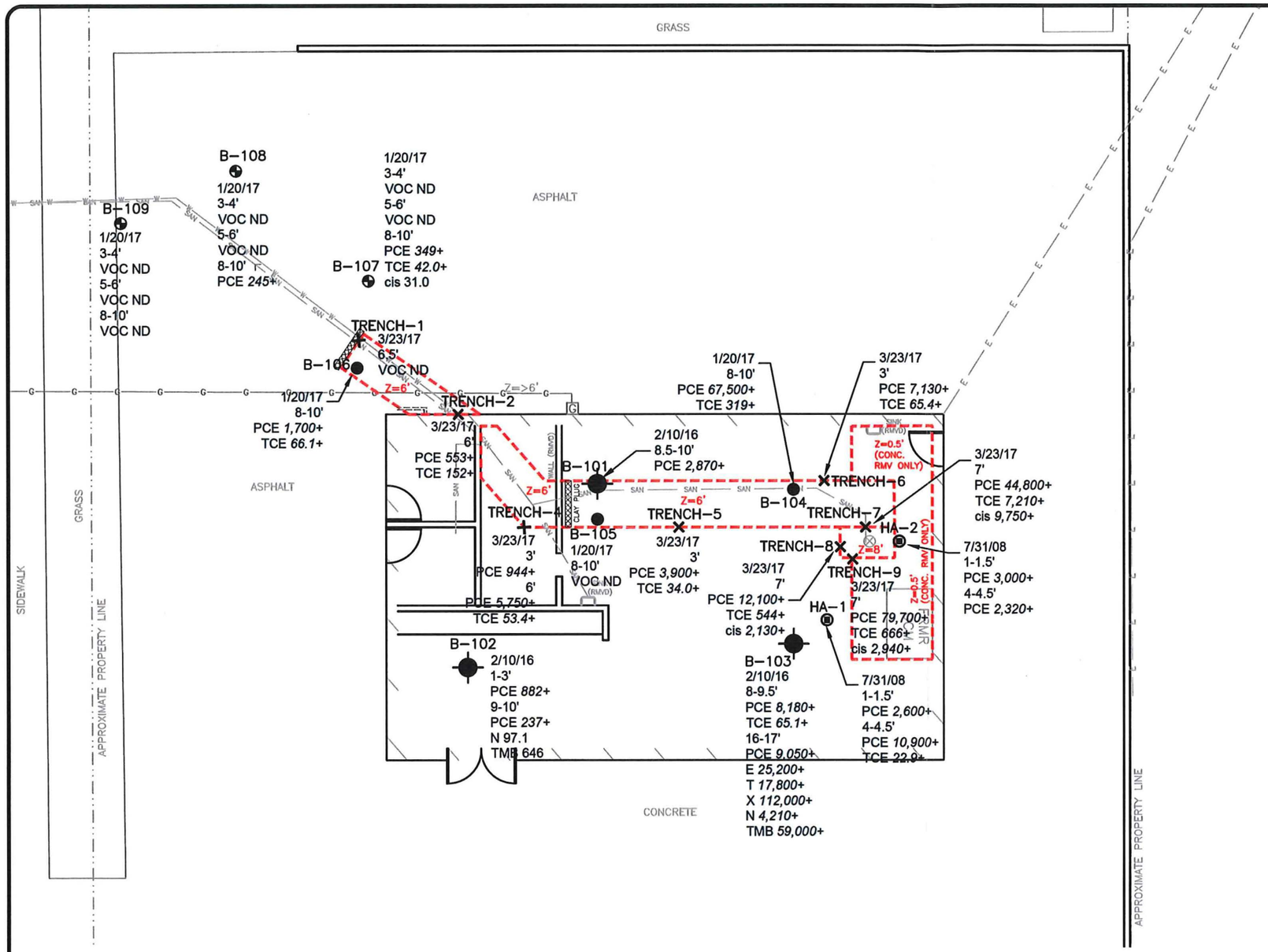
TITLE:

SITE LAYOUT & BORING LOCATIONS

BRRTS: 02–41–545142
JOB NO.: 15–1209
PLOT DATE: 7/7/17

FIGURE: 2

G:\C3D\15\15–1209_Master_Civil\Exhibits\Breakdown–Master–15 1209.dwg BASE MAP



LEGEND

	SOIL BORING
	REMOVED SOIL BORING
	TEMPORARY WELL
	REMOVED TEMPORARY WELL
X	EXCAVATION SAMPLE
Z=6'	EXCAVATION OUTLINE & DEPTH
	CLAY PLUG (INSTALLED)
⊗	REMOVED SUMP CROCK
1/20/17	SAMPLE DATE
1-2'	SAMPLE DEPTH
PCE	TETRACHLOROETHENE (ug/kg)
TCE	TRICHLOROETHENE (ug/kg)
cis	cis-1,2-DICHLOROETHENE (ug/kg)
E	ETHYLBENZENE (ug/kg)
T	TOLUENE (ug/kg)
X	XYLENES, TOTAL (ug/kg)
N	NAPHTHTALENE (ug/kg)
TMB	TRIMETHYLBENZENE, TOTAL (ug/kg)
ND	NO DETECT
VOC	VOLATILE ORGANIC COMPOUNDS
ITALICS+	EXCEEDS NON-INDUSTRIAL DIRECT CONTACT RCL (SOIL IN TOP FOUR FEET ONLY)
BOLD++	EXCEEDS GROUNDWATER PATHWAY RCL

N W E S

10 0 10
GRAPHIC SCALE IN FEET

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL ILLINOIS IOWA WISCONSIN

MASTER DRYCLEANING INC.
6326 W. BLUEMOUND RD.
WAUWATOSA, WI 53213

DRWN: MKH DATE: 01/17/14 APPD: KE

TITLE: REMAINING SOIL CHEMISTRY & UTILITY EXCAVATION LIMITS

BRRTS: 02–41–545142
JOB NO.: 15–1209
PLOT DATE: 7/7/17

FIGURE: 3

G:\C3D\15\15–1209 Master Clnr\Exhibits\BaseMap–Master–15.1209.dwg, RA DOC SOIL

TABLE A.2.1
Soil Analytical Results Table - VOC
Master Drycleaning, Inc.
6326 W. Bluemound Rd., Wauwatosa, WI 53213
BRRTS# 02-41-545142

				UST OEX							
Sample ID		Groundwater Pathway RCL	Non-Industrial Direct-Contact RCL	SS-1	SS-2	SS-3	GP-1	GP-2		GP-3	
Date				06/23/06	06/23/06	06/23/06	12/06/06	12/06/06	12/06/06	12/06/06	12/06/06
Depth				4.5-5'	10'	10'	3-4'	3-4'	13'	3-4'	12-13'
Notes											
Tetrachloroethene (PCE)	(ug/kg)	*4.54*	30,700	<29	<3,000	<610	<36	<33	<36	<40	<37
Trichloroethene (TCE)	(ug/kg)	*3.58*	1,260	<29	<3,000	<610	<41	<37	<41	<40	<42
cis-1,2-Dichloroethene	(ug/kg)	*41.2*	156,000	<29	<3,000	<610	<32	<29	<32	<31	<33
trans-1,2-Dichloroethene	(ug/kg)	*58.8*	1,560,000	<29	<3,000	<610	<30	<27	<30	<29	<31
Vinyl Chloride	(ug/kg)	*0.138*	67	<41	<4,100	<850	<25	<23	<25	<25	<26
Methylene Chloride	(ug/kg)	*2.56*	60,700	<59	<5,900	<1,200	*200*	<33	*130*	*138*	*139*
Benzene	(ug/kg)	*5.12*	1,490	<29	<3,000	<610	<32	<29	<32	<31	<32
Ethylbenzene	(ug/kg)	*1,570*	7,470	<29	*44,000*	*18,000*	<30	<27	<30	<29	<31
Toluene	(ug/kg)	*1,110*	818,000	<29	<3,000	*1,200*	<35	<31	<35	<34	<35
Xylenes (TOTAL)	(ug/kg)	*3,940*	258,000	<100	*170,000*	*110,000*	<94	<85	<94	<90	<94
m&p-Xylene	(ug/kg)	NS	778,000	NR	NR	NR	NR	NR	NR	NR	NR
o-Xylene	(ug/kg)	NS	434,000	NR	NR	NR	NR	NR	NR	NR	NR
Naphthalene	(ug/kg)	*658*	5,150	<59	*17,000*	*9,700*	<90	<81	<90	<87	<91
MTBE	(ug/kg)	*27*	59,400	<29	<3,000	<610	<47	<42	<47	<45	<47
Trimethylbenzene Total (1,2,4- & 1,3,5-)	(ug/kg)	*1,380*	NS	0.0	*150,000*	*88,000*	0.0	0.0	0.0	0.0	0.0
1,2,4-Trimethylbenzene	(ug/kg)	NS	89,800	<29	*120,000*	*69,000*	<36	<32	<36	<35	<36
1,3,5-Trimethylbenzene	(ug/kg)	NS	182,000	<29	*30,000*	*19,000*	<41	<37	<41	<40	<41
Bromobenzene	(ug/kg)	NS	354,000	<29	<3,000	<610	<37	<33	<37	<36	<37
Bromochloromethane	(ug/kg)	NS	232,000	NR	NR	NR	NR	NR	NR	NR	NR
Bromodichloromethane	(ug/kg)	*0.326*	390	<29	<3,000	<610	<46	<41	<46	<44	<46
Bromoform	(ug/kg)	*2.33*	61,500	NR	NR	NR	NR	NR	NR	NR	NR
Bromomethane	(ug/kg)	*5.06*	10,300	NR	NR	NR	NR	NR	NR	NR	NR
n-Butylbenzene	(ug/kg)	NS	108,000	<29	<3,000	<610	<43	<39	<43	<41	<43
sec-Butylbenzene	(ug/kg)	NS	145,000	<29	<3,000	*1,800*	<40	<36	<40	<39	<41
tert-Butylbenzene	(ug/kg)	NS	183,000	<29	<3,000	<610	<36	<33	<36	<35	<36
Carbon Tetrachloride	(ug/kg)	*3.88*	854	<29	<3,000	<610	<32	<29	<32	<31	<32
Chlorobenzene	(ug/kg)	NS	392,000	<29	<3,000	<610	<31	<28	<31	<30	<31
Chloroethane (ethyl chloride)	(ug/kg)	*227*	2,120,000	<59	<5,900	<1,200	<76	<68	<76	<73	<77
Chloroform	(ug/kg)	*3.33*	423	<29	<3,000	<610	<29	<26	<29	<28	<29
Chloromethane	(ug/kg)	*15.5*	171,000	<59	<5,900	<1,200	<59	<53	<59	<57	<60
2-Chlorotoluene	(ug/kg)	NS	907,000	<59	<5,900	<1,200	<35	<32	<36	<34	<36
4-Chlorotoluene	(ug/kg)	NS	253,000	<29	<3,000	<610	<31	<28	<31	<30	<32
1,2-Dibromo-3-chloropropane	(ug/kg)	*0.173*	8	<59	<5,900	<1,200	<39	<36	<39	<38	<40
Dibromochloromethane	(ug/kg)	*32*	933	<29	<3,000	<610	<48	<44	<49	<47	<49
1,2-Dibromoethane (EDB)	(ug/kg)	*0.0282*	47	<29	<3,000	<610	--	--	--	--	--
Dibromomethane	(ug/kg)	NS	35,000	NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichlorobenzene	(ug/kg)	*1,170*	376,000	<29	<3,000	<610	<41	<37	<41	<39	<41
1,3-Dichlorobenzene	(ug/kg)	*1,150*	297,000	<29	<3,000	<610	<31	<28	<31	<30	<31
1,4-Dichlorobenzene	(ug/kg)	*144*	3,480	<29	<3,000	<610	<42	<38	<42	<41	<43
Dichlorodifluoromethane	(ug/kg)	*3,090*	135,000	<59	<5,900	<1,200	<32	<29	<32	<31	<32
1,1-Dichloroethane	(ug/kg)	*483*	4,720	<29	<3,000	<610	<38	<34	<38	<37	<39
1,2-Dichloroethane	(ug/kg)	*2.84*	608	<29	<3,000	<610	<41	<37	<41	<40	<42
1,1-Dichloroethene	(ug/kg)	*5.02*	342,000	<29	<3,000	<610	<41	<37	<41	<39	<41
1,2-Dichloropropane	(ug/kg)	*3.32*	1,330	<29	<3,000	<610	<38	<35	<38	<37	<39
1,3-Dichloropropane	(ug/kg)	NS	1,490,000	<29	<3,000	<610	<46	<42	<47	<45	<47
2,2-Dichloropropane	(ug/kg)	NS	527,000	NR	NR	NR	NR	NR	NR	NR	NR
1,1-Dichloropropene	(ug/kg)	NS	NS	NR	NR	NR	NR	NR	NR	NR	NR
cis-1,3-Dichloropropene	(ug/kg)	*0.286*	1,220,000	NR	NR	NR	NR	NR	NR	NR	NR
trans-1,3-Dichloropropene	(ug/kg)	*0.286*	1,570,000	NR	NR	NR	NR	NR	NR	NR	NR
Diisopropyl ether	(ug/kg)	NS	2,260,000	<29	<3,000	<610	<35	<32	<35	<34	<36
Hexachloro-1,3-butadiene	(ug/kg)	NS	6,220	<41	<4,100	<850	<50	<45	<50	<48	<50
Isopropylbenzene	(ug/kg)	NS	268,000	<29	6,400	2,800	<39	<35	<39	<38	<40
p-Isopropyltoluene	(ug/kg)	NS	162,000	<29	<3,000	780	<37	<34	<37	<36	<38
n-Propylbenzene	(ug/kg)	NS	264,000	<29	25,000	11,000	<34	<30	<34	<32	<34
Styrene	(ug/kg)	*220*	867,000	NR	NR	NR	NR	NR	NR	NR	NR
1,1,1,2-Tetrachloroethane	(ug/kg)	*53.4*	2,590	NR	NR	NR	NR	NR	NR	NR	NR
1,1,2,2-Tetrachloroethane	(ug/kg)	*0.156*	753	<29	<3,000	<610	<52	<47	<52	<51	<53
1,2,3-Trichlorobenzene	(ug/kg)	NS	48,900	<29	<3,000	<610	<59	<54	<59	<57	<60
1,2,4-Trichlorobenzene	(ug/kg)	*408*	22,000	<29	<3,000	<610	<56	<50	<56	<54	<56
1,1,1-Trichlorethane	(ug/kg)	*140*	640,000	<29	<3,000	<610	<37	<34	<37	<36	<38
1,1,2-Trichlorethane	(ug/kg)	*3.24*	1,480	<41	<4,100	<850	<52	<47	<52	<50	<53
Trichlorofluoromethane	(ug/kg)	NS	1,120,000	<29	<3,000	<610	<29	<26	<29	<28	<29
1,2,3-Trichloropropane	(ug/kg)	*51.9*	5	NR	NR	NR	NR	NR	NR	NR	NR
No. of Individual Exceedances (DC)				--	--	--	0	0	--	0	--
Cumulative Hazard Index (DC)				--	--	--	0.0005	0.	--	0.0004	--
Cumulative Cancer Risk (DC)				--	--	--	3.3E-09	0.0E+00	--	2.3E-09	--

Exceedance Highlights:

BOLD Red font indicates DC RCL exceedance per DNR RCL calculator 7/14/14, and BTV exceedance for metals. ***B1**: Cumulative exceedance (HI > 1), eventhough no individual DC RCL was exceeded.

Italic font indicates GW RCL Exceedance per DNR RCL calculator 7/14/14. Groundwater quality (> NR 140 ES) may be affected when GW RCLs are exceeded.

Notes:

Xylenes reported as total of m-, o-, p-xylenes
NS = No standard established
NA = Not analyzed for parameter
NR = Not Reported

TABLE A.2.1
Soil Analytical Results Table - VOC
Master Drycleaning, Inc.
6326 W. Bluemound Rd., Wauwatosa, WI 53213
BRRTS# 02-41-545142

Sample ID				SMW-1		SMW-2		SMW-3		SMW-4		SMW-5	
Date				12/06/06	12/06/06	12/06/06	12/06/06	12/06/06	12/06/06	12/06/06	12/06/06	12/06/06	12/06/06
Depth				4-6'	8-10'	2-4'	10-12'	2-4'	6-8'	4-6'	8-10'	2-4'	6-8'
Notes		Groundwater Pathway RCL	Non-Industrial Direct-Contact RCL										
Tetrachloroethene (PCE)	(ug/kg)	*4.54*	30,700	<25	<1,250	<25	<25	*1,440*	*3,000*	<25	*115*	<25	<25
Trichloroethene (TCE)	(ug/kg)	*3.58*	1,260	<25	<1,250	<25	<25	<25	*40 J*	<25	<25	<25	<25
cis-1,2-Dichloroethene	(ug/kg)	*41.2*	156,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
trans-1,2-Dichloroethene	(ug/kg)	*58.8*	1,560,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Vinyl Chloride	(ug/kg)	*0.138*	67	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Methylene Chloride	(ug/kg)	*2.56*	60,700	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Benzene	(ug/kg)	*5.12*	1,490	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Ethylbenzene	(ug/kg)	*1,570*	7,470	<25	*2,200 J*	<25	<25	<25	750	<25	<25	<25	<25
Toluene	(ug/kg)	*1,110*	818,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Xylenes (TOTAL)	(ug/kg)	*3,940*	258,000	<50	<2,500	<50	<50	<50	502 J	<50	<50	<50	<50
m&p-Xylene	(ug/kg)	NS	778,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
o-Xylene	(ug/kg)	NS	434,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Naphthalene	(ug/kg)	*658*	5,150	<25	*4,200*	<25	<25	<25	222	<25	<25	<25	<25
MTBE	(ug/kg)	*27*	59,400	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Trimethylbenzene Total (1,2,4- & 1,3,5-)	(ug/kg)	*1,380*	NS	26.7	*13,100*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1,2,4-Trimethylbenzene	(ug/kg)	NS	89,800	26.7 J	13,100	<25	<25	<25	2,980	<25	<25	<25	<25
1,3,5-Trimethylbenzene	(ug/kg)	NS	182,000	<25	<1,250	<25	<25	<25	130	<25	<25	<25	<25
Bromobenzene	(ug/kg)	NS	354,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Bromochloromethane	(ug/kg)	NS	232,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Bromodichloromethane	(ug/kg)	*0.326*	390	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Bromoform	(ug/kg)	*2.33*	61,500	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Bromomethane	(ug/kg)	*5.06*	10,300	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
n-Butylbenzene	(ug/kg)	NS	108,000	55 J	6,400	<25	<25	<25	740	<25	<25	<25	<25
sec-Butylbenzene	(ug/kg)	NS	145,000	<25	*2,060 J*	<25	<25	<25	208	<25	<25	<25	<25
tert-Butylbenzene	(ug/kg)	NS	183,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Carbon Tetrachloride	(ug/kg)	*3.88*	854	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Chlorobenzene	(ug/kg)	NS	392,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Chloroethane (ethyl chloride)	(ug/kg)	*227*	2,120,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Chloroform	(ug/kg)	*3.33*	423	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Chloromethane	(ug/kg)	*15.5*	171,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
2-Chlorotoluene	(ug/kg)	NS	907,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
4-Chlorotoluene	(ug/kg)	NS	253,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
1,2-Dibromo-3-chloropropane	(ug/kg)	*0.173*	8	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Dibromochloromethane	(ug/kg)	*32*	933	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
1,2-Dibromoethane (EDB)	(ug/kg)	*0.0282*	47	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Dibromomethane	(ug/kg)	NS	35,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichlorobenzene	(ug/kg)	*1,170*	376,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
1,3-Dichlorobenzene	(ug/kg)	*1,150*	297,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
1,4-Dichlorobenzene	(ug/kg)	*144*	3,480	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Dichlorodifluoromethane	(ug/kg)	*3,090*	135,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
1,1-Dichloroethane	(ug/kg)	*483*	4,720	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
1,2-Dichloroethane	(ug/kg)	*2.84*	608	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
1,1-Dichloroethene	(ug/kg)	*5.02*	342,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
1,2-Dichloropropane	(ug/kg)	*3.32*	1,330	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
1,3-Dichloropropane	(ug/kg)	NS	1,490,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
2,2-Dichloropropane	(ug/kg)	NS	527,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1-Dichloropropene	(ug/kg)	NS	NS	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
cis-1,3-Dichloropropene	(ug/kg)	*0.286*	1,220,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
trans-1,3-Dichloropropene	(ug/kg)	*0.286*	1,570,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Diisopropyl ether	(ug/kg)	NS	2,260,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Hexachloro-1,3-butadiene	(ug/kg)	NS	6,220	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Isopropylbenzene	(ug/kg)	NS	268,000	<25	3,080	<25	<25	<25	250	<25	<25	<25	<25
p-Isopropyltoluene	(ug/kg)	NS	162,000	<25	<1,250	<25	<25	<25	130	<25	<25	<25	<25
n-Propylbenzene	(ug/kg)	NS	264,000	<25	13,300	<25	<25	<25	1,200	<25	<25	<25	<25
Styrene	(ug/kg)	*220*	867,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1,1,2-Tetrachloroethane	(ug/kg)	*53.4*	2,590	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1,2,2-Tetrachloroethane	(ug/kg)	*0.156*	753	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
1,2,3-Trichlorobenzene	(ug/kg)	NS	48,900	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
1,2,4-Trichlorobenzene	(ug/kg)	*408*	22,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
1,1,1-Trichlorethane	(ug/kg)	*140*	640,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
1,1,2-Trichlorethane	(ug/kg)	*3.24*	1,480	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
Trichlorofluoromethane	(ug/kg)	NS	1,120,000	<25	<1,250	<25	<25	<25	<25	<25	<25	<25	<25
1,2,3-Trichloropropane	(ug/kg)	*51.9*	5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
No. of Individual Exceedances (DC)				--	--	0	--	0	--	--	--	0	--
Cumulative Hazard Index (DC)				--	--	0.	--	0.0125	--	--	--	0	--
Cumulative Cancer Risk (DC)				--	--	0.0E+00	--	4.7E-08	--	--	--	0.0E+00	--

Exceedance Highlights:

BOLD Red font indicates DC RCL exceedance per DNR RCL calculator 7/14/14, and BTV exceedance for metals. ***B1**: Cumulative exceedance (HI > 1), eventhough no individual DC RCL was exceeded.
Italic font indicates GW RCL Exceedance per DNR RCL calculator 7/14/14. Groundwater quality (> NR 140 ES) may be affected when GW RCLs are exceeded.

Notes:

Xylenes reported as total of m-, o-, p-xylenes
NS = No standard established
NA = Not analyzed for parameter
NR = Not Reported

TABLE A.2.1
Soil Analytical Results Table - VOC
Master Drycleaning, Inc.
6326 W. Bluemound Rd., Wauwatosa, WI 53213
BRRTS# 02-41-545142

Sample ID		Groundwater Pathway RCL	Non-Industrial Direct-Contact RCL	SGP-1		SGP-2		SGP-3		SGP-4		SGP-5	
Date				09/06/07	09/06/07	09/06/07	09/06/07	09/06/07	09/06/07	09/06/07	09/06/07	09/06/07	09/06/07
Depth				4-6'	8-10'	0-2'	6-8'	4-6'	8-10'	0-2'	6-8'	2-4'	8-10'
Notes													
Tetrachloroethene (PCE)	(ug/kg)	*4.54*	30,700	*550*	*124*	*1,620*	*1,390*	*6,900*	*7,800*	*560*	*940*	*105*	*1,670*
Trichloroethene (TCE)	(ug/kg)	*3.58*	1,260	<25	<25	<25	<25	*65*	*267*	<25	<25	<25	<25
cis-1,2-Dichloroethene	(ug/kg)	*41.2*	156,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
trans-1,2-Dichloroethene	(ug/kg)	*58.8*	1,560,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Vinyl Chloride	(ug/kg)	*0.138*	67	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Methylene Chloride	(ug/kg)	*2.56*	60,700	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Benzene	(ug/kg)	*5.12*	1,490	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Ethylbenzene	(ug/kg)	*1,570*	7,470	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Toluene	(ug/kg)	*1,110*	818,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Xylenes (TOTAL)	(ug/kg)	*3,940*	258,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
m&p-Xylene	(ug/kg)	NS	778,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
o-Xylene	(ug/kg)	NS	434,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Naphthalene	(ug/kg)	*658*	5,150	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
MTBE	(ug/kg)	*27*	59,400	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Trimethylbenzene Total (1,2,4- & 1,3,5-)	(ug/kg)	*1,380*	NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1,2,4-Trimethylbenzene	(ug/kg)	NS	89,800	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
1,3,5-Trimethylbenzene	(ug/kg)	NS	182,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Bromobenzene	(ug/kg)	NS	354,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Bromochloromethane	(ug/kg)	NS	232,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Bromodichloromethane	(ug/kg)	*0.326*	390	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Bromoform	(ug/kg)	*2.33*	61,500	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Bromomethane	(ug/kg)	*5.06*	10,300	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
n-Butylbenzene	(ug/kg)	NS	108,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
sec-Butylbenzene	(ug/kg)	NS	145,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
tert-Butylbenzene	(ug/kg)	NS	183,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Carbon Tetrachloride	(ug/kg)	*3.88*	854	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Chlorobenzene	(ug/kg)	NS	392,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Chloroethane (ethyl chloride)	(ug/kg)	*227*	2,120,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Chloroform	(ug/kg)	*3.33*	423	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Chloromethane	(ug/kg)	*15.5*	171,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
2-Chlorotoluene	(ug/kg)	NS	907,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
4-Chlorotoluene	(ug/kg)	NS	253,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
1,2-Dibromo-3-chloropropane	(ug/kg)	*0.173*	8	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Dibromochloromethane	(ug/kg)	*32*	933	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
1,2-Dibromoethane (EDB)	(ug/kg)	*0.0282*	47	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Dibromomethane	(ug/kg)	NS	35,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichlorobenzene	(ug/kg)	*1,170*	376,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
1,3-Dichlorobenzene	(ug/kg)	*1,150*	297,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
1,4-Dichlorobenzene	(ug/kg)	*144*	3,480	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Dichlorodifluoromethane	(ug/kg)	*3,090*	135,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
1,1-Dichloroethane	(ug/kg)	*483*	4,720	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
1,2-Dichloroethane	(ug/kg)	*2.84*	608	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
1,1-Dichloroethene	(ug/kg)	*5.02*	342,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
1,2-Dichloropropane	(ug/kg)	*3.32*	1,330	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
1,3-Dichloropropane	(ug/kg)	NS	1,490,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
2,2-Dichloropropane	(ug/kg)	NS	527,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1-Dichloropropene	(ug/kg)	NS	NS	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
cis-1,3-Dichloropropene	(ug/kg)	*0.286*	1,220,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
trans-1,3-Dichloropropene	(ug/kg)	*0.286*	1,570,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Diisopropyl ether	(ug/kg)	NS	2,260,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Hexachloro-1,3-butadiene	(ug/kg)	NS	6,220	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Isopropylbenzene	(ug/kg)	NS	268,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
p-Isopropyltoluene	(ug/kg)	NS	162,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
n-Propylbenzene	(ug/kg)	NS	264,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Styrene	(ug/kg)	*220*	867,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1,1,2-Tetrachloroethane	(ug/kg)	*53.4*	2,590	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1,2,2-Tetrachloroethane	(ug/kg)	*0.156*	753	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
1,2,3-Trichlorobenzene	(ug/kg)	NS	48,900	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
1,2,4-Trichlorobenzene	(ug/kg)	*408*	22,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
1,1,1-Trichlorethane	(ug/kg)	*140*	640,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
1,1,2-Trichlorethane	(ug/kg)	*3.24*	1,480	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Trichlorofluoromethane	(ug/kg)	NS	1,120,000	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
1,2,3-Trichloropropane	(ug/kg)	*51.9*	5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
No. of Individual Exceedances (DC)				--	--	0	--	--	--	0	--	0	--
Cumulative Hazard Index (DC)				--	--	0.0141	--	--	--	0.0049	--	0.0009	--
Cumulative Cancer Risk (DC)				--	--	5.3E-08	--	--	--	1.8E-08	--	3.4E-09	--

Exceedance Highlights:

BOLD Red font indicates DC RCL exceedance per DNR RCL calculator 7/14/14, and BTV exceedance for metals. ***B1**: Cumulative exceedance (HI > 1), eventhough no individual DC RCL was exceeded.
Italic font indicates GW RCL Exceedance per DNR RCL calculator 7/14/14. Groundwater quality (> NR 140 ES) may be affected when GW RCLs are exceeded.

Notes:

Xylenes reported as total of m-, o-, p-xylenes
NS = No standard established
NA = Not analyzed for parameter
NR = Not Reported

TABLE A.2.1
Soil Analytical Results Table - VOC
Master Drycleaning, Inc.
6326 W. Bluemound Rd., Wauwatosa, WI 53213
BRRTS# 02-41-545142

Sample ID				SGP-6		SMW-6		SMW-7		SMW-8		SMW-9
Date				09/06/07	09/06/07	09/17/07	09/17/07	09/17/07	09/17/07	09/17/07	09/17/07	09/17/07
Depth				0-2'	6-8'	4-6'	8-10'	0-2'	6-8'	4-6'	8-10'	14-15'
Notes		Groundwater Pathway RCL	Non-Industrial Direct-Contact RCL									
Tetrachloroethene (PCE)	(ug/kg)	*4.54*	30,700	*29.9 J*	*253*	*59 J*	*41 J*	<25	<25	<25	<25	*214,000*
Trichloroethene (TCE)	(ug/kg)	*3.58*	1,260	<25	<25	<25	<25	<25	<25	<25	<25	*51,000*
cis-1,2-Dichloroethene	(ug/kg)	*41.2*	156,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
trans-1,2-Dichloroethene	(ug/kg)	*58.8*	1,560,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Vinyl Chloride	(ug/kg)	*0.138*	67	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Methylene Chloride	(ug/kg)	*2.56*	60,700	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Benzene	(ug/kg)	*5.12*	1,490	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Ethylbenzene	(ug/kg)	*1,570*	7,470	<25	<25	<25	<25	<25	<25	<25	<25	*8,000*
Toluene	(ug/kg)	*1,110*	818,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Xylenes (TOTAL)	(ug/kg)	*3,940*	258,000	<50	<50	<50	<50	<50	*62 J*	<50	<50	<2,500
m&p-Xylene	(ug/kg)	NS	778,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
o-Xylene	(ug/kg)	NS	434,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
Naphthalene	(ug/kg)	*658*	5,150	<25	<25	<25	<25	*247*	*48 J*	<25	<25	<2,500
MTBE	(ug/kg)	*27*	59,400	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Trimethylbenzene Total (1,2,4- & 1,3,5-)	(ug/kg)	*1,380*	NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	*16,000*
1,2,4-Trimethylbenzene	(ug/kg)	NS	89,800	<25	<25	<25	<25	<25	*39 J*	<25	<25	*16,000*
1,3,5-Trimethylbenzene	(ug/kg)	NS	182,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Bromobenzene	(ug/kg)	NS	354,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Bromochloromethane	(ug/kg)	NS	232,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
Bromodichloromethane	(ug/kg)	*0.326*	390	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Bromoform	(ug/kg)	*2.33*	61,500	NR	NR	NR	NR	NR	NR	NR	NR	NR
Bromomethane	(ug/kg)	*5.06*	10,300	NR	NR	NR	NR	NR	NR	NR	NR	NR
n-Butylbenzene	(ug/kg)	NS	108,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
sec-Butylbenzene	(ug/kg)	NS	145,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
tert-Butylbenzene	(ug/kg)	NS	183,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Carbon Tetrachloride	(ug/kg)	*3.88*	854	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Chlorobenzene	(ug/kg)	NS	392,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Chloroethane (ethyl chloride)	(ug/kg)	*227*	2,120,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Chloroform	(ug/kg)	*3.33*	423	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Chloromethane	(ug/kg)	*15.5*	171,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
2-Chlorotoluene	(ug/kg)	NS	907,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
4-Chlorotoluene	(ug/kg)	NS	253,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
1,2-Dibromo-3-chloropropane	(ug/kg)	*0.173*	8	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Dibromochloromethane	(ug/kg)	*32*	933	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
1,2-Dibromoethane (EDB)	(ug/kg)	*0.0282*	47	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Dibromomethane	(ug/kg)	NS	35,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichlorobenzene	(ug/kg)	*1,170*	376,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
1,3-Dichlorobenzene	(ug/kg)	*1,150*	297,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
1,4-Dichlorobenzene	(ug/kg)	*144*	3,480	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Dichlorodifluoromethane	(ug/kg)	*3,090*	135,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
1,1-Dichloroethane	(ug/kg)	*483*	4,720	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
1,2-Dichloroethane	(ug/kg)	*2.84*	608	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
1,1-Dichloroethene	(ug/kg)	*5.02*	342,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
1,2-Dichloropropane	(ug/kg)	*3.32*	1,330	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
1,3-Dichloropropane	(ug/kg)	NS	1,490,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
2,2-Dichloropropane	(ug/kg)	NS	527,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1-Dichloropropene	(ug/kg)	NS	NS	NR	NR	NR	NR	NR	NR	NR	NR	NR
cis-1,3-Dichloropropene	(ug/kg)	*0.286*	1,220,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
trans-1,3-Dichloropropene	(ug/kg)	*0.286*	1,570,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
Diisopropyl ether	(ug/kg)	NS	2,260,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Hexachloro-1,3-butadiene	(ug/kg)	NS	6,220	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Isopropylbenzene	(ug/kg)	NS	268,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
p-Isopropyltoluene	(ug/kg)	NS	162,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
n-Propylbenzene	(ug/kg)	NS	264,000	<25	<25	<25	<25	<25	<25	<25	<25	*2,860 J*
Styrene	(ug/kg)	*220*	867,000	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1,1,2-Tetrachloroethane	(ug/kg)	*53.4*	2,590	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,1,2,2-Tetrachloroethane	(ug/kg)	*0.156*	753	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
1,2,3-Trichlorobenzene	(ug/kg)	NS	48,900	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
1,2,4-Trichlorobenzene	(ug/kg)	*408*	22,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
1,1,1-Trichlorethane	(ug/kg)	*140*	640,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
1,1,2-Trichlorethane	(ug/kg)	*3.24*	1,480	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
Trichlorofluoromethane	(ug/kg)	NS	1,120,000	<25	<25	<25	<25	<25	<25	<25	<25	<2,500
1,2,3-Trichloropropane	(ug/kg)	*51.9*	5	NR	NR	NR	NR	NR	NR	NR	NR	NR
No. of Individual Exceedances (DC)				0	--	--	--	0	--	--	--	--
Cumulative Hazard Index (DC)				0.0003	--	--	--	0.0013	--	--	--	--
Cumulative Cancer Risk (DC)				9.7E-10	--	--	--	4.8E-08	--	--	--	--

Exceedance Highlights:

BOLD Red font indicates DC RCL exceedance per DNR RCL calculator 7/14/14, and BTV exceedance for metals. ***B1***: Cumulative exceedance (HI > 1), eventhough no individual DC RCL was exceeded.

Italic font indicates GW RCL Exceedance per DNR RCL calculator 7/14/14. Groundwater quality (> NR 140 ES) may be affected when GW RCLs are exceeded.

Notes:

Xylenes reported as total of m-, o-, p-xylenes
NS = No standard established
NA = Not analyzed for parameter
NR = Not Reported

TABLE A.2.I
Soil Analytical Results Table - VOC
Master Drycleaning, Inc.
6326 W. Bluemound Rd., Wauwatosa, WI 53213
BRRTS# 02-41-545142

Sample ID		Groundwater Pathway RCL	Non-Industrial Direct-Contact RCL	Inside HA-1		Inside HA-2		B-101 Inside N		B-102 Inside S		B-103 Inside E	
Date				07/31/08	07/31/08	07/31/08	07/31/08	02/10/16	02/10/16	02/10/16	02/10/16	02/10/16	02/10/16
Depth				1-1.5'	4-4.5'	1-1.5'	4.5-5'	1-3'	8.5-10'	1-3'	9-10'	8-9.5'	16-17'
Notes						RMVD		RMVD					
Tetrachloroethene (PCE)	(ug/kg)	*4.54*	30,700	*2,600*	*10,900*	*3,000*	*2,320*	*2,140*	*2,870*	*882*	*237*	*8,180*	*9,050*
Trichloroethene (TCE)	(ug/kg)	*3.58*	1,260	<20	*22.9*	<20	<20	<25.0	<25.0	<25.0	<25.0	*65.1 J*	<250
cis-1,2-Dichloroethene	(ug/kg)	*41.2*	156,000	<24	<24	<24	<24	<25.0	<25.0	<25.0	<25.0	<25.0	<250
trans-1,2-Dichloroethene	(ug/kg)	*58.8*	1,560,000	<29	<29	<29	<29	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Vinyl Chloride	(ug/kg)	*0.138*	67	<17	<17	<17	<17	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Methylene Chloride	(ug/kg)	*2.56*	60,700	<44	<44	<44	<44	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Benzene	(ug/kg)	*5.12*	1,490	<20	<20	<20	<20	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Ethylbenzene	(ug/kg)	*1,570*	7,470	<16	<16	<16	<16	<25.0	<25.0	<25.0	<25.0	<25.0	*25,200*
Toluene	(ug/kg)	*1,110*	818,000	<23	<23	<23	<23	<25.0	<25.0	<25.0	<25.0	<25.0	*17,800*
Xylenes (TOTAL)	(ug/kg)	*3,940*	258,000	<48	<48	<48	<48	<75.0	<75.0	<75.0	<75.0	<75.0	*112,000*
m&p-Xylene	(ug/kg)	NS	778,000	NR	NR	NR	NR	<50.0	<50.0	<50.0	<50.0	<50.0	82,300
o-Xylene	(ug/kg)	NS	434,000	NR	NR	NR	NR	<25.0	<25.0	<25.0	<25.0	<25.0	29,700
Naphthalene	(ug/kg)	*658*	5,150	<117	<117	<117	<117	<40.0	<40.0	<40.0	97.1J	<40.0	*4,210*
MTBE	(ug/kg)	*27*	59,400	<23	<23	<23	<23	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Trimethylbenzene Total (1,2,4- & 1,3,5-)	(ug/kg)	*1,380*	NS	0.0	0.0	0.0	0.0	<50.0	<50.0	<50.0	646	<50.0	*59,000*
1,2,4-Trimethylbenzene	(ug/kg)	NS	89,800	<20	<20	<20	<20	<25.0	<25.0	<25.0	510	<25.0	45,300
1,3,5-Trimethylbenzene	(ug/kg)	NS	182,000	<24	<24	<24	<24	<25.0	<25.0	<25.0	136	<25.0	13,700
Bromobenzene	(ug/kg)	NS	354,000	<34	<34	<34	<34	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Bromochloromethane	(ug/kg)	NS	232,000	NR	NR	NR	NR	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Bromodichloromethane	(ug/kg)	*0.326*	390	<16	<16	<16	<16	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Bromoform	(ug/kg)	*2.33*	61,500	NR	NR	NR	NR	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Bromomethane	(ug/kg)	*5.06*	10,300	NR	NR	NR	NR	<69.9	<69.9	<69.9	<69.9	<69.9	<699
n-Butylbenzene	(ug/kg)	NS	108,000	<35	<35	<35	<35	<25.0	<25.0	<25.0	241	<25.0	5,050
sec-Butylbenzene	(ug/kg)	NS	145,000	<25	<25	<25	<25	<25.0	<25.0	<25.0	169	<25.0	969
tert-Butylbenzene	(ug/kg)	NS	183,000	<23	<23	<23	<23	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Carbon Tetrachloride	(ug/kg)	*3.88*	854	<21	<21	<21	<21	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Chlorobenzene	(ug/kg)	NS	392,000	<16	<16	<16	<16	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Chloroethane (ethyl chloride)	(ug/kg)	*227*	2,120,000	<23	<23	<23	<23	<67.0	<67.0	<67.0	<67.0	<67.0	<670
Chloroform	(ug/kg)	*3.33*	423	<50	<50	<50	<50	<46.4	<46.4	<46.4	<46.4	<46.4	<464
Chloromethane	(ug/kg)	*15.5*	171,000	<43	<43	<43	<43	<25.0	<25.0	<25.0	<25.0	<25.0	<250
2-Chlorotoluene	(ug/kg)	NS	907,000	<31	<31	<31	<31	<25.0	<25.0	<25.0	<25.0	<25.0	<250
4-Chlorotoluene	(ug/kg)	NS	253,000	<24	<24	<24	<24	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,2-Dibromo-3-chloropropane	(ug/kg)	*0.173*	8	<37	<37	<37	<37	<91.2	<91.2	<91.2	<91.2	<91.2	<912
Dibromochloromethane	(ug/kg)	*32*	933	<21	<21	<21	<21	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,2-Dibromoethane (EDB)	(ug/kg)	*0.0282*	47	<21	<21	<21	<21	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Dibromomethane	(ug/kg)	NS	35,000	NR	NR	NR	NR	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,2-Dichlorobenzene	(ug/kg)	*1,170*	376,000	<32	<32	<32	<32	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,3-Dichlorobenzene	(ug/kg)	*1,150*	297,000	<41	<41	<41	<41	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,4-Dichlorobenzene	(ug/kg)	*144*	3,480	<42	<42	<42	<42	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Dichlorodifluoromethane	(ug/kg)	*3,090*	135,000	<33	<33	<33	<33	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,1-Dichloroethane	(ug/kg)	*483*	4,720	<22	<22	<22	<22	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,2-Dichloroethane	(ug/kg)	*2.84*	608	<24	<24	<24	<24	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,1-Dichloroethene	(ug/kg)	*5.02*	342,000	<27	<27	<27	<27	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,2-Dichloropropane	(ug/kg)	*3.32*	1,330	<19	<19	<19	<19	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,3-Dichloropropane	(ug/kg)	NS	1,490,000	<21	<21	<21	<21	<25.0	<25.0	<25.0	<25.0	<25.0	<250
2,2-Dichloropropane	(ug/kg)	NS	527,000	NR	NR	NR	NR	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,1-Dichloropropene	(ug/kg)	NS	NS	NR	NR	NR	NR	<25.0	<25.0	<25.0	<25.0	<25.0	<250
cis-1,3-Dichloropropene	(ug/kg)	*0.286*	1,220,000	NR	NR	NR	NR	<25.0	<25.0	<25.0	<25.0	<25.0	<250
trans-1,3-Dichloropropene	(ug/kg)	*0.286*	1,570,000	NR	NR	NR	NR	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Diisopropyl ether	(ug/kg)	NS	2,260,000	<15	<15	<15	<15	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Hexachloro-1,3-butadiene	(ug/kg)	NS	6,220	<50	<50	<50	<50	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Isopropylbenzene	(ug/kg)	NS	268,000	<30	<30	<30	<30	<25.0	<25.0	<25.0	147	<25.0	2,440
p-Isopropyltoluene	(ug/kg)	NS	162,000	<30	<30	<30	<30	<25.0	<25.0	<25.0	<25.0	<25.0	749
n-Propylbenzene	(ug/kg)	NS	264,000	<29	<29	<29	<29	<25.0	<25.0	<25.0	499	<25.0	10,400
Styrene	(ug/kg)	*220*	867,000	NR	NR	NR	NR	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,1,1,2-Tetrachloroethane	(ug/kg)	*53.4*	2,590	NR	NR	NR	NR	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,1,2,2-Tetrachloroethane	(ug/kg)	*0.156*	753	<25	<25	<25	<25	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,2,3-Trichlorobenzene	(ug/kg)	NS	48,900	<87	<87	<87	<87	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,2,4-Trichlorobenzene	(ug/kg)	*408*	22,000	<53	<53	<53	<53	<47.6	<47.6	<47.6	<47.6	<47.6	<476
1,1,1-Trichlorethane	(ug/kg)	*140*	640,000	<27	<27	<27	<27	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,1,2-Trichlorethane	(ug/kg)	*3.24*	1,480	<30	<30	<30	<30	<25.0	<25.0	<25.0	<25.0	<25.0	<250
Trichlorofluoromethane	(ug/kg)	NS	1,120,000	<16	<16	<16	<16	<25.0	<25.0	<25.0	<25.0	<25.0	<250
1,2,3-Trichloropropane	(ug/kg)	*51.9*	5	NR	NR	NR	NR	<25.0	<25.0	<25.0	<25.0	<25.0	<250
No. of Individual Exceedances (DC)				0	--	0	--	0	0	0	--	--	--
Cumulative Hazard Index (DC)				0.0226	--	0.0261	--	0.0186	0.025	0.0077	--	--	--
Cumulative Cancer Risk (DC)				8.5E-08	--	9.8E-08	--	7.0E-08	9.3E-08	2.9E-08	--	--	--

Exceedance Highlights:

BOLD Red font indicates DC RCL exceedance per DNR RCL calculator 7/14/14, and BTV exceedance for metals. ***B1***: Cumulative exceedance (HI > 1), eventhough no individual DC RCL was exceeded.

Italic font indicates GW RCL Exceedance per DNR RCL calculator 7/14/14. Groundwater quality (> NR 140 ES) may be affected when GW RCLs are exceeded.

Notes:

Xylenes reported as total of m-, o-, p-xylenes
NS = No standard established
NA = Not analyzed for parameter
NR = Not Reported

TABLE A.2.1
Soil Analytical Results Table - VOC
Master Drycleaning, Inc.
6326 W. Bluemound Rd., Wauwatosa, WI 53213
BRRTS# 02-41-545142

Sample ID				Inside SUMP			B-104 Inside by Sump		B-105 Inside West		B-106		
Date				02/10/16	02/10/16	2/24/16	01/20/17		01/20/17		01/20/17		
Depth				W Wall 2.5'	Floor 5.5'	Floor 5.5'	4-5'	8-10'	4-5'	8-10'	3-4'	5-6'	8-10'
Notes		Groundwater Pathway RCL	Non-Industrial Direct-Contact RCL	Added 250# Slurry of Pro-Invectus IR; RMVD		RMVD	RMVD		RMVD		RMVD	RMVD	
				Under Lat.									
Tetrachloroethene (PCE)	(ug/kg)	*4.54*	30,700	***37,600***	***3,160,000***	***10,800,000***	***55,600***	***67,500***	***16,100***	<25.0	***340***	<25.0	***1,700***
Trichloroethene (TCE)	(ug/kg)	*3.58*	1,260	<125	<12,500	<31,200	***494 J***	***319 J***	***443***	<25.0	<25.0	<25.0	***66.1 J***
cis-1,2-Dichloroethene	(ug/kg)	*41.2*	156,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
trans-1,2-Dichloroethene	(ug/kg)	*58.8*	1,560,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Vinyl Chloride	(ug/kg)	*0.138*	67	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Methylene Chloride	(ug/kg)	*2.56*	60,700	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Benzene	(ug/kg)	*5.12*	1,490	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Ethylbenzene	(ug/kg)	*1,570*	7,470	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Toluene	(ug/kg)	*1,110*	818,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Xylenes (TOTAL)	(ug/kg)	*3,940*	258,000	<375	<37,500	<93,700	<600	<750	<150	<75.0	<75.0	<75.0	<75.0
m&p-Xylene	(ug/kg)	NS	778,000	<250	<25,000	<62,500	<400	<500	<100	<50.0	<50.0	<50.0	<50.0
o-Xylene	(ug/kg)	NS	434,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Naphthalene	(ug/kg)	*658*	5,150	<200	<20,000	<50,100	<320	<400	<80.1	<40.0	<40.0	<40.0	<40.0
MTBE	(ug/kg)	*27*	59,400	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Trimethylbenzene Total (1,2,4- & 1,3,5-)	(ug/kg)	*1,380*	NS	222 J	<25,000	<62,400	<400	<500	<100	<50.0	<50.0	<50.0	<50.0
1,2,4-Trimethylbenzene	(ug/kg)	NS	89,800	222 J	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,3,5-Trimethylbenzene	(ug/kg)	NS	182,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Bromobenzene	(ug/kg)	NS	354,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Bromochloromethane	(ug/kg)	NS	232,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Bromodichloromethane	(ug/kg)	*0.326*	390	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Bromoform	(ug/kg)	*2.33*	61,500	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Bromomethane	(ug/kg)	*5.06*	10,300	<350	<35,000	<87,400	<559	<699	<140	<69.9	<69.9	<69.9	<69.9
n-Butylbenzene	(ug/kg)	NS	108,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
sec-Butylbenzene	(ug/kg)	NS	145,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
tert-Butylbenzene	(ug/kg)	NS	183,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Carbon Tetrachloride	(ug/kg)	*3.88*	854	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Chlorobenzene	(ug/kg)	NS	392,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Chloroethane (ethyl chloride)	(ug/kg)	*227*	2,120,000	<335	<33,500	<83,800	<536	<670	<134	<67.0	<67.0	<67.0	<67.0
Chloroform	(ug/kg)	*3.33*	423	<232	<23,200	<58,100	<372	<464	<92.9	<46.4	<46.4	<46.4	<46.4
Chloromethane	(ug/kg)	*15.5*	171,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
2-Chlorotoluene	(ug/kg)	NS	907,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
4-Chlorotoluene	(ug/kg)	NS	253,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,2-Dibromo-3-chloropropane	(ug/kg)	*0.173*	8	<456	<45,600	<114,000	<730	<912	<182	<91.2	<91.2	<91.2	<91.2
Dibromochloromethane	(ug/kg)	*32*	933	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,2-Dibromoethane (EDB)	(ug/kg)	*0.0282*	47	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Dibromomethane	(ug/kg)	NS	35,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,2-Dichlorobenzene	(ug/kg)	*1,170*	376,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,3-Dichlorobenzene	(ug/kg)	*1,150*	297,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,4-Dichlorobenzene	(ug/kg)	*144*	3,480	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Dichlorodifluoromethane	(ug/kg)	*3,090*	135,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,1-Dichloroethane	(ug/kg)	*483*	4,720	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,2-Dichloroethane	(ug/kg)	*2.84*	608	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,1-Dichloroethene	(ug/kg)	*5.02*	342,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,2-Dichloropropane	(ug/kg)	*3.32*	1,330	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,3-Dichloropropane	(ug/kg)	NS	1,490,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
2,2-Dichloropropane	(ug/kg)	NS	527,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,1-Dichloropropene	(ug/kg)	NS	NS	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
cis-1,3-Dichloropropene	(ug/kg)	*0.286*	1,220,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
trans-1,3-Dichloropropene	(ug/kg)	*0.286*	1,570,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Diisopropyl ether	(ug/kg)	NS	2,260,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Hexachloro-1,3-butadiene	(ug/kg)	NS	6,220	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Isopropylbenzene	(ug/kg)	NS	268,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
p-Isopropyltoluene	(ug/kg)	NS	162,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
n-Propylbenzene	(ug/kg)	NS	264,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Styrene	(ug/kg)	*220*	867,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,1,1,2-Tetrachloroethane	(ug/kg)	*53.4*	2,590	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,1,2,2-Tetrachloroethane	(ug/kg)	*0.156*	753	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,2,3-Trichlorobenzene	(ug/kg)	NS	48,900	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,2,4-Trichlorobenzene	(ug/kg)	*408*	22,000	<238	<23,800	<59,400	<380	<476	<95.1	<47.6	<47.6	<47.6	<47.6
1,1,1-Trichloroethane	(ug/kg)	*140*	640,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,1,2-Trichloroethane	(ug/kg)	*3.24*	1,480	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
Trichlorofluoromethane	(ug/kg)	NS	1,120,000	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
1,2,3-Trichloropropane	(ug/kg)	*51.9*	5	<125	<12,500	<31,200	<200	<250	<50.0	<25.0	<25.0	<25.0	<25.0
No. of Individual Exceedances (DC)				1	1								
Cumulative Hazard Index (DC)				0.3294	27.4783								
Cumulative Cancer Risk (DC)				1.2E-06	1.0E-04								

Exceedance Highlights:

BOLD Red font indicates DC RCL exceedance per DNR RCL calculator 7/14/14, and BTV exceedance for metals. ***B1***: Cumulative exceedance (HI > 1), eventhough no individual DC RCL was exceeded.

Italic font indicates GW RCL Exceedance per DNR RCL calculator 7/14/14. Groundwater quality (> NR 140 ES) may be affected when GW RCLs are exceeded.

Notes:

Xylenes reported as total of m-, o-, p-xylenes
NS = No standard established
NA = Not analyzed for parameter
NR = Not Reported

TABLE A.2.1
Soil Analytical Results Table - VOC
Master Drycleaning, Inc.
6326 W. Bluemound Rd., Wauwatosa, WI 53213
BRRTS# 02-41-545142

Sample ID		Groundwater Pathway RCL	Non-Industrial Direct-Contact RCL	B-107			B-108			B-109			Trench 1
Date				01/20/17			01/20/17			01/20/17			03/23/17
Depth				3-4'	5-6'	8-10'	3-4'	5-6'	8-10'	3-4'	5-6'	8-10'	6.5'
Notes													
Tetrachloroethene (PCE)	(ug/kg)	*4.54*	30,700	<25.0	<25.0	***349***	<25.0	<25.0	***245***	<25.0	<25.0	<25.0	<25.0
Trichloroethene (TCE)	(ug/kg)	*3.58*	1,260	<25.0	<25.0	***42.0 J***	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
cis-1,2-Dichloroethene	(ug/kg)	*41.2*	156,000	<25.0	<25.0	31.0 J	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
trans-1,2-Dichloroethene	(ug/kg)	*58.8*	1,560,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Vinyl Chloride	(ug/kg)	*0.138*	67	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Methylene Chloride	(ug/kg)	*2.56*	60,700	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Benzene	(ug/kg)	*5.12*	1,490	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Ethylbenzene	(ug/kg)	*1,570*	7,470	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Toluene	(ug/kg)	*1,110*	818,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Xylenes (TOTAL)	(ug/kg)	*3,940*	258,000	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0
m&p-Xylene	(ug/kg)	NS	778,000	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
o-Xylene	(ug/kg)	NS	434,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Naphthalene	(ug/kg)	*658*	5,150	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
MTBE	(ug/kg)	*27*	59,400	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Trimethylbenzene Total (1,2,4- & 1,3,5-)	(ug/kg)	*1,380*	NS	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
1,2,4-Trimethylbenzene	(ug/kg)	NS	89,800	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,3,5-Trimethylbenzene	(ug/kg)	NS	182,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Bromobenzene	(ug/kg)	NS	354,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Bromochloromethane	(ug/kg)	NS	232,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Bromodichloromethane	(ug/kg)	*0.326*	390	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Bromoform	(ug/kg)	*2.33*	61,500	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Bromomethane	(ug/kg)	*5.06*	10,300	<69.9	<69.9	<69.9	<69.9	<69.9	<69.9	<69.9	<69.9	<69.9	<69.9
n-Butylbenzene	(ug/kg)	NS	108,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
sec-Butylbenzene	(ug/kg)	NS	145,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
tert-Butylbenzene	(ug/kg)	NS	183,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Carbon Tetrachloride	(ug/kg)	*3.88*	854	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Chlorobenzene	(ug/kg)	NS	392,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Chloroethane (ethyl chloride)	(ug/kg)	*227*	2,120,000	<67.0	<67.0	<67.0	<67.0	<67.0	<67.0	<67.0	<67.0	<67.0	<67.0
Chloroform	(ug/kg)	*3.33*	423	<46.4	<46.4	<46.4	<46.4	<46.4	<46.4	<46.4	<46.4	<46.4	<46.4
Chloromethane	(ug/kg)	*15.5*	171,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
2-Chlorotoluene	(ug/kg)	NS	907,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
4-Chlorotoluene	(ug/kg)	NS	253,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2-Dibromo-3-chloropropane	(ug/kg)	*0.173*	8	<91.2	<91.2	<91.2	<91.2	<91.2	<91.2	<91.2	<91.2	<91.2	<91.2
Dibromochloromethane	(ug/kg)	*32*	933	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2-Dibromoethane (EDB)	(ug/kg)	*0.0282*	47	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Dibromomethane	(ug/kg)	NS	35,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2-Dichlorobenzene	(ug/kg)	*1,170*	376,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,3-Dichlorobenzene	(ug/kg)	*1,150*	297,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,4-Dichlorobenzene	(ug/kg)	*144*	3,480	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Dichlorodifluoromethane	(ug/kg)	*3,090*	135,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,1-Dichloroethane	(ug/kg)	*483*	4,720	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2-Dichloroethane	(ug/kg)	*2.84*	608	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,1-Dichloroethene	(ug/kg)	*5.02*	342,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2-Dichloropropane	(ug/kg)	*3.32*	1,330	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,3-Dichloropropane	(ug/kg)	NS	1,490,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
2,2-Dichloropropane	(ug/kg)	NS	527,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,1-Dichloropropene	(ug/kg)	NS	NS	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
cis-1,3-Dichloropropene	(ug/kg)	*0.286*	1,220,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
trans-1,3-Dichloropropene	(ug/kg)	*0.286*	1,570,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Diisopropyl ether	(ug/kg)	NS	2,260,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Hexachloro-1,3-butadiene	(ug/kg)	NS	6,220	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Isopropylbenzene	(ug/kg)	NS	268,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
p-Isopropyltoluene	(ug/kg)	NS	162,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
n-Propylbenzene	(ug/kg)	NS	264,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Styrene	(ug/kg)	*220*	867,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,1,1,2-Tetrachloroethane	(ug/kg)	*53.4*	2,590	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,1,2,2-Tetrachloroethane	(ug/kg)	*0.156*	753	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2,3-Trichlorobenzene	(ug/kg)	NS	48,900	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2,4-Trichlorobenzene	(ug/kg)	*408*	22,000	<47.6	<47.6	<47.6	<47.6	<47.6	<47.6	<47.6	<47.6	<47.6	<47.6
1,1,1-Trichlorethane	(ug/kg)	*140*	640,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,1,2-Trichlorethane	(ug/kg)	*3.24*	1,480	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Trichlorofluoromethane	(ug/kg)	NS	1,120,000	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2,3-Trichloropropane	(ug/kg)	*51.9*	5	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
No. of Individual Exceedances (DC)													
Cumulative Hazard Index (DC)													
Cumulative Cancer Risk (DC)													

Exceedance Highlights:

BOLD Red font indicates DC RCL exceedance per DNR RCL calculator 7/14/14, and BTV exceedance for metals. ***B1**: Cumulative exceedance (HI > 1), eventhough no individual DC RCL was exceeded.
Italic font indicates GW RCL Exceedance per DNR RCL calculator 7/14/14. Groundwater quality (> NR 140 ES) may be affected when GW RCLs are exceeded.

Notes:

Xylenes reported as total of m-, o-, p-xylenes
NS = No standard established
NA = Not analyzed for parameter
NR = Not Reported

TABLE A.2.1
Soil Analytical Results Table - VOC
Master Drycleaning, Inc.
6326 W. Bluemound Rd., Wauwatosa, WI 53213
BRRTS# 02-41-545142

Sample ID		Groundwater Pathway RCL	Non-Industrial Direct-Contact RCL	Trench 2	Trench 4		Trench 5	Trench 6	Trench 7	Trench 8	Trench 9	Blank
Date				03/23/17	03/23/17		03/23/17	03/23/17	03/23/17	03/23/17	03/23/17	1/20/17
Depth				6'	3'	6'	3'	3'	7'	7'	7'	--
Notes												
Tetrachloroethene (PCE)	(ug/kg)	*4.54*	30,700	*553*	*944*	*5,750*	*3,910*	*7,130*	*44,800*	*12,100*	*79,700*	<25.0
Trichloroethene (TCE)	(ug/kg)	*3.58*	1,260	*152*	<25.0	*53.4 J*	*34.0 J*	*65.4 J*	*7,210*	*544*	*666 J*	<25.0
cis-1,2-Dichloroethene	(ug/kg)	*41.2*	156,000	<25.0	<25.0	<25.0	<25.0	<50.0	*9,750*	*2,120*	*2,940*	<25.0
trans-1,2-Dichloroethene	(ug/kg)	*58.8*	1,560,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Vinyl Chloride	(ug/kg)	*0.138*	67	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Methylene Chloride	(ug/kg)	*2.56*	60,700	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Benzene	(ug/kg)	*5.12*	1,490	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Ethylbenzene	(ug/kg)	*1,570*	7,470	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Toluene	(ug/kg)	*1,110*	818,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Xylenes (TOTAL)	(ug/kg)	*3,940*	258,000	<75.0	<75.0	<75.0	<75.0	<150.0	<600	<150.0	<937	<75.0
m&p-Xylene	(ug/kg)	NS	778,000	<50.0	<50.0	<50.0	<50.0	<100	<400	<100	<625	<50.0
o-Xylene	(ug/kg)	NS	434,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Naphthalene	(ug/kg)	*658*	5,150	<40.0	<40.0	<40.0	<40.0	<80.1	<320	<80.1	<501	<40.0
MTBE	(ug/kg)	*27*	59,400	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Trimethylbenzene Total (1,2,4- & 1,3,5-)	(ug/kg)	*1,380*	NS	<50.0	<50.0	<50.0	<50.0	<100	<400	<100	<624	<50.0
1,2,4-Trimethylbenzene	(ug/kg)	NS	89,800	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,3,5-Trimethylbenzene	(ug/kg)	NS	182,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Bromobenzene	(ug/kg)	NS	354,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Bromochloromethane	(ug/kg)	NS	232,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Bromodichloromethane	(ug/kg)	*0.326*	390	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Bromoform	(ug/kg)	*2.33*	61,500	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Bromomethane	(ug/kg)	*5.06*	10,300	<69.9	<69.9	<69.9	<69.9	<140	<559	<140	<874	<69.9
n-Butylbenzene	(ug/kg)	NS	108,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
sec-Butylbenzene	(ug/kg)	NS	145,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
tert-Butylbenzene	(ug/kg)	NS	183,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Carbon Tetrachloride	(ug/kg)	*3.88*	854	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Chlorobenzene	(ug/kg)	NS	392,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Chloroethane (ethyl chloride)	(ug/kg)	*227*	2,120,000	<67.0	<67.0	<67.0	<67.0	<134	<536	<134	<838	<67.0
Chloroform	(ug/kg)	*3.33*	423	<46.4	<46.4	<46.4	<46.4	>92.9	<372	>92.9	<581	<46.4
Chloromethane	(ug/kg)	*15.5*	171,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
2-Chlorotoluene	(ug/kg)	NS	907,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
4-Chlorotoluene	(ug/kg)	NS	253,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,2-Dibromo-3-chloropropane	(ug/kg)	*0.173*	8	<91.2	<91.2	<91.2	<91.2	<182	<730	<182	<1,140	<91.2
Dibromochloromethane	(ug/kg)	*32*	933	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,2-Dibromoethane (EDB)	(ug/kg)	*0.0282*	47	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Dibromomethane	(ug/kg)	NS	35,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,2-Dichlorobenzene	(ug/kg)	*1,170*	376,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,3-Dichlorobenzene	(ug/kg)	*1,150*	297,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,4-Dichlorobenzene	(ug/kg)	*144*	3,480	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Dichlorodifluoromethane	(ug/kg)	*3,090*	135,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,1-Dichloroethane	(ug/kg)	*483*	4,720	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,2-Dichloroethane	(ug/kg)	*2.84*	608	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,1-Dichloroethene	(ug/kg)	*5.02*	342,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,2-Dichloropropane	(ug/kg)	*3.32*	1,330	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,3-Dichloropropane	(ug/kg)	NS	1,490,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
2,2-Dichloropropane	(ug/kg)	NS	527,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,1-Dichloropropene	(ug/kg)	NS	NS	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
cis-1,3-Dichloropropene	(ug/kg)	*0.286*	1,220,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
trans-1,3-Dichloropropene	(ug/kg)	*0.286*	1,570,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Diisopropyl ether	(ug/kg)	NS	2,260,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Hexachloro-1,3-butadiene	(ug/kg)	NS	6,220	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Isopropylbenzene	(ug/kg)	NS	268,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
p-Isopropyltoluene	(ug/kg)	NS	162,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
n-Propylbenzene	(ug/kg)	NS	264,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Styrene	(ug/kg)	*220*	867,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,1,1,2-Tetrachloroethane	(ug/kg)	*53.4*	2,590	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,1,2,2-Tetrachloroethane	(ug/kg)	*0.156*	753	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,2,3-Trichlorobenzene	(ug/kg)	NS	48,900	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,2,4-Trichlorobenzene	(ug/kg)	*408*	22,000	<47.6	<47.6	<47.6	<47.6	<95.1	<380	<95.1	<594	<47.6
1,1,1-Trichlorethane	(ug/kg)	*140*	640,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,1,2-Trichlorethane	(ug/kg)	*3.24*	1,480	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
Trichlorofluoromethane	(ug/kg)	NS	1,120,000	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
1,2,3-Trichloropropane	(ug/kg)	*51.9*	5	<25.0	<25.0	<25.0	<25.0	<50.0	<200	<50.0	<312	<25.0
No. of Individual Exceedances (DC)												
Cumulative Hazard Index (DC)												
Cumulative Cancer Risk (DC)												

Exceedance Highlights:

BOLD Red font indicates DC RCL exceedance per DNR RCL calculator 7/14/14, and BTV exceedance for metals. ***B1***: Cumulative exceedance (HI > 1), eventhough no individual DC RCL was exceeded.

Italic font indicates GW RCL Exceedance per DNR RCL calculator 7/14/14. Groundwater quality (> NR 140 ES) may be affected when GW RCLs are exceeded.

Notes:

Xylenes reported as total of m-, o-, p-xylenes
NS = No standard established
NA = Not analyzed for parameter
NR = Not Reported

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL

May 25, 2017

Mr. John Hnat
WDNR
2300 N Dr. Martin Luther King Jr Dr.
Milwaukee, WI 53212

RE: Vapor System Commission Report and Indoor Air Test Results, Master Dry Cleaners DERF Site, 6326 W. Bluemound Road, Wauwatosa, WI, BRRTS # 02-41-545142

Dear John:

Objective

The purpose of this submittal is to present the construction details and performance test results for the subslab depressurization system (SSDS) beneath the Master Dry Cleaners site (Figure 1) referenced above. The indoor air chemistry sample results indicate no impacts are present above levels of concern in the building.

Based on this information, we believe building occupancy can be pursued by the new tenant.

Vapor Mitigation System Construction

As will be documented in the pending Remedial Action Documentation Report, soil excavation under the building was performed the week of March 20, 2017. The excavation consisted of removal of approximately 42 tons of soil that was landfilled due to the presence of tetrachloroethene (PCE) in the soil. Five additional drums of soil were removed from the area immediately beneath the former sump to a depth of eight feet. This material was handled as hazardous waste, and properly discarded by Badger Disposal.

The excavation created an approximately 40-foot long by four-foot wide by six-foot deep trench that extended east / west beneath the north part of the building. The excavation followed the pathway of the former indoor sanitary sewer line, which was entirely removed.

During backfill placement, the subslab vapor mitigation system piping network was installed in the trench. Two layers of piping were placed, one at a depth of five feet below grade, and the other at a depth of one foot below grade. The piping consists of 25 feet of factory-slotted Schedule 40 PVC pipe with 0.010 inch slots, connected to solid Schedule 40 PVC pipe. Both pipes elbow vertically through the floor along the north wall of the building, at a location approximately ten feet west of the northeast corner of the building (Figure 2).

A sewer pipe was also installed in the trench to service future floor drainage needs. The pipe is sloped to drain to the northwest and connects to the existing building sewer lateral that exits the northwest corner of the building. Connection of the new lateral to an existing indoor sink drain was also completed. The bathroom sewer lateral connection did not need replacement, and was left intact.

To help ensure a good seal for subslab vapor communication, a vertical clay plug was installed in the trench approximately 35 feet west of the east building wall. The plug is approximately one-foot thick, and was built using bentonite which was hydrated during placement. The clay plug extends from the excavation base at six feet to the Stegowrap surface, and runs the entire width of the four-foot wide trench.

Prior to resurfacing with concrete, a layer of 15 mil Stegowrap was placed over the pea gravel. Mastic was used to seal the Stegowrap at the saw-cut concrete floor edges and to seal around piping penetrations. Once the Stegowrap was placed, the concrete floor was restored to grade with three inches of fresh concrete. Penetrations include two vapor extraction pipes (1' and 5' depths) and central floor drain.

The vapor mitigation system fan and electrical connection was completed on April 18, 2017 by Radon Specialists. A RadonAway model GP-501 fan was wired for installation on the building roof. Three-inch PVC piping was used to connect both the five foot and one foot deep Schedule 40 PVC pipes to the single roof-mounted fan. An electrician wired the fan to a separate circuit in the existing electrical box.

The fan was turned on at approximately 10:30 AM on April 18, 2017, and has been operating continuously since then.

The system layout and communication test points are shown on Figure 2. The vapor mitigation system consists of one roof-mounted Radon-Away GP-501 fan that withdraws air from the two sub-floor piping runs. The system captures vapors from the subslab beneath the building and vents them to the outside.

The fan has a maximum draw of approximately 70 to 140 watts at 120 volts and is connected to a dedicated 20-amp circuit breaker in the building electric control panel. The fan meets the clearance requirements for vapor mitigation systems and exhausts the subslab vapors a minimum of two feet above openings that are within a ten-foot horizontal distance.

To monitor suction and operation, a U-Tube manometer has been installed on the vertical piping of the system, clearly visible at eye level height. Viewing the manometer for water column displacement allows a quick and easy way to verify fan operation. The fan has a five-year warranty, and should continue to operate maintenance free.

Pressure Field Extension Testing

During installation, testing was conducted on April 18, 2017 by Fehr Graham. The fan was connected and turned on, and four temporary floor-penetration monitoring points were drilled through the concrete floor near the building corners to verify the subslab pressure differential (Figure 2).

The induced vacuum in the extraction pipe measured 2.0 inches of water column. Measurements at the four subsurface monitoring points indicated sufficient connection between the operating fan and the subsurface, with levels ranging from 0.007 to 0.6 inches of water column (Figure 2). Smoke testing was also performed at all four test borings, with smoke observed to be drawn into the subsurface through the test holes.

Post-System Installation Chemical Testing

After allowing the system to operate for approximately two weeks, the chemistry of the indoor air was sampled on May 3, 2017. A 6-liter summa canister with a 24-hour regulator was deployed at the approximate center of the building, with the intake placed at the approximate breathing height (four to five feet above grade). Field measurement of the indoor air volatile gas concentration was recorded using a mini Rae photoionization detector sensitive to parts per billion (ppb) range. The field readings indicate the indoor ambient and outside building air had an estimated 75 to 90 ppb total volatiles. The measurement of the air removed by the vapor system fan was approximately 3,600 ppb.

Upon completion of sampling, the canister was shipped via private courier to the analytical laboratory (Pace Laboratory, Minneapolis, MN). Testing was completed for targeted drycleaning related compounds using the Niosh TO-15 VOC's procedures. The laboratory results were received on May 17, and are attached.

The results indicate a detection of 13.8 ug/m^3 of PCE is present, far below the WDNR indoor air standard for inhalation of PCE in a small commercial building (180 ug/m3). There was no detectable TCE, cis- or trans-dichloroethene, or vinyl chloride in the indoor air sample from the Master Drycleaning building. The results of the subslab sampling and the indoor air sampling are summarized on Table A.5.

Vapor Mitigation System Operation and Maintenance Plan

Ongoing monitoring of the subslab vapor system must be performed. WDNR guidance was used to prepare a plan to monitor the system function (attached). The plan outlines system components and provides a form for recording monthly measurements of proper system operation.

The building is slated for redevelopment as a take-out and dine-in restaurant. Once the building has been occupied, daily observation of the fan function should be monitored by noting the displacement of the U-Tube manometer.

The WDNR has requested that repeat testing of the subslab communication be performed approximately six months after occupancy. This testing will be performed in a manner similar to the completed communication testing, with pressure measurements recorded from floor penetrations. In addition, a second indoor air chemistry analysis will be retained, likely using an 8-hour integrated sampler to minimize business disruption.

Project Status

A more thorough remedial action documentation report will be prepared and submitted following receipt of the next round of groundwater chemistry samples, which were obtained in mid-May 2017. The report will include information on the amount of soil excavated in March, documentation of proper disposal, and a summary of the remaining-in-place soil chemistry results. Further information will be provided on the groundwater contaminant trends since chemical injection. If the information appears suitable, the report may indicate a request for case closure is justified.

Let me know if you have any questions or comments. Feel free to call me at 920 892-2444 or e-mail me at kebbott@fehr-graham.com.

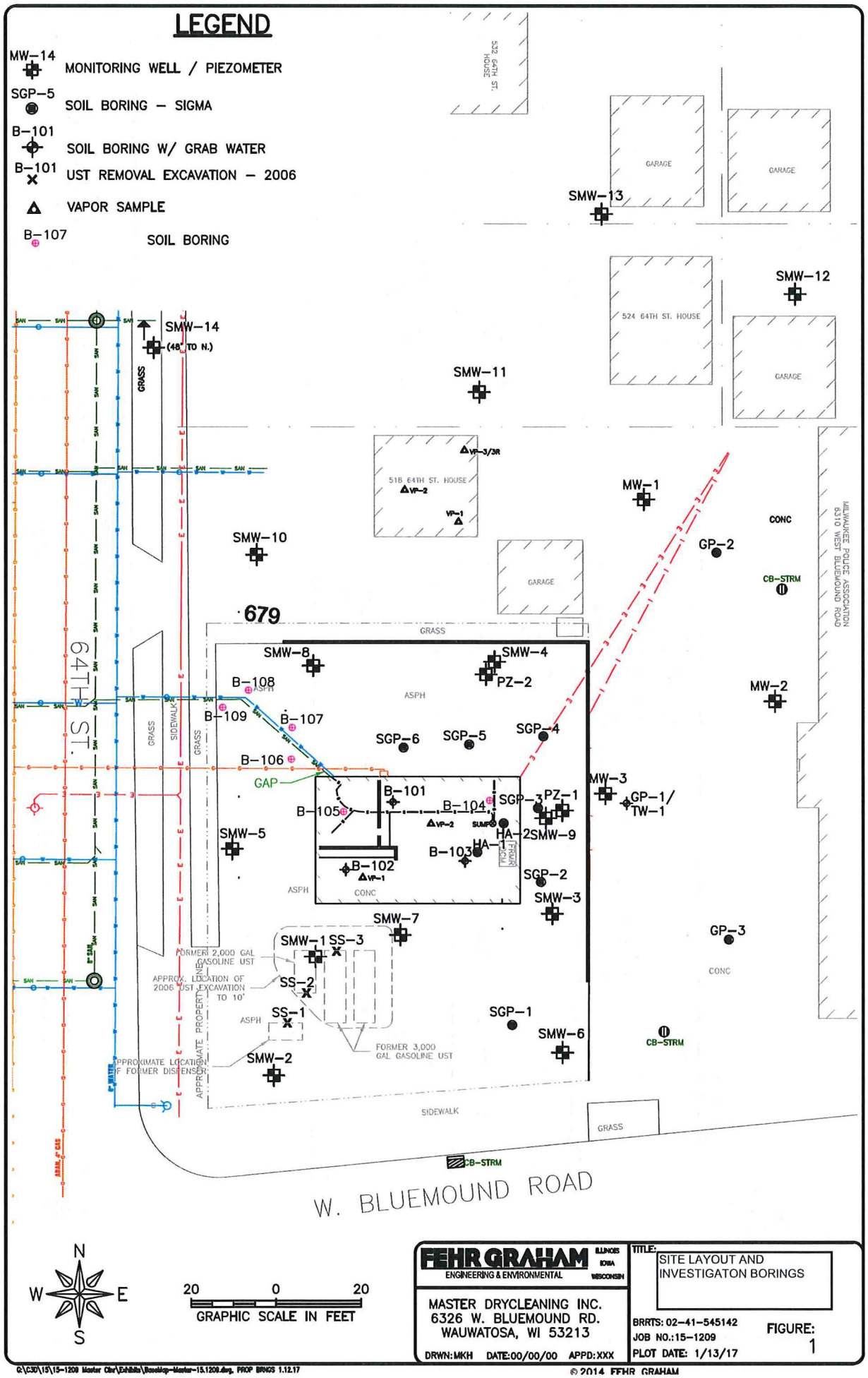
Sincerely,

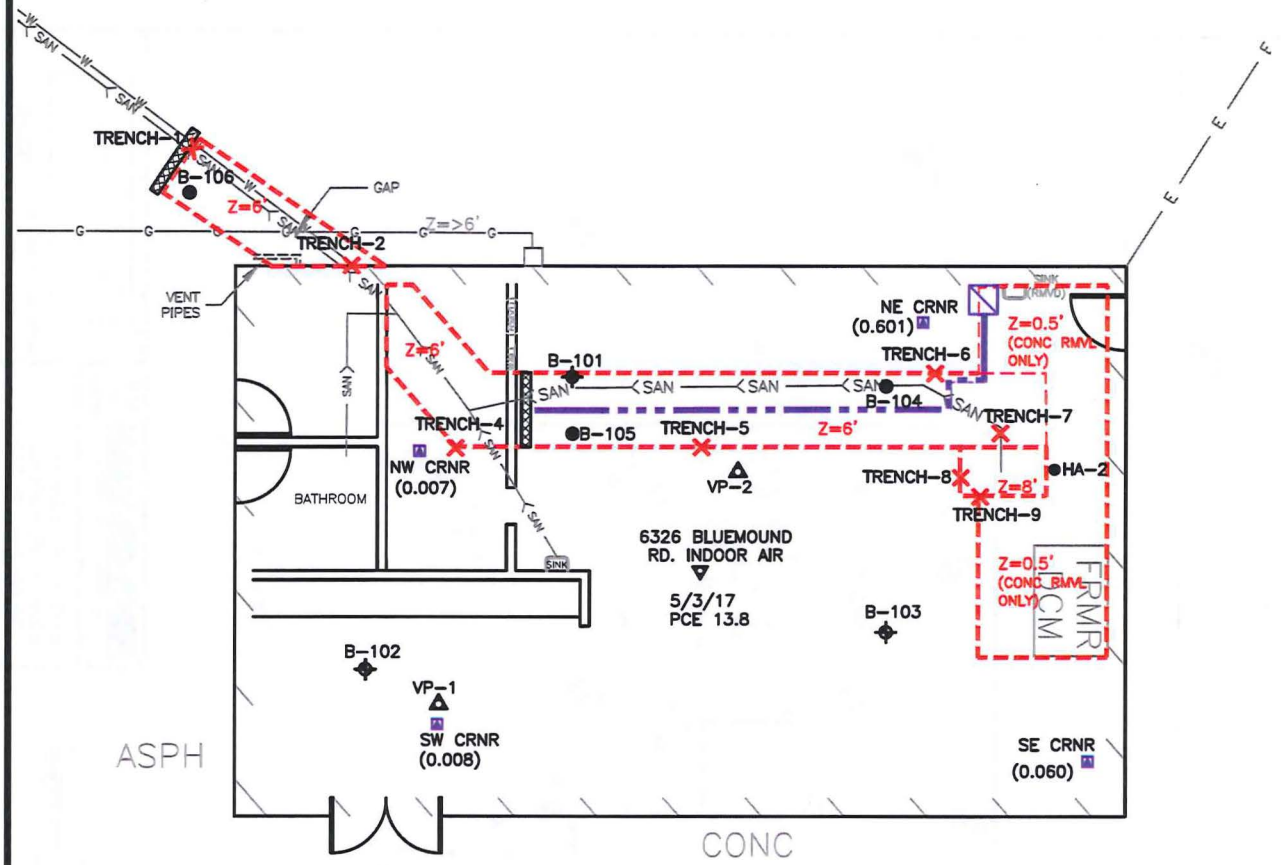
Kendrick A. Ebbott, PG

Attachment:
Figure 1: Site Layout and Investigation Borings
Figure 2: Vapor System and Communication Test Results
Table A.5 Vapor Analytical Table
Laboratory Analytical Report - Indoor Air
Vapor Mitigation System Operation and Maintenance Plan

Cc: Mr. Harold Shipshock, Master Cleaners, w/ Attachments
Mr. Don Gallo, Husch Blackwell, w/ Attachments

O:\Master Drycleaning\15-1209\REPORTS\Vapor System Commission Report\Draft Vapor Mitigation System Commission Report.docx





LEGEND

- EXCAVATION SAMPLE
- SOIL BORING
- TEMP WELL
- REMOVED SOIL BORING
- REMOVED TEMP WELL
- EXCAVATION LIMITS
- VAPOR SYSTEM PIPING @ 1' & 5' DEPTH
- CLAY PLUG
- VAPOR SYSTEM FAN ON ROOF
- SUBSLAB VAPOR SAMPLE POINT
- AMBIENT AIR SAMPLE POINT
- (0.060) VAPOR SYSTEM ASSESSMENT POINT & READING 4/18/17 (INCHES WATER)
- 5/3/17 VAPOR SAMPLE DATE
- PCE TETRACHLOROETHENE (ug/m3)

N W E S

10 0 10
GRAPHIC SCALE IN FEET

D:\15-1209\BaseMap-Master-15.1209.dwg, VAPOR SYST

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL
ILLINOIS IOWA WISCONSIN

MASTER DRYCLEANING INC.
6326 W. BLUEMOUND RD.
WAUWATOSA, WI 53213

DRWN: MKH DATE: 00/00/00 APPD: XXX

TITLE:
VAPOR SYSTEM & COMMUNICATION TEST RESULTS

BRRTS: 02-41-545142
JOB NO.: 15-1209
PLOT DATE: 5/24/17

FIGURE: 2

TABLE 1
Vapor Analytical Table - VOC
Master Drycleaning, Inc.
6326 W. Bluemound Rd., Wauwatosa, WI 53213
BRRTS# 02-41-545142

						Site : 6326 Bluemound		Site: Indoor Air
Sample ID		C-Carcinogen N-Non Carcinogen	WDNR / WDHFS SMALL COMMERCIAL Subslab Air	WDNR / WDHFS SMALL COMMERCIAL Indoor Air		VP-1	VP-2	6326 Bluemound Indoor
Sample Date						2/24/2016	2/24/2016	5/3/2017
Sample Location						SE corner (6326)	ctr work area (6326)	Center Interior
Type of Sample						sub-slab	sub-slab	Ambient
Collection Method						Summa	Summa	Summa
Time Period of Collection						30 min	30 min	24 hour
Analytical Method						TO-15	TO-15	TO-15
Method/Result Leak Detection						water/shut-in; pass	water/shut-in; pass	NA
STANDARDS COMPARED TO						SMALL COMM Subslab	SMALL COMM Subslab	SMALL COMM Indoor
Benzene	µg/m³	C	*530*	**16**		0.84	6.8	NA
Ethylbenzene	µg/m³	C	*1,600*	**49**		2.6	4.5	NA
Toluene	µg/m³	N	*730,000*	**22,000**		15.3	142	NA
Xylenes	µg/m³	N	*15,000*	**440**		12.5	17.6	NA
Naphthalene	µg/m³	C	*120*	**3.6**		6.3	5.3	NA
1,2,4-Trimethylbenzene	µg/m³	N	*1,000*	**31**		15.0	9.2	NA
1,3,5-Trimethylbenzene	µg/m³	N	NS	NS		2.9	2.2	NA
Tetrachloroethene (PCE)	µg/m³	N	*6,000*	**180**		608	*63,100*	13.8
Trichloroethene (TCE)	µg/m³	C	*290*	**8.8**		1.1	*545*	<0.40
cis-1,2 Dichloroethene	µg/m³	N	NS	NS		<0.38	7.1	<0.35
trans-1,2 Dichloroethene	µg/m³	N	NS	NS		<0.60	<0.53	<0.55
Vinyl Chloride	µg/m³	C	*930*	**28**		<0.30	<0.27	<0.28
Methylene Chloride	µg/m³	C	*87,000*	**2,600**		0.95 J	<0.75	NA
Acetone	µg/m³	N	*4,700,000*	**140,000**		38.4	227	NA
Bromomethane	µg/m³	N	*730*	**22**		0.77 J	<0.43	NA
2-Butanone (Methyl Ethyl Ketone)	µg/m³	N	*730,000*	**22,000**		2.9 J	37.7	NA
Carbon Disulfide	µg/m³	N	*100,000*	**3,100**		0.37 J	3.4	NA
Cyclohexane	µg/m³	N	*870,000*	**26,000**		27.8	86.9	NA
Dichlorodifluoromethane	µg/m³	N	*15,000*	**440**		3.2	3.5	NA
Ethanol	µg/m³	N	NS	NS		73.1	96.5	NA
4-Ethyltoluene	µg/m³		NS	NS		3.3	2.6	NA
n-Heptane	µg/m³	N	NS	NS		20.4	16.5	NA
n-Hexane	µg/m³	N	*100,000*	**3,100**		55.3	141	NA
Methyl Isobutyl Ketone (MIBK)	µg/m³	N	*430,000*	**13,000**		<0.34	5.4 J	NA
2-Propanol (Isopropanol)	µg/m³	N	*29,000*	**880**		8.0	27.6	NA
Styrene	µg/m³	N	*150,000*	**4,400**		0.37 J	0.56 J	NA
Trichlorofluoromethane	µg/m³	N	*NS*	**NS**		1.2 J	1.0 J	NA
1,1,2-Trichlorotrifluoroethane	µg/m³	N	*4,300,000*	**130,000**		<0.47	0.82 J	NA

N = Noncarcinogen; C = Carcinogen
Blue and ITALICS : Exceeds Subslab Vapor Standard
BOLD Exceeds Indoor Air Standard
NA=Not Analyzed
NS : No Standards
Standards based on DNR Quick Look Up Table andEPA RSL Tables http://www.epa.gov/reg3hwmd/risk/human/rb-concentration table/index.htm June 2015
Small Commercial vs. Large Commercial/Industrial determined based on WDNR Publication RR-800

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

May 16, 2017

Mr. Ken Ebbott
Fehr Graham
1237 Pilgrim Road
Plymouth, WI 53073

RE: Project: 15-1209 Master Drycleaning
Pace Project No.: 10387771

Dear Mr. Ebbott:
Enclosed are the analytical results for sample(s) received by the laboratory on May 06, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sarah Platzer
sarah.platzer@pacelabs.com
(612)607-1700
Project Manager

Enclosures

cc: Megan Hansen, Fehr Graham

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 15-1209 Master Drycleaning
Pace Project No.: 10387771

Minnesota Certification IDs

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: UST-078
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas Certification #: 88-0680
California Certification #: MN00064
CNMI Saipan Certification #:MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: MN00064
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon NwTPH Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DW Certification #: 9952 C
West Virginia WW Certification #: 382
Wisconsin Certification #: 999407970
Wyoming via EPA Region 8 Certification #: 8TMS-L

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 15-1209 Master Drycleaning
Pace Project No.: 10387771

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10387771001	**6326 Bluemound Rd Indoor Compo**	Air	05/03/17 16:20	05/06/17 09:00

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: 15-1209 Master Drycleaning
Pace Project No.: 10387771

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10387771001	**6326 Bluemound Rd Indoor Compo**	TO-15	EMC	5	PASI-M

REPORT OF LABORATORY ANALYSIS

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 15-1209 Master Drycleaning
Pace Project No.: 10387771

Sample: 6326 Bluemound Rd Indoor Compo **Lab ID: 10387771001** Collected: 05/03/17 16:20 Received: 05/06/17 09:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
cis-1,2-Dichloroethene	**<0.35**	ug/m3	1.2	0.35	1.44		05/10/17 21:29	156-59-2	
trans-1,2-Dichloroethene	**<0.55**	ug/m3	1.2	0.55	1.44		05/10/17 21:29	156-60-5	
Tetrachloroethene	**13.8**	ug/m3	0.99	0.40	1.44		05/10/17 21:29	127-18-4	
Trichloroethene	**<0.40**	ug/m3	0.79	0.40	1.44		05/10/17 21:29	79-01-6	
Vinyl chloride	**<0.28**	ug/m3	0.37	0.28	1.44		05/10/17 21:29	75-01-4	

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 15-1209 Master Drycleaning
Pace Project No.: 10387771

QC Batch: 472962
QC Batch Method: TO-15
Analysis Method: TO-15
Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10387771001

METHOD BLANK: 2580230 Matrix: Air
Associated Lab Samples: 10387771001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	ug/m3	<0.25	0.81	05/10/17 14:14	
Tetrachloroethene	ug/m3	<0.28	0.69	05/10/17 14:14	
trans-1,2-Dichloroethene	ug/m3	<0.38	0.81	05/10/17 14:14	
Trichloroethene	ug/m3	<0.28	0.55	05/10/17 14:14	
Vinyl chloride	ug/m3	<0.20	0.26	05/10/17 14:14	

LABORATORY CONTROL SAMPLE: 2580231

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/m3	43.9	43.8	100	70-133	
Tetrachloroethene	ug/m3	72.4	67.0	93	70-130	
trans-1,2-Dichloroethene	ug/m3	41.9	45.3	108	70-131	
Trichloroethene	ug/m3	57.9	55.0	95	70-130	
Vinyl chloride	ug/m3	27	27.2	101	70-130	

SAMPLE DUPLICATE: 2582341

Parameter	Units	10387812001 Result	Dup Result	RPD	Max RPD	Qualifiers
cis-1,2-Dichloroethene	ug/m3	ND	<0.25		25	
Tetrachloroethene	ug/m3	ND	<0.28		25	
trans-1,2-Dichloroethene	ug/m3	ND	<0.38		25	
Trichloroethene	ug/m3	ND	<0.28		25	
Vinyl chloride	ug/m3	ND	<0.20		25	

SAMPLE DUPLICATE: 2582342

Parameter	Units	10387862003 Result	Dup Result	RPD	Max RPD	Qualifiers
cis-1,2-Dichloroethene	ug/m3	ND	<0.37		25	
Tetrachloroethene	ug/m3	1.2	1.1	6	25	
trans-1,2-Dichloroethene	ug/m3	ND	<0.57		25	
Trichloroethene	ug/m3	ND	<0.41		25	
Vinyl chloride	ug/m3	ND	<0.29		25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: 15-1209 Master Drycleaning
Pace Project No.: 10387771

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15-1209 Master Drycleaning
Pace Project No.: 10387771

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10387771001	**6326 Bluemound Rd Indoor Compo**	TO-15	472962		

Pace Analytical®
www.pacelabs.com

AIR: CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

D387771

23432

Page: 1 of 1

Section A Required Client Information:

Company: Fehr-Graham
Address: 1237 Pilgrim Rd
Plymouth, WI 53073
Email To: kelbott@Fehr-Grahamson
Phone: 920 892 2444 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Ken Elbott
Copy To:
Purchase Order No.:
Project Name: Master Drycleaning
Project Number: 15-1209

Section C Invoice Information:

Attention: Ken Elbott
Company Name: Fehr-Graham
Address:
Pace Quote Reference:
Pace Project Manager/Sales Rep.
Pace Profile #:

Program: ☐ UST ☐ Superfund ☐ Emissions ☐ Clean Air Act ☐ Voluntary Clean Up ☒ Dry Clean ☐ RCRA ☐ Other

Location of Sampling by State: WI

Reporting Units: ug/m³ ___ mg/m³ ___ PPBV ___ PPMV ___ Other ___

Report Level: II. ___ III. ___ IV. ___ Other ___

*Section D Required Client Information

AIR SAMPLE ID
Sample IDs MUST BE UNIQUE

Valid Media Codes

MEDIA	CODE
Tedlar Bag	TB
1 Liter Summa Can	1LC
6 Liter Summa Can	6LC
Low Volume Puff	LVP
High Volume Puff	HVP
Other	PM10

ITEM #	AIR SAMPLE ID	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START END/GRAB DATE	COLLECTED COMPOSITE START END/GRAB TIME	COLLECTED COMPOSITE - DATE	COLLECTED COMPOSITE - TIME	Canister Pressure (Initial Field - psig)	Canister Pressure (Final Field - psig)	Summa Can Number	Flow Control Number	Method: PM10	3C- Fixed Gas (%)	TO-3	TO-3M (Methane)	TO-4 (PCBs)	TO-13 (PAH)	TO-14	TO-15	TO15 Short List*	Pace Lab ID
1	6326 Bluemound Rd Indoor Composite	6LC	70 PPB	5/2/17	1550	5/3/17	1620	-29 inHg	-2" Hg	1267	FC0404								X		001
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Comments: Testing analytes
* PCE
TCE
Cis-DCE
trans-DCE
VC

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	05/05	8:00am		5/5/17	1125
				5-6-17	0900

SAMPLE CONDITIONS

	Y/N	Y/N	Y/N
—	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Justin Schuenemann
SIGNATURE of SAMPLER: [signature] DATE Signed (MM / DD / YY): 05/03/17

ORIGINAL

Pace Analytical	Document Name: Air Sample Condition Upon Receipt	Document Revised: 26APR2016 Page 1 of 1
	Document No.: F-MN-A-106-rev.11	Issuing Authority: Pace Minnesota Quality Office

Air Sample Condition Upon Receipt

Client Name: Fehr-Graham

Project #: WO#: 10387771

10387771

Courier: ☐ Fed Ex ☐ UPS ☐ Speedee ☐ Client ☐ Commercial ☐ Pace ☑ Other: Walter

Tracking Number:

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ Foam ☐ None ☐ Tin Can ☐ Other: **Temp Blank rec:** ☐ Yes ☑ No

Temp. (TO17 and TO13 samples only) (°C): X **Corrected Temp (°C):** X **Thermom. Used:** ☐ B88A912167504 ☐ B88A0143310098 ☐ 151401163 ☐ 151401164

Temp should be above freezing to 6°C **Correction Factor:** X **Date & Initials of Person Examining Contents:** 5-8-17 AA

Type of Ice Received ☐ Blue ☐ Wet ☑ None

				Comments:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Media: (Air Can) Airbag Filter TDT Passive				11.
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	12.

Samples Received:

Canisters			Canisters		
Sample Number	Can ID	Flow Controller ID	Sample Number	Can ID	Flow Controller ID

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Date: 5/8/2017

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL

SUBSLAB DEPRESSURIZATION SYSTEM MAINTENANCE PLAN

May 25, 2017

Property Located at:

6326 W. Bluemound Road, Wauwatosa, WI 53213

WDNR BRRTS #: 02-41-545142

Milwaukee County, Wisconsin

Introduction

This document is the Maintenance Plan for a Subslab Depressurization System (SSDS) at the above-referenced property in accordance with the requirements of s. NR 724.13(2), Wisconsin Administrative Code.

The maintenance activities relate to the SSDS (also identified as a vapor mitigation system) addressing subslab vapor contamination.

More site-specific information about this property may be found in:

- The case file in the DNR Regional Service Center office
- BRRTS on the Web (DNR's internet-based data base of contaminated sites at http://botw.dnr.state.wi.us/botw/SetUpBasicSearchForm.do
- GIS Registry PDF file for further information on the nature and extent of contamination: http://dnrmaps.wisconsin.gov/imf/imfApplyTheme.jsp?index=1 and
- The DNR Project Manager for this site in Milwaukee County, currently Mr. John Hnat at (414) 263-8644

Description of Contamination

Soil and groundwater contamination containing tetrachloroethene (PCE) and related breakdown products is present beneath the property at levels above relevant soil and groundwater standards established by the WDNR. Soil concentrations pose a risk to potential migration to groundwater (the groundwater pathway RCL) and groundwater concentrations exceed the NR140 Enforcement Standards.

Vapor containing PCE is present in the indoor air and subslab vapors of the building. The levels in the subslab vapors exceed concentrations that the WDNR / WDHFS has indicated could pose a risk to health. The SSDS has been installed and is operating to prevent the migration of subslab vapors to the interior of the building.

Description of the SSDS to be Maintained

The SSDS is comprised of one fan connected to two sub-floor pipes, installed to intercept vapor contamination beneath the concrete floor of the building. The fan is connected to two 25-foot long perforated pipes that run beneath the floor. One pipe was placed at a depth of five feet below grade, the other at a depth of one foot below grade, and both are bedded in pea gravel. The pea gravel is covered with a 15-mil thick plastic barrier (Stegowrap) that has been joined to the adjacent concrete with mastic prior to installation of the replacement three-inch thick concrete floor.

A RadonAway Model GP 501 electric fan was installed and hard-wired to a 20-amp circuit in the electrical breaker box in the building. The two subslab pipes connect to a three-inch PVC pipe and extend through the building roof, where the fan is mounted. The fan should operate on a continual basis.

A U-Tube manometer filled with blue water has been installed to help verify proper fan operation.

Photographs of the interior piping, U-tube manometer showing the typical measurement when the fan is functioning, and the circuit box control circuit are shown on the back of the inspection form.

Monthly Inspections

Monthly inspections of the SSDS are required to verify proper operation. Post-installation testing was completed on April 18, 2017 which documented proper subslab communication, as shown by the measured pressure differentials on Figure 2.

The U-Tube manometer gauge must be visually inspected on at least a monthly basis or more frequently to verify operation. If the fan is operating properly, the liquid levels in the U-Tube limbs should not be equal. Please record the height of the elevated limb of the manometer on the U-Tube to the nearest 0.1 inches of water column on the attached Subslab Depressurization System Inspection Log. An initial record of the observed measurement has been noted on the form for your reference. It is recommended that the log be kept on a clipboard mounted on a pipe near the U-Tube.

Maintenance Activities

If problems are noted during inspections or at any other time during the year, repairs will be scheduled as soon as practical. Repairs to the SSDS may require restoration of power, replacement of the fan, resurfacing or filling of cracks or holes in the floor, and replacement or patching of any cracked or broken PVC piping.

The property owner must maintain the integrity of the SSDS and will maintain a copy of this Maintenance Plan on-site and make it available to all interested parties (i.e. on-site employees, contractors, future property owners or tenants, etc.) for viewing.

Prohibition of Activities and Notification of DNR Prior to Actions Affecting a Cap or SSDS

Per WDNR requirements, the following activities are prohibited on any portion of the property where the SSDS is required as shown on the attached map, unless prior written approval has been obtained from the Wisconsin Department of Natural Resources: 1) removal of the SSDS; 2) replacement with another SSDS; 3) excavating or grading of the land surface; 4) filling on capped or paved areas; 5) plowing for agricultural cultivation; or 6) construction or placement of a building or other structure.

Amendment or Withdrawal of Maintenance Plan

This Maintenance Plan can be amended or withdrawn by the property owner and its successors with the written approval of WDNR.

Contact Information as of May 2017

Property Owner: Mr. Harold Shipshock
Master Drycleaning Inc.
N57 W26389 Mt. Dulac Drive
Sussex, WI 53089
Phone c/o Tom Shipshock, Son, at
(414) 313-9168

Purchaser: Ms. Doris Pec
1680 Pilgrim Pkwy
Elm Grove, WI 53122-1531
414-217-6339
pelskal@hotmail.com

Consultant: Fehr Graham
1237 Pilgrim Road
Plymouth, WI 53073
(920) 892-2444

Attn: Mr. Kendrick Ebbott
kebbott@fehr-graham.com

WDNR: Wisconsin Department of Natural Resources
2300 N. Dr. Martin Luther King Jr. Dr.
Milwaukee, WI 53212
Attn: Mr. John Hnat
414 263-8644
John.Hnat@Wisconsin.gov

Attachments:
Subslab Depressurization System Inspection Log and Photographs (3 copies)
Figure 1: Site Layout and Investigation Borings
Figure 2: Vapor System and Communication Test Results
Table A.5: Vapor Analytical Table
RadonAway Fan Installation and Operating Instructions

f:_pen\olde tyme cleaners\otc-2009-01\reports\vapor system commission report\vapor system maintenance plan.docx

Vapor Mitigation System Inspection Log

Site Name	Former Master Drycleaners	Contacts:	**RECORD MEASUREMENTS MONTHLY**
Address	6326 Bluemound Road Wauwatosa, WI		Ken Ebbott or Dillon Plamann - Fehr Graham 920-892-2444 (Environmental Consulant)
BRRTS#	02-41-545142		

Date	Time	Initials / Company	North Wall U-Tube Reading (inches water column)	System On?	Comments
4/18/2017	11:45 AM	JS / Fehr Graham	2.0	Yes	
NOTE: If U-Tube Levels are higher on one side than the other, system is ON					

Vapor Mitigation System Inspection Log

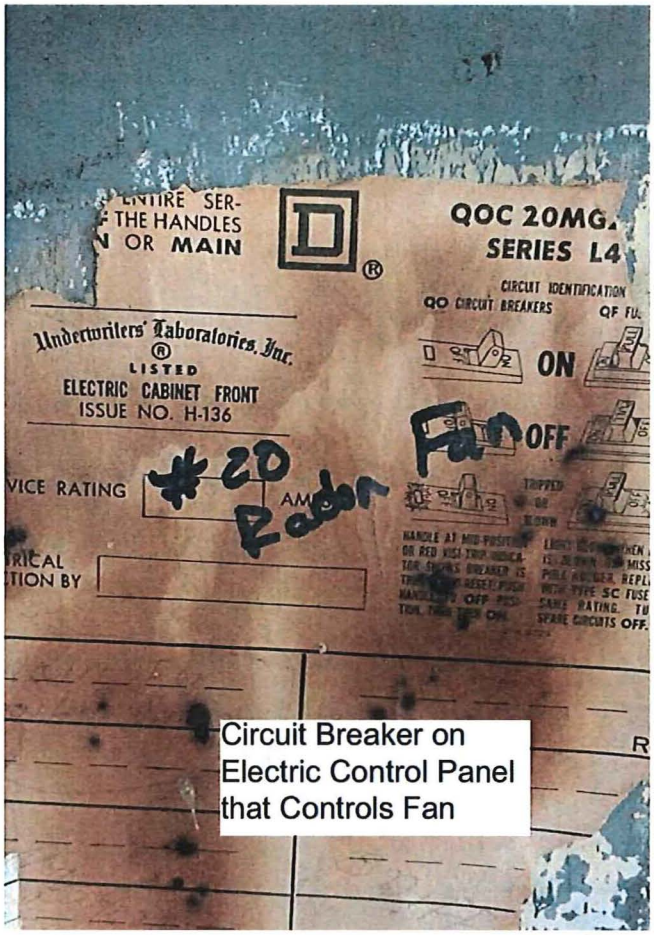
Site Name	Former Master Drycleaners	Contacts:	RECORD MEASUREMENTS MONTHLY
Address	6326 Bluemound Road Wauwatosa, WI		Ken Ebbott or Dillon Plamann - Fehr Graham 920-892-2444 (Environmental Consulant)
BRRTS#	02-41-545142		

Date	Time	Initials / Company	North Wall U-Tube Reading (inches water column)	System On?	Comments
4/18/2017	11:45 AM	JS / Fehr Graham	2.0	Yes	
NOTE: If U-Tube Levels are higher on one side than the other, system is ON					

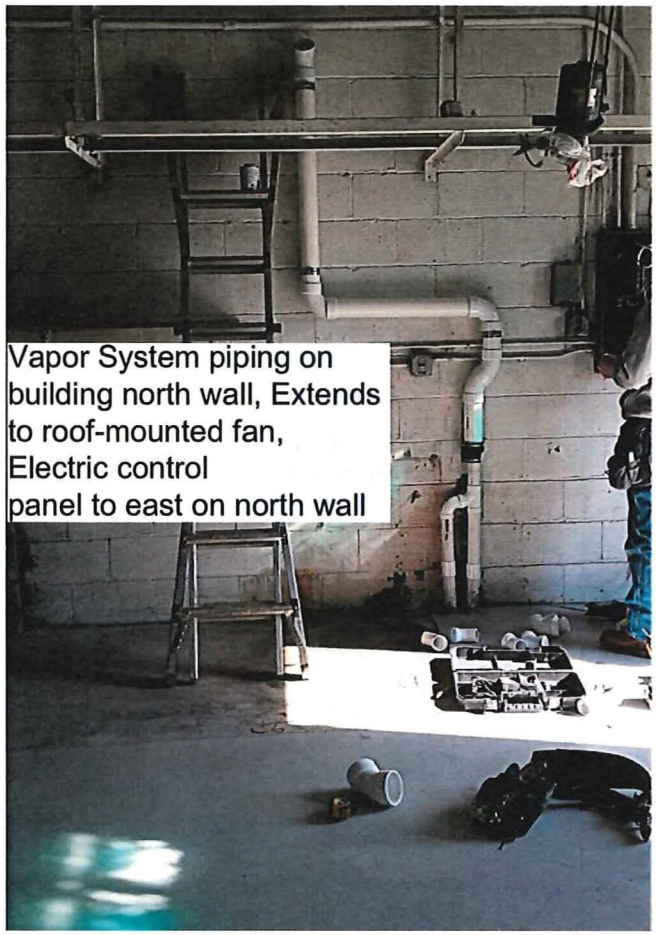
Vapor Mitigation System Inspection Log

Site Name	Former Master Drycleaners	Contacts:	**RECORD MEASUREMENTS MONTHLY**
Address	6326 Bluemound Road		Ken Ebbott or Dillon Plamann - Fehr Graham
	Wauwatosa, WI		920-892-2444 (Environmental Consulant)
BRRTS#	02-41-545142		

Date	Time	Initials / Company	North Wall U-Tube Reading (inches water column)	System On?	Comments
4/18/2017	11:45 AM	JS / Fehr Graham	2.0	Yes	
NOTE: If U-Tube Levels are higher on one side than the other, system is ON					

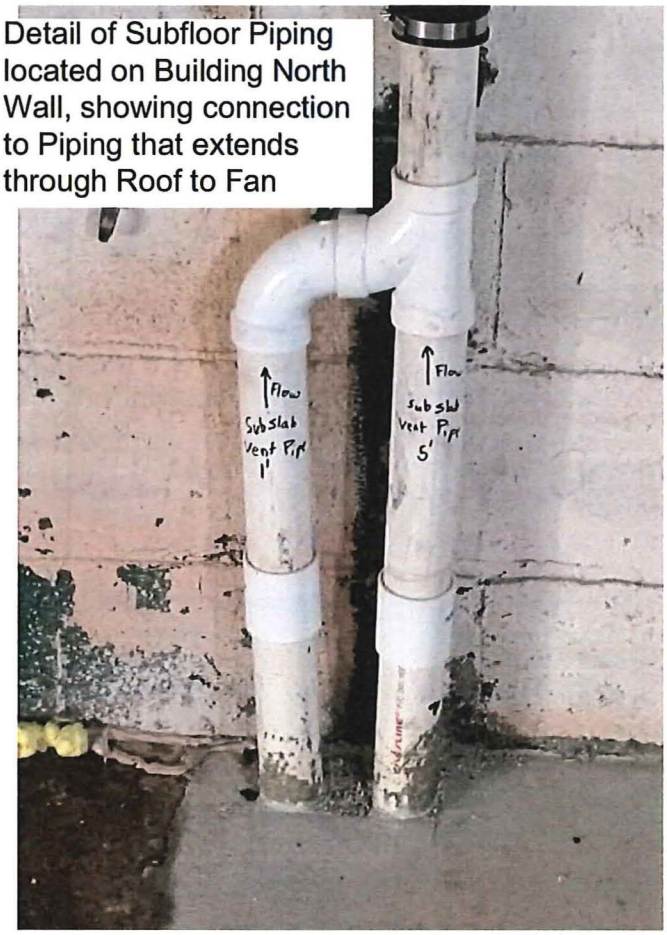


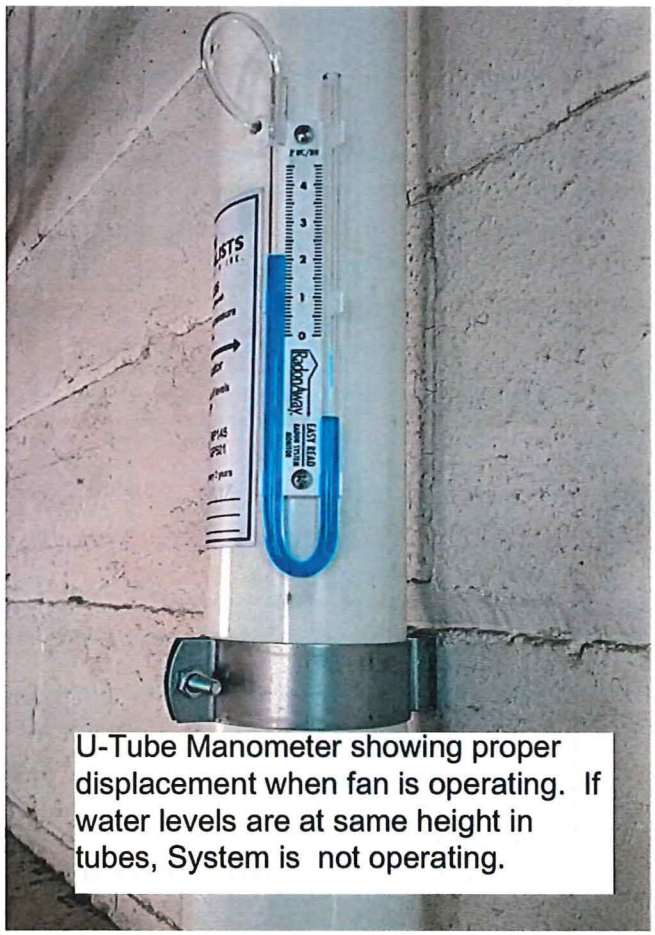
Circuit Breaker on Electric Control Panel that Controls Fan



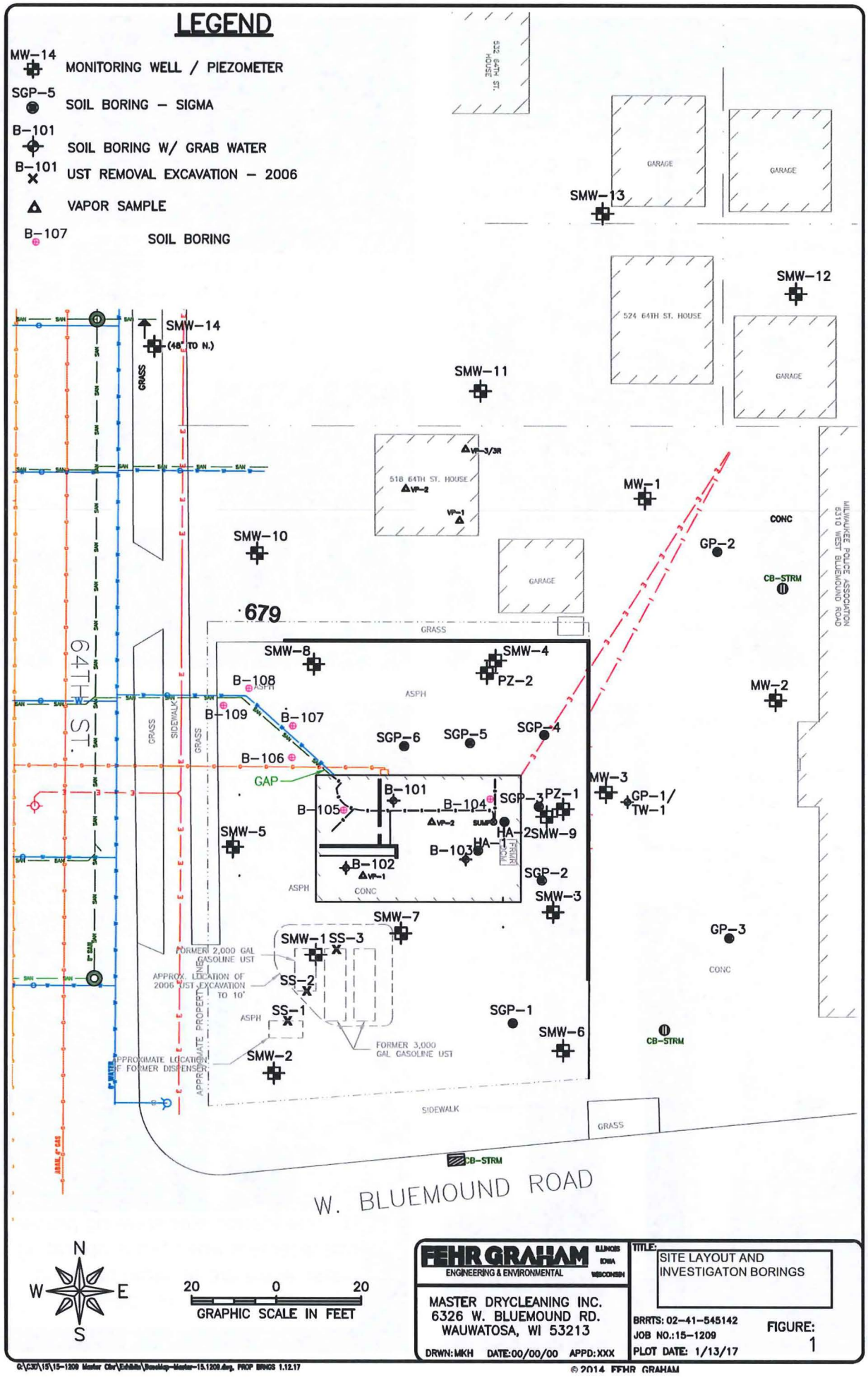
Vapor System piping on building north wall, Extends to roof-mounted fan, Electric control panel to east on north wall

Detail of Subfloor Piping located on Building North Wall, showing connection to Piping that extends through Roof to Fan





U-Tube Manometer showing proper displacement when fan is operating. If water levels are at same height in tubes, System is not operating.



FEHR GRAHAM ENGINEERING & ENVIRONMENTAL ILLINOIS IOWA WISCONSIN

MASTER DRYCLEANING INC.
6326 W. BLUEMOUND RD.
WAUWATOSA, WI 53213

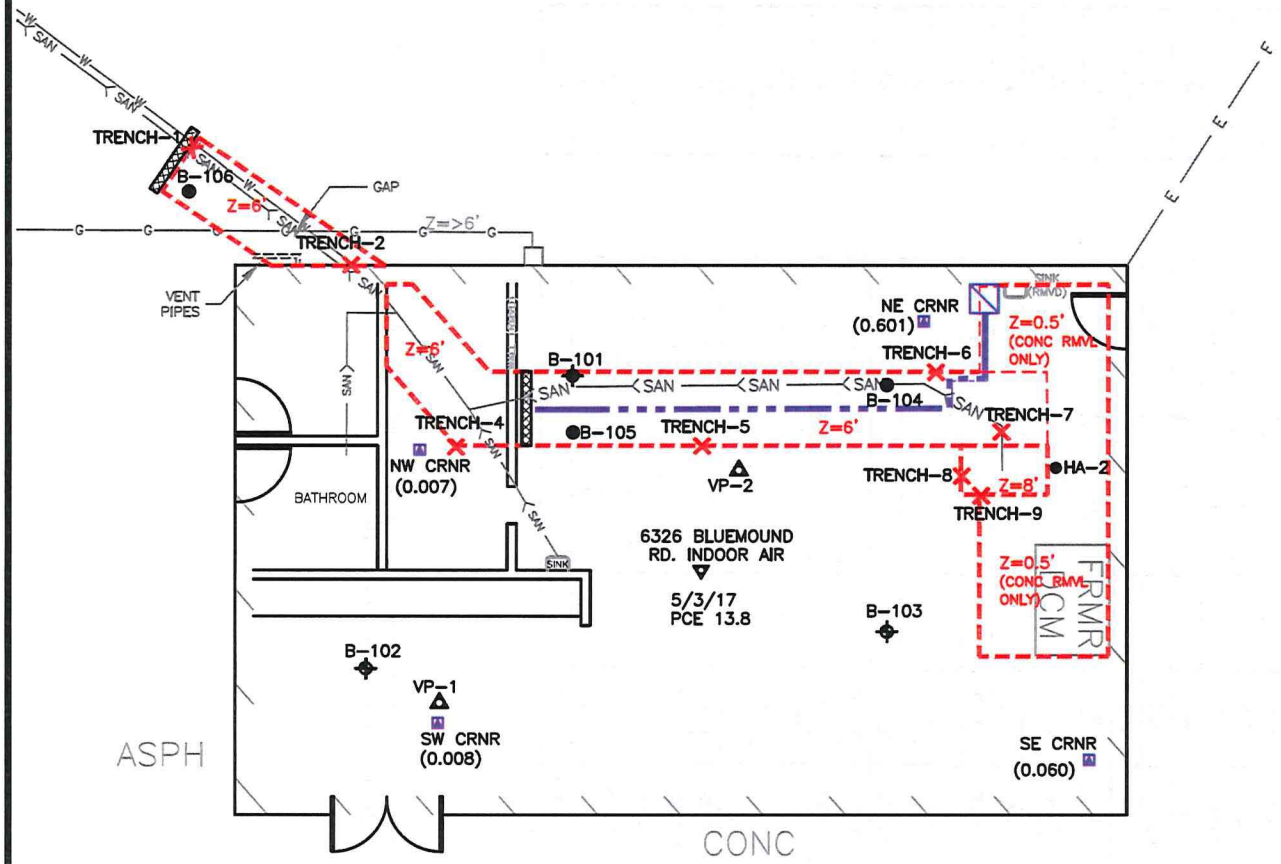
DRWN: MKH DATE: 00/00/00 APPD: XXX

TITLE: SITE LAYOUT AND INVESTIGATON BORINGS

BRRTS: 02-41-545142
JOB NO.: 15-1209
PLOT DATE: 1/13/17

FIGURE: 1

G:\CAD\15\15-1209 Master Chr\Exhibits\Basemap-Master-15.1209.dwg, PROP BRNGS 1.12.17



LEGEND

- EXCAVATION SAMPLE
- SOIL BORING
- TEMP WELL
- REMOVED SOIL BORING
- REMOVED TEMP WELL
- EXCAVATION LIMITS
- VAPOR SYSTEM PIPING @ 1' & 5' DEPTH
- CLAY PLUG
- VAPOR SYSTEM FAN ON ROOF
- SUBSLAB VAPOR SAMPLE POINT
- AMBIENT AIR SAMPLE POINT
- (0.060) VAPOR SYSTEM ASSESSMENT POINT & READING 4/18/17 (INCHES WATER)
- 5/3/17 VAPOR SAMPLE DATE
- PCE TETRACHLOROETHENE (ug/m3)

N W E S

10 0 10

GRAPHIC SCALE IN FEET

D:\15-1209\BaseMap-Master-15.1209.dwg, VAPOR SYST

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL — ILLINOIS IOWA WISCONSIN

MASTER DRYCLEANING INC.
6326 W. BLUEMOUND RD.
WAUWATOSA, WI 53213

DRWN: MKH DATE:00/00/00 APPD: XXX

TITLE:

VAPOR SYSTEM & COMMUNICATION TEST RESULTS

BRRTS: 02-41-545142
JOB NO.:15-1209
PLOT DATE: 5/24/17

FIGURE: 2

TABLE 1
Vapor Analytical Table - VOC
Master Drycleaning, Inc.
6326 W. Bluemound Rd., Wauwatosa, WI 53213
BRRTS# 02-41-545142

						Site : 6326 Bluemound		Site: Indoor Air
Sample ID		C-Carcinogen N-Non Carcinogen	WDNR / WDHFS SMALL COMMERCIAL Subslab Air	WDNR / WDHFS SMALL COMMERCIAL Indoor Air		VP-1	VP-2	6326 Bluemound Indoor
Sample Date						2/24/2016	2/24/2016	5/3/2017
Sample Location						SE corner (6326)	ctr work area (6326)	Center Interior
Type of Sample						sub-slab	sub-slab	Ambient
Collection Method						Summa	Summa	Summa
Time Period of Collection						30 min	30 min	24 hour
Analytical Method						TO-15	TO-15	TO-15
Method/Result Leak Detection						water/shut-in; pass	water/shut-in; pass	NA
STANDARDS COMPARED TO						SMALL COMM Subslab	SMALL COMM Subslab	SMALL COMM Indoor
Benzene	µg/m³	C	*530*	16		0.84	6.8	NA
Ethylbenzene	µg/m³	C	*1,600*	49		2.6	4.5	NA
Toluene	µg/m³	N	*730,000*	22,000		15.3	142	NA
Xylenes	µg/m³	N	*15,000*	440		12.5	17.6	NA
Naphthalene	µg/m³	C	*120*	3.6		6.3	5.3	NA
1,2,4-Trimethylbenzene	µg/m³	N	*1,000*	31		15.0	9.2	NA
1,3,5-Trimethylbenzene	µg/m³	N	NS	NS		2.9	2.2	NA
Tetrachloroethene (PCE)	µg/m³	N	*6,000*	180		608	*63,100*	13.8
Trichloroethene (TCE)	µg/m³	C	*290*	8.8		1.1	*545*	<0.40
cis-1,2 Dichloroethene	µg/m³	N	NS	NS		<0.38	7.1	<0.35
trans-1,2 Dichloroethene	µg/m³	N	NS	NS		<0.60	<0.53	<0.55
Vinyl Chloride	µg/m³	C	*930*	28		<0.30	<0.27	<0.28
Methylene Chloride	µg/m³	C	*87,000*	2,600		0.95 J	<0.75	NA
Acetone	µg/m³	N	*4,700,000*	140,000		38.4	227	NA
Bromomethane	µg/m³	N	*730*	22		0.77 J	<0.43	NA
2-Butanone (Methyl Ethyl Ketone)	µg/m³	N	*730,000*	22,000		2.9 J	37.7	NA
Carbon Disulfide	µg/m³	N	*100,000*	3,100		0.37 J	3.4	NA
Cyclohexane	µg/m³	N	*870,000*	26,000		27.8	86.9	NA
Dichlorodifluoromethane	µg/m³	N	*15,000*	440		3.2	3.5	NA
Ethanol	µg/m³	N	NS	NS		73.1	96.5	NA
4-Ethyltoluene	µg/m³		NS	NS		3.3	2.6	NA
n-Heptane	µg/m³	N	NS	NS		20.4	16.5	NA
n-Hexane	µg/m³	N	*100,000*	3,100		55.3	141	NA
Methyl Isobutyl Ketone (MIBK)	µg/m³	N	*430,000*	13,000		<0.34	5.4 J	NA
2-Propanol (Isopropanol)	µg/m³	N	*29,000*	880		8.0	27.6	NA
Styrene	µg/m³	N	*150,000*	4,400		0.37 J	0.56 J	NA
Trichlorofluoromethane	µg/m³	N	*NS*	NS		1.2 J	1.0 J	NA
1,1,2-Trichlorotrifluoroethane	µg/m³	N	*4,300,000*	130,000		<0.47	0.82 J	NA

N = Noncarcinogen; C = Carcinogen
Blue and ITALICS : Exceeds Subslab Vapor Standard
BOLD Exceeds Indoor Air Standard
NA=Not Analyzed
NS : No Standards
Standards based on DNR Quick Look Up Table andEPA RSL Tables http://www.epa.gov/reg3hwmd/risk/human/rb-concentration table/index.htm June 2015
Small Commercial vs. Large Commercial/Industrial determined based on WDNR Publication RR-800

IMPORTANT INSTRUCTIONS TO INSTALLER

Inspect the GP/XP/XR/RP/SF Series Fan for shipping damage within 15 days of receipt. Notify **RadonAway® of any damages immediately.** RadonAway® is not responsible for damages incurred during shipping. However, for your benefit, RadonAway® does insure shipments.

There are no user serviceable parts inside the fan. **Do not attempt to open.** Return unit to factory for service.

Install the GP/XP/XR/RP/SF Series Fan in accordance with all EPA standard practices, and state and local building codes and state regulations.

Provide a copy of this instruction or comparable radon system and testing information to the building occupants after completing system installation.

WARRANTY

RadonAway® warrants that the GPX01/XP/XR/RP/SF Series Fan (the "Fan") will be free from defects in materials and workmanship for a period of 90 days from the date of purchase (the "Warranty Term").

RadonAway® will replace any Fan which fails due to defects in materials or workmanship during the Warranty Term. The Fan must be returned (at Owner's cost) to the RadonAway® factory. Any Fan returned to the factory will be discarded unless the Owner provides specific instructions along with the Fan when it is returned regardless of whether or not the Fan is actually replaced under this warranty. Proof of purchase must be supplied upon request for service under this Warranty.

This Warranty is contingent on installation of the Fan in accordance with the instructions provided. This Warranty does not apply where any repairs or alterations have been made or attempted by others, or if the unit has been abused or misused. Warranty does not cover damage in shipment unless the damage is due to the negligence of RadonAway®.

5 YEAR EXTENDED WARRANTY WITH PROFESSIONAL INSTALLATION

RadonAway® will extend the Warranty Term of the fan to five (5) years from date of purchase or sixty-three (63) months from the date of manufacture, whichever is sooner, if the Fan is installed in a professionally designed and professionally installed active soil depressurization system or installed as a replacement fan in a professionally designed and professionally installed active soil depressurization system by a qualified installer. Proof of purchase and/or proof of professional installation may be required for service under this warranty. Outside the Continental United States and Canada the extended Warranty Term is limited to one (1) year from the date of manufacture.

RadonAway® is not responsible for installation, removal or delivery costs associated with this Warranty

LIMITATION OF WARRANTY

EXCEPT AS STATED ABOVE, THE GPx01/XP/XR/RP SERIES FANS ARE PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT SHALL RADONAWAY BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR RELATING TO, THE FAN OR THE PERFORMANCE THEREOF. RADONAWAY'S AGGREGATE LIABILITY HEREUNDER SHALL NOT IN ANY EVENT EXCEED THE AMOUNT OF THE PURCHASE PRICE OF SAID PRODUCT. THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY SHALL BE THE REPAIR OR REPLACEMENT OF THE PRODUCT, TO THE EXTENT THE SAME DOES NOT MEET WITH RADONAWAY'S WARRANTY AS PROVIDED ABOVE.

For service under this Warranty, contact RadonAway for a Return Material Authorization (RMA) number and shipping information. No returns can be accepted without an RMA. If factory return is required, the customer assumes all shipping costs, including insurance, to and from factory.

RadonAway® 3 Saber Way
Ward Hill, MA 01835 USA TEL (978) 521-3703
FAX (978) 521-3964
Email to: Returns@RadonAway.com

Record the following information for your records:

Serial No._____

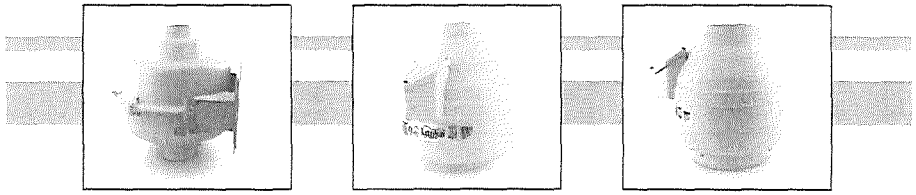
Purchase Date._____

IN014 Rev M

MAX 4" wc

RadonAway®

The World's Leading Radon Fan Manufacturer



GP/XP/XR Series Installation & Operating Instructions

Please Read And Save These Instructions

DO NOT CONNECT POWER SUPPLY UNTIL FAN IS COMPLETELY INSTALLED. MAKE SURE ELECTRICAL SERVICE TO FAN IS LOCKED IN "OFF" POSITION. DISCONNECT POWER BEFORE SERVICING FAN.

1. **WARNING!** For General Ventilating Use Only. Do Not Use to Exhaust Hazardous, Corrosive or Explosive Materials, Gases or Vapors. See Vapor Intrusion Application Note #AN001 for important information on VI applications. RadonAway.com/vapor-intrusion
2. **NOTE:** Fan is suitable for use with solid state speed controls however use of speed controls is not generally recommended.
3. **WARNING!** Check voltage at the fan to insure it corresponds with nameplate.
4. **WARNING!** Normal operation of this device may affect the combustion airflow needed for safe operation of fuel burning equipment. Check for possible backdraft conditions on all combustion devices after installation.
5. **NOTICE!** There are no user serviceable parts located inside the fan unit. **Do NOT attempt to open.** Return unit to the factory for service.
6. **WARNING!** Do not leave fan unit installed on system piping without electrical power for more than 48 hours. Fan failure could result from this non-operational storage.
7. **WARNING - TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:**
   a) Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
   b) Before servicing or cleaning unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.
   c) Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire rated construction.
   d) Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel burning equipment to prevent back drafting. Follow the heating equipment manufacturers guideline and safety standards such as those published by the National Fire Protection Association, and the American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), and the local code authorities.
   e) When cutting or drilling into a wall or ceiling, do not damage electrical wiring and other hidden utilities.
   f) Ducted fans must always be vented to outdoors.
   g) If this unit is to be installed over a tub or shower, it must be marked as appropriate for the application and be connected to a GFCI (Ground Fault Circuit Interrupter) - protected branch circuit.

GP 501
2" wc

RadonAway
3 Saber Way | Ward Hill, MA 01835
www.radonaway.com

P/N IN014 -REV M 8/15

XP/XR SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the XP & XR Series Fan:

	Typical CFM Vs Static Suction "WC								
	0"	.25"	.5"	.75"	1.0"	1.25"	1.5"	1.75"	2.0"
XP151	180	162	140	117	78	46	10	-	-
XP201	150	130	110	93	74	57	38	20	-
XR261	250	215	185	150	115	80	50	20	-

Maximum Recommended Operating Pressure*		
XP151	1.3" W.C.	(Sea Level Operation)**
XP201	1.7" W.C.	(Sea Level Operation)**
XR261	1.6" W.C.	(Sea Level Operation)**

Reduce by 10% for High Temperature Operation
***Reduce by 4% per 1000 feet of altitude*

Power Consumption @ 120 VAC	
XP151	45 - 60 watts
XP201	45 - 66 watts
XR261	65 - 105 watts

XP Series Inlet/Outlet: 4.5" OD (4.0" PVC Sched 40 size compatible)
XR Series Inlet/Outlet: 5.875" OD
Mounting: Mount on the duct pipe or with optional mounting bracket.
Recommended ducting: 3" or 4" Schedule 20/40 PVC Pipe
Storage temperature range: 32 - 100 degrees F.
Normal operating temperature range: -20 - 120 degrees F.
Maximum inlet air temperature: 80 degrees F.
Size: 9.5H" x 8.5" Dia.
Weight: 6 lbs. (XR261 - 7 lbs)

Continuous Duty
Thermally Protected
Class B Insulation
3000 RPM
Residential Use Only
Rated for Indoor or Outdoor Use

LISTED Electric Fan
c ETL us Intertek 77728
Conforms to UL STD. 507
Certified to CAN/CSA STD. C22.2 No.113

GP SERIES PRODUCT SPECIFICATIONS

The following chart shows fan performance for the GP Series Fan:

	Typical CFM Vs Static Suction "WC						
	1.0"	1.5"	2.0"	2.5"	3.0"	3.5"	4.0"
GP501	95	87	80	70	57	30	5
GP401	93	82	60	38	12	-	-
GP301	92	77	45	10	-	-	-
GP201	82	58	5	-	-	-	-

Maximum Recommended Operating Pressure*		
GP501	3.8" W.C.	(Sea Level Operation)**
GP401	3.0" W.C.	(Sea Level Operation)**
GP301	2.4" W.C.	(Sea Level Operation)**
GP201	1.8" W.C.	(Sea Level Operation)**

**Reduce by 10% for High Temperature Operation*
***Reduce by 4% per 1000 feet of altitude*

Power Consumption @ 120 VAC	
GP501	70 - 140 watts
GP401	60 - 110 watts
GP301	55 - 90 watts
GP201	40 - 60 watts

Inlet/Outlet: 3.5" OD (3.0" PVC Sched 40 size compatible)
Mounting: Fan may be mounted on the duct pipe or with integral flanges.
Weight: 12 lbs.
Size: 13H" x 12.5" x 12.5"
Recommended ducting: 3" or 4" Schedule 20/40 PVC Pipe
Storage temperature range: 32 - 100 degrees F.
Normal operating temperature range: -20 - 120 degrees F.
Maximum inlet air temperature: 80 degrees F.

Continuous Duty
Class B Insulation
3000 RPM
Thermally Protected
Rated for Indoor or Outdoor Use

LISTED Electric Fan
c ETL us Intertek 77728
Conforms to UL STD. 507
Certified to CAN/CSA STD. C22.2 No.113

RadonAway®

INSTALLATION & OPERATING INSTRUCTION IN014 Rev M

XP/XR Series		GP Series	
XP151	p/n 23010-1	GP201	p/n 23007-1
XP201	p/n 23011-1	GP301	p/n 23006-1
XR261	p/n 23019-1	GP401	p/n 23009-1
		GP501	p/n 23005-1

1.0 SYSTEM DESIGN CONSIDERATIONS

1.1 INTRODUCTION

The GP/XP/XR Series Radon Fans are intended for use by trained, professional certified/licensed" after professional Radon mitigators. The purpose of this instruction is to provide additional guidance for the most effective use of a fan. This instruction should be considered as a supplement to EPA / radon industry standard practices, state and local building codes and state regulations. In the event of a conflict, those codes, practices and regulations take precedence over this instruction.

1.2 ENVIRONMENTALS

The GP/XP/XR Series Fans are designed to perform year-round in all but the harshest climates without additional concern for temperature or weather. For installations in an area of severe cold weather, please contact RadonAway for assistance. When not in operation, the fan should be stored in an area where the temperature is never less than 32° F. or more than 100° F.

1.3 ACOUSTICS

The GP/XP/XR Series Fan, when installed properly, operates with little or no noticeable noise to the building occupants. The velocity of the outgoing air should be considered in the overall system design. In some cases the "rushing" sound of the outlet air may be disturbing. In these instances, the use of a RadonAway Exhaust Muffler is recommended.

1.4 GROUND WATER

In the event that a temporary high water table results in water at or above slab level, water may be drawn into the riser pipes thus blocking air flow to the GP/XP/XR Series Fan. The lack of cooling air may result in the fan cycling on and off as the internal temperature rises above the thermal cutoff and falls upon shutoff. Should this condition arise, it is recommended that the fan be turned off until the water recedes allowing for return to normal operation.

1.5 SLAB COVERAGE

The GP/XP/XR Series Fan can provide coverage up to 2000+ sq. ft. per slab penetration. This will primarily depend on the sub-slab material in any particular installation. In general, the tighter the material, the smaller the area covered per penetration. Appropriate selection of the GP/XP/XR Series Fan best suited for the sub-slab material can improve the slab coverage. The GP & XP Series have a wide range of models to choose from to cover a wide range of subslab material. The higher static suction fans are generally used for tighter subslab materials. The XR Series is specifically designed for high flow applications such as stone/gravel and drain tile. Additional suction points can be added as required. It is recommended that a small pit (5 to 10 gallons in size) be created below the slab at each suction hole.

1.6 CONDENSATION & DRAINAGE

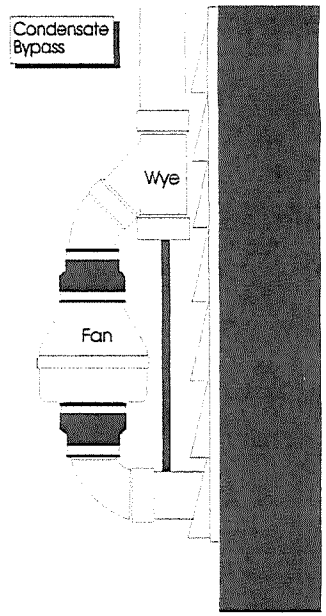
Condensation is formed in the piping of a mitigation system when the air in the piping is chilled below its dew point. This can occur at points where the system piping goes through unheated space such as an attic, garage or outside. The system design must provide a means for water to drain back to a slab hole to remove the condensation. The GP/XP/XR Series Fan **MUST** be mounted vertically plumb and level, with the outlet pointing up for proper drainage through the fan. Avoid mounting the fan in any orientation that will allow water to accumulate inside the fan housing. The GP/XP/XR Series Fans are **NOT** suitable for underground burial.

For GP/XP/XR Series Fan piping, the following table provides the minimum recommended pipe diameter and pitch under several system conditions.

Pipe Dia.	Minimum Rise per Foot of Run* @25 CFM	@50 CFM	@100 CFM
4"	1/8"	1/4"	3/8"
3"	1/4"	3/8"	1 1/2"

*Typical GP/XP/XR Series Fan operational flow rate is 25 - 90 CFM.
(For more precision, determine flow rate by using the chart in the addendum.)

Under some circumstances in an outdoor installation a condensate bypass should be installed in the outlet ducting as shown. This may be particularly true in cold climate installations which require long lengths of outlet ducting or where the outlet ducting is likely to produce large amounts of condensation because of high soil moisture or outlet duct material. Schedule 20 piping and other thin-walled plastic ducting and Aluminum downspout will normally produce much more condensation than Schedule 40 piping.



The bypass is constructed with a 45 degree Wye fitting at the bottom of the outlet stack. The bottom of the Wye is capped and fitted with a tube that connects to the inlet piping or other drain. The condensation produced in the outlet stack is collected in the Wye fitting and drained through the bypass tube. The bypass tubing may be insulated to prevent freezing.

1.7 SYSTEM MONITOR & LABEL

A System Monitor, such as a manometer (P/N 50017) or audible alarm (P/N 28001-2) is required to notify the occupants of a fan system malfunction. A System Label (provided with manometer P/N 50017) with instructions for contacting the installing contractor for service and also identifying the necessity for regular radon tests to be conducted by the building occupants, must be conspicuously placed where the occupants frequent and can see the label.

1.8 ELECTRICAL WIRING

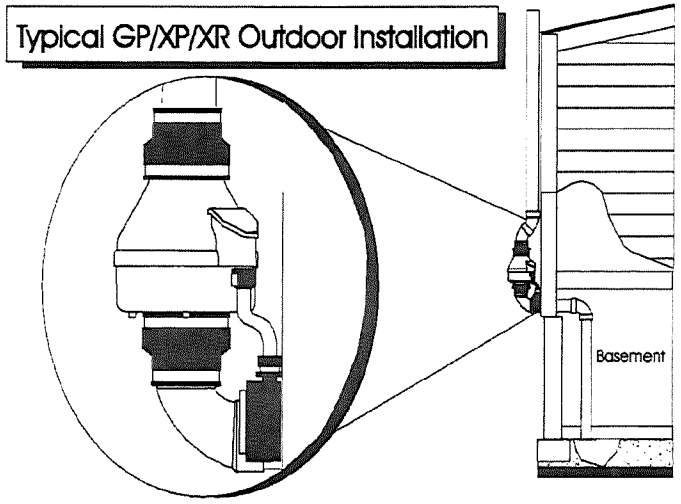
The GP/XP/XR Series Fans operate on standard 120V 60 Hz. AC. All wiring must be performed in accordance with the National Fire Protection Association's (NFPA)"National Electrical Code, Standard #70"-current edition for all commercial and industrial work, and state and local building codes. All wiring must be performed by a qualified and licensed electrician. Outdoor installations require the use of a U.L. listed watertight conduit. Ensure that all exterior electrical boxes are outdoor rated and properly sealed to prevent water penetration into the box. A means, such as a weep hole, is recommended to drain the box.

1.9 SPEED CONTROLS

The GP/XP/XR Series Fans are rated for use with electronic speed controls however, they are generally not recommended. If used, the speed control recommended is Pass & Seymour Solid State Speed Control Cat. No. 94601-I.

2.0 INSTALLATION

The GP/XP/XR Series Fan can be mounted indoors or outdoors. (It is suggested that EPA recommendations be followed in choosing the fan location.) The GP/XP/XR Series Fan may be mounted directly on the system piping or fastened to a supporting structure by means of optional mounting bracket.



2.1 MOUNTING

Mount the GP/XP/XR Series Fan vertically with outlet up. Insure the unit is plumb and level. When mounting directly on the system piping assure that the fan does not contact any building surface to avoid vibration noise.

2.2 MOUNTING BRACKET (optional)

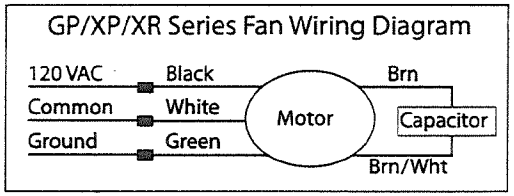
The GP/XP/XR Series Fan may be optionally secured with the integral mounting bracket on the GP Series Fan or with RadonAway P/N 25007 mounting bracket for an XP/XR Series Fan. Foam or rubber grommets may also be used between the bracket and mounting surface for vibration isolation.

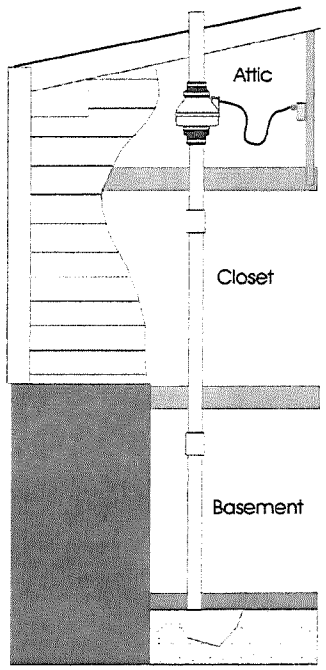
2.3 SYSTEM PIPING

Complete piping run, using flexible couplings as means of disconnect for servicing the unit and vibration isolation.

2.4 ELECTRICAL CONNECTION

Connect wiring with wire nuts provided, observing proper connections (See Section 1.8):





2.5 VENT MUFFLER (optional)

Install the muffler assembly in the selected location in the outlet ducting. Solvent weld all connections. The muffler is normally installed at the end of the vent pipe.

2.6 OPERATION CHECKS & ANNUAL SYSTEM MAINTENANCE

_____ **Verify** all connections are tight and **leak-free.**

_____ **Insure** the GP/XP/XR Series Fan and all ducting is secure and vibration-free.

_____ **Verify** system vacuum pressure with manometer. **Insure** vacuum pressure is within normal operating range and **less than** the maximum recommended operating pressure.
(Based on sea-level operation, at higher altitudes reduce by about 4% per 1000 Feet.)
(Further reduce Maximum Operating Pressure by 10% for High Temperature environments)
See Product Specifications. If this is exceeded, increase the number of suction points.

_____ **Verify Radon levels by testing to EPA protocol.**