

SCS ENGINEERS

May 23, 2014
File No. 25213180.07

Mr. Kevin McKnight
Wisconsin Department of Natural Resources
625 East County Road Y
Oshkosh, WI 54901

Subject: Vapor Mitigation Summary for Central House Building
Larson Cleaners Project, Chilton, Wisconsin
WDNR Purchase Order #NMD00000758
BRRTS #02-08-221491

Dear Mr. McKnight:

SCS Engineers (SCS) coordinated installation of sub-slab depressurization system (SSDS) at the Central House building, 321 East Main Street, Chilton, Wisconsin. The purpose of the work was to reduce the potential for vapor migration into the Central House building. The potential source of vapors is the adjacent Larson Cleaners site, which had a release of dry cleaning solvents.

The SSDS work was performed consistent with the Department's January 21, 2014 Request for Quote, the Vapor Intrusion Zone Contract, and Department's Purchase Order # NMD00000758.

SUB-SLAB DEPRESSURIZATION SYSTEM

The SSDS was installed by Acura Services, LLC (Acura) in April 2014 and included installation of 12 pickup points through the floor slab, associated piping, and blowers. Following system start-up, Acura conducted sub-slab vacuum testing which verified successful depressurization of the sub-slab. Pickup and vacuum observations points are shown on **Figure 1**.

Further details regarding SSDS construction and vacuum testing are provided in Acura's mitigation report, maintenance plan, and photos included in **Attachment A**. Central House owner (Bob Cullen) was provided a copy of the SSDS maintenance plan.

AMBIENT AIR SAMPLING

SCS conducted post-mitigation ambient air sampling for the Central House building on May 12 and 13, 2014. The purpose of the sampling was to assess the effectiveness of the SSDS system. SCS collected two samples from the basement, one from the first floor, and one outside of the building (background). Sample locations are shown on **Figure 1**.



All ambient air samples were collected over an approximate 24-hour time period and transported to the Wisconsin State Laboratory of Hygiene for volatile organic compound (VOC) analysis via method TO-15. Samples were analyzed for tetrachloroethene (PCE), trichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, and vinyl chloride. SCS field forms, laboratory chain of custody, and laboratory reports are included **Attachment B**. Laboratory analytical results are summarized in **Table 1**.

PCE was detected in all of the indoor air samples at concentrations ranging from 0.25 parts per billion by volume (ppbv) to 0.28 ppbv. These concentrations do not exceed the Department's residential indoor air Vapor Action Level for PCE (6.2 ppbv). No other VOCs were detected in the indoor air samples, and no VOCs were detected in the outdoor air (background) sample.

CONCLUSION

An SSDS system was installed in the Central House building at 321 East Main Street, Chilton, Wisconsin. Post-mitigation vacuum and ambient air tests indicate that the SSDS is functioning as intended.

Please contact me at (608) 216-7329 if you have any questions concerning this letter.

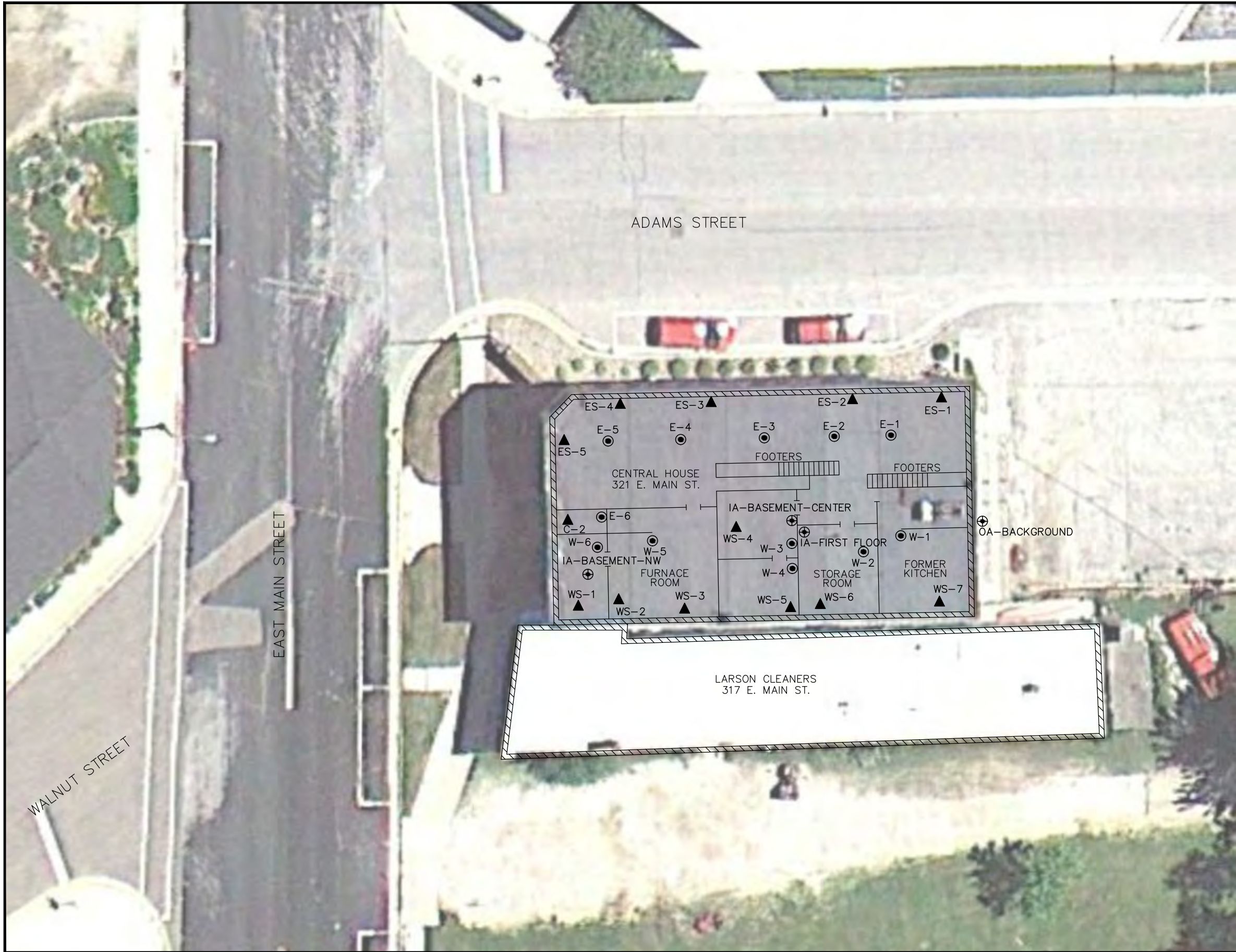
Sincerely,



Robert Langdon
Senior Project Manager
SCS ENGINEERS

REL/TLC

Enclosures: Figure 1 – Site Plan
Table 1 – Ambient Air Analytical Results Summary - Residential
Attachment A – Acura Mitigation Report, Maintenance Plan, and Photos
Attachment B – Field forms, Laboratory Chain of Custody, and Laboratory Reports

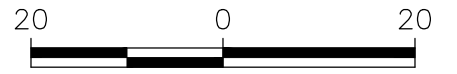


LEGEND

- SUB-SLAB DEPRESSURIZATION PICKUP POINT
- ▲ VACUUM OBSERVATION POINT
- ⊕ AMBIENT AIR SAMPLE LOCATION

NOTES:

1. CENTRAL HOUSE FLOOR PLAN IS FOR BASEMENT LEVEL AND BASED ON INFORMATION PROVIDED BY ACURA SERVICES, LLC.
2. SAMPLE IA-FIRST FLOOR WAS COLLECTED FROM FIRST FLOOR LOCATION SHOWN IS PROJECTED TO BASEMENT LEVEL.
3. SCALE AND LOCATIONS ARE APPROXIMATE.



SCALE: 1" = 20'

PROJECT NO.	25213180.07	DRAWN BY:	AHB
DRAWN:	05/09/14	CHECKED BY:	REL
REVISED:	05/23/14	APPROVED BY:	REL 05/23/14

SCS ENGINEERS
 2830 DAIRY DRIVE MADISON, WI 53718-6751
 PHONE: (608) 224-2830

CLIENT  SITE

LARSON CLEANERS
 317 EAST MAIN STREET
 CHILTON, WISCONSIN

SITE PLAN

FIGURE
 1

I:\25213180\25213180.07\Drawings\Site Plan.dwg, 5/23/2014 8:48:00 AM

**Table 1. Ambient Air Analytical Results Summary - Residential
Larson Cleaners, Chilton, WI / SCS Engineers Project #25213180.07**
(Results are in ppbv)

Sample	Location	Date	Lab Notes	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
IA-First Floor	Central House, 321 E. Main	5/12/2014	--	0.28	<0.28	<0.28	<0.28	<0.28
IA-Basement NW	Central House, 321 E. Main	5/12/2014	--	0.27 F	<0.28	<0.28	<0.28	<0.28
IA-Basement Cntr	Central House, 321 E. Main	5/12/2014	--	0.25 F	<0.28	<0.28	<0.28	<0.28
OA-Background	Central House, 321 E. Main	5/12/2014	--	<0.28	<0.28	<0.28	<0.28	<0.28
Indoor Air Vapor Action Level (Residential)				6.2	0.39	NE	16	0.62

Abbreviations:

ppbv = parts per billion by volume
cis-1,2-DCE = cis-1,2-dichloroethene

PCE = tetrachloroethene
trans-1,2-DCE = trans-1,2-dichloroethene

TCE = trichloroethene
NE = not established

Notes:

1. Samples were collected in 6-liter summa canisters over a 24-hour period and analyzed using the USEPA TO-15 analytical method.
2. Indoor Air Vapor Action Levels are Target Indoor Air Concentrations from the USEPA November 2013 Regional Screening Level Summary Table with a target risk of 1.00E-05 for carcinogens.
3. **Bold+underlined** values meet or exceed Indoor Air Vapor Action Levels for Residential settings.

Lab Notes:

F = Result is between the limit of detection and the limit of quantitation.

I:\25213180\25213180.07\Tables\[Off-Site_Ambient_Air_Results_Residential.xls]Ambient Air Results

Created by: TLC
Last revision by: TLC
Checked by: REL

Date: 5/23/2014
Date: 5/23/2014
Date: 5/23/2014

ATTACHMENT A

Acura Mitigation Report, Maintenance Plan, and Photos



Radon & Soil Gas Mitigation Services
Anthony G. Hendricks P.E.

April 11, 2014

SCS Engineers
Mr. Robert Langdon
rlangdon@scsengineers.com
(608) 216-7329

Post Mitigation Report For: Central House/Cullen Property, 321 E. Main St.,
Chilton, WI

A historic building Central House was originally built in the 1800's and was most recently a restaurant on the first floor with kitchen in the basement and the second and third floors were apartments. The interior of the building has been stripped in preparation to remodel. Currently there's no heat in the building.

Central House is approximately 42 feet wide by 82 feet long. (See drawing). The east side of the basement is open. The west side of the basement is organized into rooms. Two stairs come down from the main floor to the basement. Built in the 1800's the building has been updated and remodeled over the years. The observable basement slab, approximately 5 inches thick, appeared to be in good condition. Drilling indicated rubble or possible the remains of an old floor under the slab. Only the tip of the bit demonstrated any soil.

Mitigation began April 2, 2014. Primary mitigation ended April 10, 2014.

Discussion of Results – From January 2014 Report on Communication Testing

The results indicate a very limited ability to extend communication between two points. The maximum range appears to be about 15 feet. This indicates very tight conditions under the slab. Note: My experience in normal tight conditions is that a thirty foot extension of communication is the most that can be expected. A limitation of 15 feet indicates very tight conditions. The rubble under the floor or old floor plus potential clay as found under Larson Cleaners next door indicates very restricted communication.

Mitigation Design Based on January 2014 Report

Based on the communication testing 10 to 12 pickup points would be needed in this building. Two three inch schedule 40 PVC lines can be run through the vertical wall framing into the attic above the third floor. These lines would each be tied to a header pipe connecting 5 to 6 pickup points each. A fan would then be mounted in the attic and final discharge for the fan would be through the roof.



Radon & Soil Gas Mitigation Services
Anthony G. Hendricks P.E.

Mitigation

Mitigation was begun on April 2, 2014. The main installation work and startup of fans was completed April 10, 2012. Location of pickup points on the east side of the building was laid out based on the original design and consideration of beams and footers for beams. Concrete was cut and excavation begun for the pickup points. More communication testing was done to facility location of the pickup points on the east side of the building. The west side of the building is broken up into various sized rooms. Communication testing indicated 12 pickup points would be needed.

After excavation of the pickup points had been completed on the east side of the building a fan test was run to evaluate the expected soil gas yield per square foot of sidewall exposed in the pit. Two tests were run which yielded different results. Test one produced 1.2 cfm per square foot of exposed sidewall. Test Two produced 0.89 cfm per square foot of exposed sidewall. These results were used to estimate actual cfm of soil gas that might be expected from collecting several pickup points into a single header pipe. Based on these results five pickup points on the east side were connected to one three inch header pipe and seven pickup points on the west side of the building were connected one three inch header pipe. The individual header pipes were routed through the floor and into a standing framing wall. These two three inch pipes were then run vertically through the roof.

The building has a flat roof and the attic space is limited. Due to limited access and difficulty of potentially servicing the fans if installed in the attic the fans were mounted above the roof. There's a hatch with easy access to the roof on the third story of the building.

Each pickup point was sealed with a two foot by two foot polycarbonate cover. Silicone caulk was put around each pickup point opening before the lids were secured. Concrete screws were used to fasten the lid to the floor. Then a two inch hub was installed on each cover. Two inch PVC pipe was then used to connect each pickup point to the three inch header pipe.

Original Fan Size Based on the Original Report of January 2014

Based on communication testing each pickup point would be expected to yield only about 5 cfm of air. The fan would be commercial sized capable of pulling 18 inches of water column, 150 to 270 watts with a recommended maximum operating pressure of 14 inches of water column. At 10 inches of static water column the fan pulls approximately 72 cfm.

Discussion

Based on the fan testing done on two actual pickup points it was decided to test smaller fans first. Two AMG Prowler fans were installed and tested. Testing involved drilling small holes in many locations and taking readings with Infiltric Micro manometer(s) to see if the slab was being depressurized. All readings are in inches of water column. After the initial round of sub slab



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Anthony G. Hendricks P.E.

depressurization readings were taken valves were installed on some of the pickup points to help balance out the system. Follow up readings were taken and adjustments made.

Manometers were installed on each three inch header. The manometer on the East Header pipe connecting five (5) pickup points read 1.8 inches of water column. The manometer on the West Header pipe connecting seven (7) pickup points read 1.5 inches of water column. The air flow is estimated to be 84 cfm on the discharge of the West and 60 cfm on the East discharge.

Results: See the drawing for approximate location of the test holes. All results below are from testing done April 10, 2014 after the system(s) were started up. (Note: See the drawing for approximate location of the pickup points. Pickup points are labeled E-1 thru E-6 for those on the east side of the building and W-1 thru W-6 for those on the west side of the building.)

Test holes are designated W-S (west sample point); C-S (central sample point); or E-S (east sample point).

E-S-1, minus 0.110; E-S-2, minus 0.095; E-S-3 minus 0.091; E-S-4 minus 0.011; E-S-5 minus 0.013;

C-S-1, minus 0.030; C-S-2 minus 0.037; C-S-3 minus 0.226 (after valve installed and adjusted minus 0.033); C-S-4 minus 0.204'

W-S-1 minus 0.647; W-S-2 minus 0.008; W-S-3 minus 0.018; W-S-4 minus 0.046 (with valve adjusted minus 0.056) ; W-S-5 minus 0.333 (with valve adjusted minus 0.053); W-S-6 minus .008 (with valve adjusted minus 0.011); W-S-7 minus 0.013 (with valve adjusted minus 0.021);

Conclusions

The manometer readings indicate that the slab in the basement has been successfully depressurized.

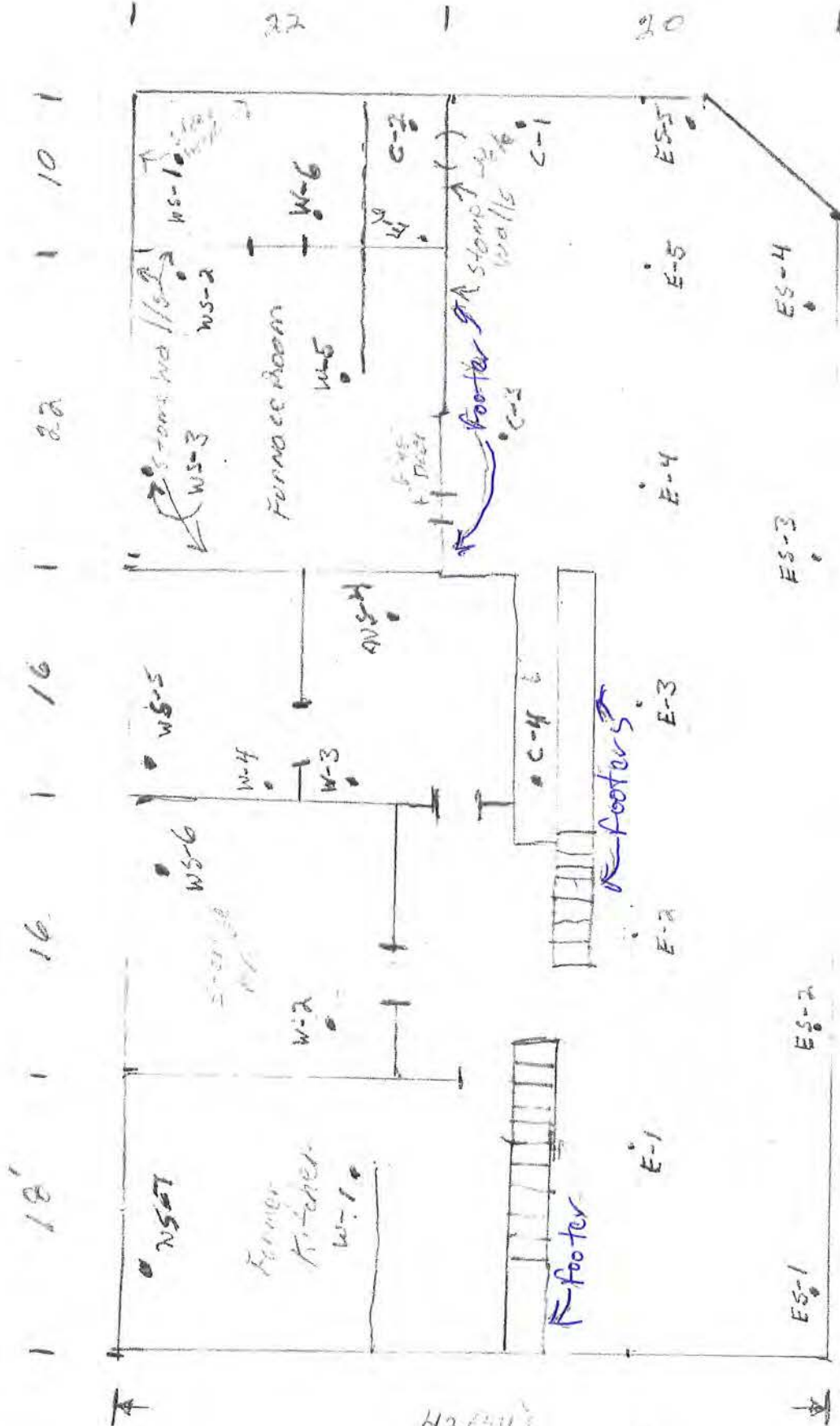
The use of the smaller fans resulted from the ability to get good development of the pickup points. Based on water levels experienced at the former Larson Cleaners building next door it was felt that water might limit the depth of excavations in Central House and therefore the sidewall area available to release soil vapor to the pickup point. The good development of the pickup points not only reduces initial cost of the installation but will result in excellent long term savings in energy, energy cost and reduce pollution of Green House Gases.

Prepared by: Anthony G. Hendricks P.E.

Control House

E. Main 5'

4
2



1.0 1.3

1/8/14
Drawn by: A.G.H.

H2 (41)
Back (var. 5 up to 10)



Vapor Intrusion & Radon Mitigation Services *Anthony G. Hendricks P.E.*

Maintenance Plan For The Sub Slab Depressurization System

System Installed In The Year 2014

Installed by Acura Services LLC

System Description

Soil gas enters a home due to a positive pressure under the slab (floor) of the basement. A sub slab depressurization system works by changing that positive pressure into a negative pressure. The negative pressure created by the pickup point and fan sucking on the pickup point causes the soil gas to flow to the pickup point and to be exhausted through the fan outside the home. As long as that negative pressure is maintained the soil gas that would enter the home is captured and exhausted outside along with any harmful constituents of that gas. Harmful constituents of the gas include volatile organic compounds and radon for example.

Fan Operation & Maintenance

The fan, the manometer and the on/off switch are the only moving parts to this sub slab depressurization system. The fan is designed to run all day year round. If the fan stops or is shut down the pressure under the slab will probably return to positive and potentially allow sub slab soil vapors to enter the home. The functioning of the fan is therefore the most essential component of the system.

The manometer, which reads inches of water column, indicates the proper operation of the fan. The manometer reading at startup is recorded on a label affixed on the riser pipe beside the manometer. This reference allows you to compare that initial reading with any current reading. The manometer may bounce around a small amount due to changing weather conditions overall that variation will be small compared to the initial reading. Any significant change needs to be evaluated to insure that the system is operating properly.

If the manometer reading drops to zero, that is both sides of the manometer are at the same level the system needs to be checked out.

Step One: Determine if the manometer is hooked up properly. A small tube on one side of the manometer has been placed in a hole drilled in the riser pipe. If for any reason that tube has been pulled out of the riser pipe or from the manometer the manometer will not read properly. To correct: reinsert the tube into the hole in the riser pipe and/ or the tube of the manometer. Once this is done the manometer reading should return to approximately the initial startup reading.

Step Two: After checking the manometer you find that the fan is not running. First check the breaker in the electric panel to see if it is on. If the breaker is off turn it to on. If the breaker is in the proper position got



Vapor Intrusion & Radon Mitigation Services

Anthony G. Hendricks P.E.

outside to check the lockable on/off switch for the fan. A child or other person may have turned the switch off. If in the off position move to the switch to the on position and listen for the fan to start up. Once the fan is on; check the manometer reading to verify that the fan is operating normally. To prevent this happening in the future you may insert a lock into the lockable on/off switch. Make sure the switch is in the on position. Verify by checking the manometer immediately.

Step Three: What if after checking the fan operation you find it's not running. On the riser pipe is the contact information for Acura Services LLC. Call for assistance. Although these are high quality fans made specifically for mitigation systems all mechanical devices can and will fail. When calling please have the following information available; 1) Startup Date; 2) Initial manometer reading; 3) Fan Model (This information will be on the fan name plate and/or the label on the riser pipe.)

Warning Check The Manometer Regularly

The manometer is the primary run indicator for the system. Get in the habit of checking the manometer regularly. All fans wear out eventually and since these systems are user friendly they tend to get ignored over time. If your laundry is in the basement a good habit is to check the manometer every time you do laundry. Checking the manometer a minimum of once a week is recommended. Daily is better.

The mitigation system is designed to protect your health from harmful soil vapors. You are responsible to see that the system is functioning properly. By keeping a regular check on the manometer you can feel confident that you and your family are being protected.

If You Plan on Remodeling or Adding an Addition to Your Home?

Some remodeling may impact the effectiveness of the system. Call Acura Services LLC to discuss the planned project so any potential impact to the mitigation system may be evaluated. **Warning;** Most builders do not understand the importance of mitigation systems and may give you assurances that the system will not be impacted. These assurances may not be valid.

Maintenance

The fan is the only major moving part. The fan is maintenance free. By checking the manometer regularly you'll be checking the proper operation of the fan. There is an Ice/Debris trap with a stainless steel screen just above the fan. The manufacture recommends that this be cleaned annually. Shut off the fan then remove the screw in plug. Clean out any debris trapped on the screen. Screw the plug back in and turn the fan back on. If you have any further questions about your mitigation system call Acura Services LLC. We take pride in our systems and want you and your family to enjoy a healthy home.

Prepared by: Anthony G. Hendricks P.E.

Installation & Wiring Instructions for AMG In Line Centrifugal Duct Fans



**Model: AMG Spirit, Fury, Legend, Hawk, Maverick,
Prowler, Eagle**



**IMPORTANT NOTE : DO NOT CONNECT THE POWER SUPPLY UNTIL THE FAN IS COMPLETELY INSTALLED.
MAKE SURE THE ELECTRICAL SERVICE TO THE FAN IS LOCKED IN "OFF" POSITION.**

PLEASE READ AND SAVE THESE INSTRUCTIONS :

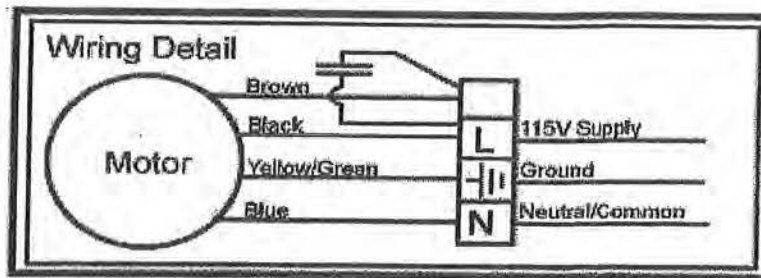
Warning – To reduce the risk of fire, electric shock or injury to persons, observe the following.

1. This unit is only for use in the manner intended by the manufacturer. If you have any questions contact the manufacturer Festa Manufacturing Enterprises LLC.
2. Installation work and electrical wiring must be done by qualified person'(s) in accordance with all applicable codes and standards, including fire-rated construction.
3. 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 manufacturer's guideline and safety standards such as those published by the National Fire Protection Association (NFPA), and the American Society for Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), and the local code authorities.
4. When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.
5. Ducted fans must always be vented to the outdoors.
6. These units can be mounted indoors or outdoors.
7. Do not use these fans with solid state speed controllers.
8. The electric motor is protected by an internal overheat device to prevent/minimize motor damage. If the motor stops working, immediate inspection should be carried out by suitably qualified persons.
9. Before servicing or cleaning the 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.
10. Do not use in a window.
11. 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.
12. Never place a switch where it can be reached from a tub or shower.
13. CAUTION: For General Ventilating Use Only. Do Not use to Exhaust Hazardous Or Explosive Materials and Vapours.
12. CAUTION: This unit has an unguarded impeller. Do Not Use in Locations Readily Accessible To People or Animals.

Installation of FME AMG PATRIOT Radon Fans.

The FME AMG PATRIOT Fan can be mounted indoors or outdoors. We suggest that EPA recommendations be used in choosing the fan location. The AMG Fans may be mounted directly onto the piping system or fastened to a supporting structure. When mounting directly onto a vertical piping system, it is the installers responsibility to make provision to prevent the pipe system sliding into and onto the fan motor and impeller. When installing a system with short duct runs terminating close to the fan i.e. within 60" (1.5m) suitable guards should be incorporated. It is the responsibility of the installer to ensure that all aspects of the system are taken into consideration. Rigid ducting sections should be connected to fan spigots by flexible connectors and clips. The flexible connectors used should be suitable for routine servicing and vibration isolation.

Electrical Connections



Ensure that the mains supply voltage, frequency, number of phases and power rating comply with the details on the unit rating label (situated internally on inside of box cover). All wiring must be in accordance with local and / or national electrical codes as applicable, or the appropriate standard in your country. The fan must be supplied through a double pole isolating switch having a contact separation of not less than 1/8" (3mm). Wiring to the terminal box should be made in liquid tight flexible conduit to facilitate easy maintenance.

Operational Checks.

Ensure all duct connections are tight and leak free.

Check the system vacuum pressure with a manometer, ensure that the vacuum pressure is less than the maximum recommended operating pressure.

Check and verify Radon levels by testing to EPA protocol.

Cleaning and Maintenance.

We would recommend that the fan be periodically checked against the listed operational checks to ensure trouble free long lasting operation.

FIVE (5) YEAR WARRANTY

Conditions of Warranty

Festa Manufacturing Enterprises ("FME") warrants that the AMG PATRIOT shall be free from defects in material and workmanship for a period of (5) years from the date of purchase by the customer. If within the applicable warranty period the Products prove to be defective by reason of faulty workmanship or materials, FME will undertake to have the defective Product (or any part thereof) replaced at no cost to the customer subject to the following conditions:

1. The Product has been purchased and used solely in accordance with all Environmental Protection Agency ("EPA") standard practices and state and local codes of practice.
2. The Product is returned promptly on being found defective, together with this warranty and proof of date of installation at the customers risk and expense to Festa Manufacturing Enterprises LLC. ("FME") from whom the Product was purchased. All enquiries must be through FME.
3. This warranty shall not apply to any Product failure or defect due to any cause beyond the reasonable control of FME including; damage caused through fire, flood, explosion, accident, misuse, wear and tear, neglect, incorrect adjustment or repair, damage caused through installation, adaptation, modification or use in an improper manner or inconsistent with the technical and/or safety standards required where the Product is used, or to damage occurring during transit to or from the customer.
4. If at any time during the Warranty Period any part or parts of the Product are replaced with a part or parts not supplied or approved by FME, or the Product has been dismantled or repaired by any person not authorized by FME, FME shall have the right to terminate this warranty in whole or in part immediately without further notice.
5. FME's decision on all matters relating to complaints and Products defects and failure (alleged or actual) shall be final. Any Product or defective part, which has been replaced, shall be FME's.
6. FME will offer to customers a Warranty of a full Five Years, from date of purchase, in accordance with the terms listed above.

Festa Manufacturing Enterprises, LLC. 47A Progress Ave. Cranberry Twp., PA 16066

Tel. Toll Free 1(800) 806-7866 Fax 1(412) 931-0754



0508

**Central House
321 E. Main, Chilton, Wisconsin
SCS Engineers Project #25213180.07
April 10, 2014**



Photo 1: Central House building



Photo 2: Central House building

**Central House
321 E. Main, Chilton, Wisconsin
SCS Engineers Project #25213180.07
April 10, 2014**



Photo 3: Pick-up points E-1, E-2, and E-3



Photo 4: Pick-up points E-3, E-2, and E-1

**Central House
321 E. Main, Chilton, Wisconsin
SCS Engineers Project #25213180.07
April 10, 2014**



Photo 5: Pick-up points E-5 and E-4



Photo 6: Pick-up point E-6

**Central House
321 E. Main, Chilton, Wisconsin
SCS Engineers Project #25213180.07
April 10, 2014**



Photo 7: To pick-up point E-6



Photo 8: Pick-up point W-1

Central House
321 E. Main, Chilton, Wisconsin
SCS Engineers Project #25213180.07
April 10, 2014



Photo 9: Pick-up point W-2



Photo 10: Pick-up point W-3

Central House
321 E. Main, Chilton, Wisconsin
SCS Engineers Project #25213180.07
April 10, 2014



Photo 11: W-4



Photo 12: Pick-up point W-5

Central House
321 E. Main, Chilton, Wisconsin
SCS Engineers Project #25213180.07
April 10, 2014



Photo 13: Pick-up point W-6



Photo 14: Manometers, label, operation & maintenance information, and warranty information

Central House
321 E. Main, Chilton, Wisconsin
SCS Engineers Project #25213180.07
April 10, 2014



Photo 15: Fans above roof

ATTACHMENT B

Field Forms, Laboratory Chain of Custody, and Laboratory Reports

Vapor Assessment Sample Collection Log

PROJECT: LARSON CLEANERS BRTS#: 02-08-221491 PROJECT#:	SAMPLE ID: IA- FIRST FLOOR TYPE (Circle One)*: SB (IA) OA
LOCATION: CHILTON, WI	SAMPLE INTAKE HEIGHT: 3' NA for SB
SAMPLER: TYLOR MUNSON	APPROX PURGE VOLUME: NA for IA and OA
EQUIPMENT:	APPROX SAMPLING DEPTH: NA for IA and OA

Instrument/Weather Readings

Date	Time	Canister Vacuum (" of Hg)	Temp (°F)	Relative Humidity (%)	Air Speed (mph)	Barometric Pressure (" of Hg)	PID Reading (ppm/ppb)
5/12/14	1200	-30					4
5/13/14	1200	-6.5					18

Summa Canister Information:

Canister Size:	1L	(6L)
Canister ID#	ESS 6023	
Flow Controller ID#	5834	

Sub-Slab Water Dam Test:

Test Passed:	Yes	No
(NA) - FOR AMBIENT AIR SAMPLES		

General Notes/Observations:

Abbreviations:

NA = Not Applicable
 SB = Sub-Slab
 IA = Indoor Air
 OA = Outdoor Air

Vapor Assessment Sample Collection Log

PROJECT: LARSON CLEANERS	SAMPLE ID: 14-BASEMENT CENTER TYPE (Circle One)*: SB (IA) OA
BRRTS#: 02-08-221491 PROJECT#:	SAMPLE INTAKE HEIGHT: 3' NA for SB
LOCATION: CHILTON, WI	APPROX PURGE VOLUME: NA for IA and OA
SAMPLER: TYLER MUNSON	APPROX SAMPLING DEPTH: NA for IA and OA
EQUIPMENT:	

Instrument/Weather Readings

Date	Time	Canister Vacuum (" of Hg)	Temp (°F)	Relative Humidity (%)	Air Speed (mph)	Barometric Pressure (" of Hg)	PID Reading (ppm/ppb)
5/12/14	1210	-27					24
5/13/14	1210	-4					53

Summa Canister Information:

Canister Size:	1L	<u>6L</u>
Canister ID#	ESS 6054	
Flow Controller ID#	5343	

Sub-Slab Water Dam Test:

Test Passed:	Yes	No
NA - FOR AMBIENT AIR SAMPLES		

General Notes/Observations:

NOTICE ON 5/13/14, SOIL PILE ON TARP AT ~~NORTH~~ SOUTH END OF BASEMENT HAS PID = 121 ppb WITH PID ~ 1' FOOT ABOVE SURFACE. GAS CAN PRESENT IN BASEMENT ALONG EAST WALL

Abbreviations:

NA = Not Applicable
 SB = Sub-Slab
 IA = Indoor Air
 OA = Outdoor Air

Vapor Assessment Sample Collection Log

PROJECT: LARSON CLEANERS	SAMPLE ID: IA-BASEMENT NW TYPE (Circle One)*: SB (IA) OA
BRATS# : 02-08-221491	
PROJECT#:	SAMPLE INTAKE HEIGHT: 3' NA for SB
LOCATION: CHILTON, WI	APPROX PURGE VOLUME: NA for IA and OA
SAMPLER: TYLER MUNSON	APPROX SAMPLING DEPTH: NA for IA and OA
EQUIPMENT:	

Instrument/Weather Readings

Date	Time	Canister Vacuum (" of Hg)	Temp (°F)	Relative Humidity (%)	Air Speed (mph)	Barometric Pressure (" of Hg)	PID Reading (ppm/ppb)
5/12/14	1205	-28					28
5/13/14	1103	0					33

Summa Canister Information:

Canister Size: 1L	(6L)
Canister ID# ESS 6061	
Flow Controller ID# 5474	

Sub-Slab Water Dam Test:

Test Passed:	Yes	No
NA - FOR AMBIENT AIR SAMPLES ✓		

General Notes/Observations:

Abbreviations:

- NA = Not Applicable
- SB = Sub-Slab
- IA = Indoor Air
- OA = Outdoor Air

Vapor Assessment Sample Collection Log

PROJECT: LARSON CLEANERS	SAMPLE ID: OA-BACKGROUND TYPE (Circle One)*: SB IA OA
BRIS #: PROJECT #: 02-08-201491	SAMPLE INTAKE HEIGHT: 3' NA for SB
LOCATION: CHILTON, WI	APPROX PURGE VOLUME: NA for IA and OA
SAMPLER: TYLER MUNSON	APPROX SAMPLING DEPTH: NA for IA and OA
EQUIPMENT:	

Instrument/Weather Readings

Date	Time	Canister Vacuum (" of Hg)	Temp (°F)	Relative Humidity (%)	Air Speed (mph)	Barometric Pressure (" of Hg)	PID Reading (ppm/ppb)
5/12/14	1215	-28					0
5/13/14	1215	-4					18

Summa Canister Information:

Canister Size:	1L	6L
Canister ID#	ESS 6020	
Flow Controller ID#	5466	

Sub-Slab Water Dam Test:

Test Passed:	Yes	No
NA - FOR AMBIENT AIR SAMPLES		

General Notes/Observations:

Abbreviations:

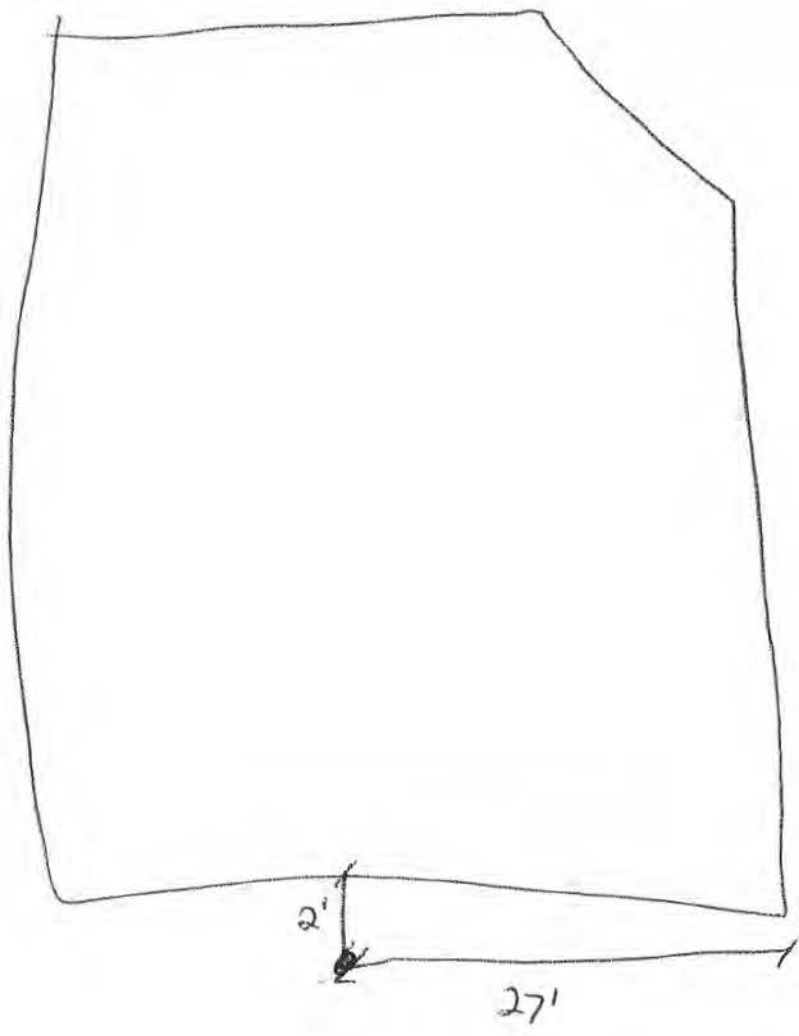
- NA = Not Applicable
- SB = Sub-Slab
- IA = Indoor Air
- OA = Outdoor Air

BAITS# 0208-221491
PROJECT NO.:

SAMPLE LOCATION/ID: OA-BACKGROUND

DATE: 5/12/14

SAMPLE LOCATIONS SKETCH:



NOT TO SCALE

BRIT# 0208 221991

PROJECT NO.:

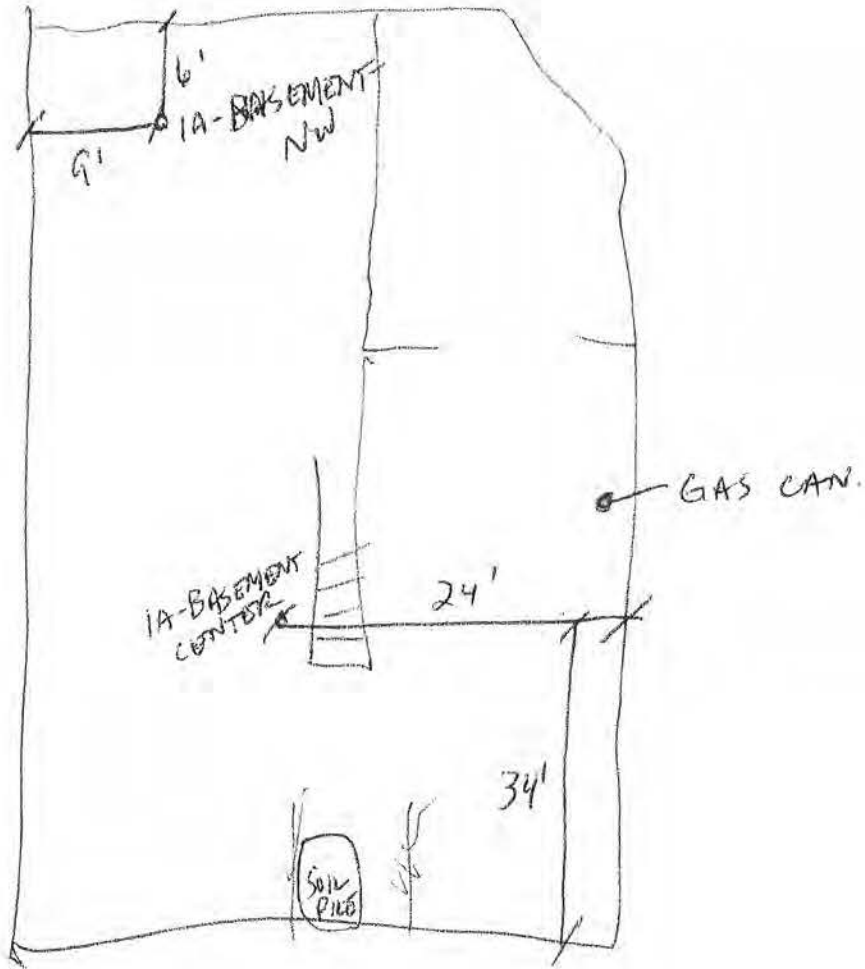
SAMPLE LOCATION/ID:

1A-BASEMENT-NW

DATE: 5/12/14

1A-BASEMENT-CENTER

SAMPLE LOCATIONS SKETCH:



NOT TO SCALE

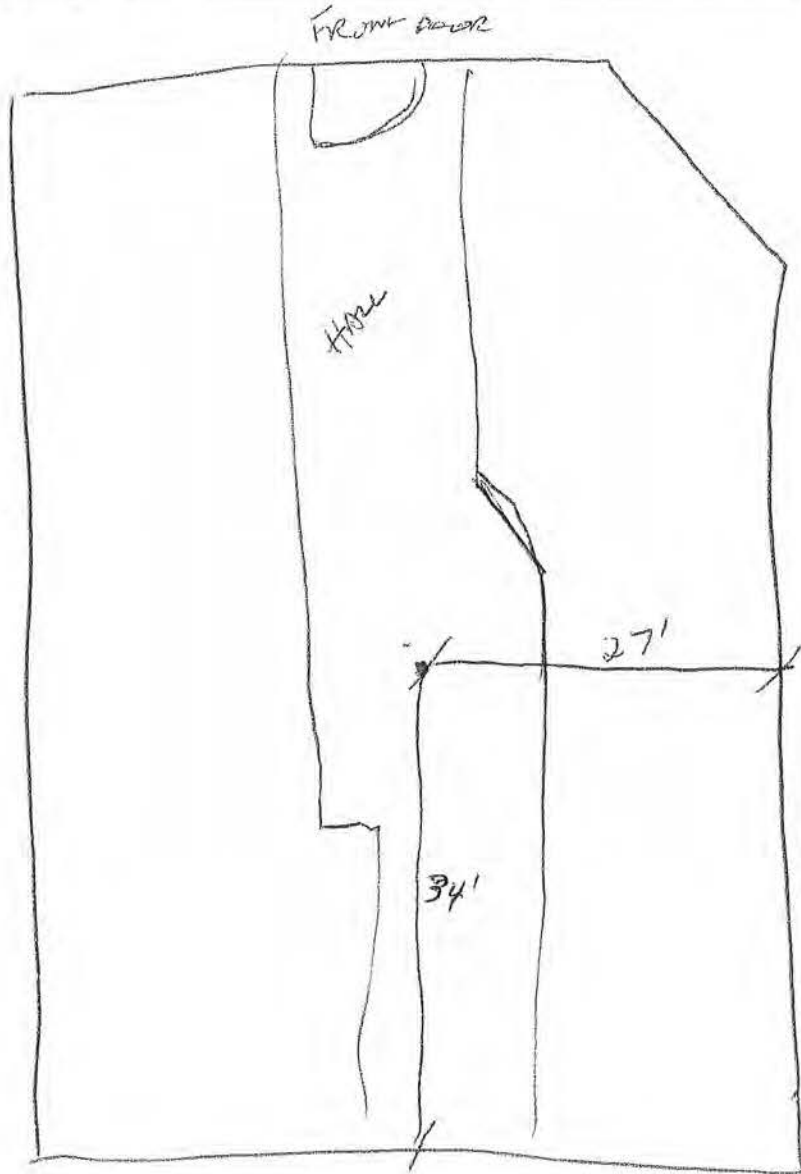
BRTS# 02-08-221491

PROJECT NO.:

SAMPLE LOCATION/ID: 1A-First Floor

DATE: 5/12/14

SAMPLE LOCATIONS SKETCH:



NOT TO SCALE

WSLH Air Canister Sampling Sheet

Bill To Kevin McKnight
WDNR

Report To Robert Langdon
SCS Engineers

Phone # 608-216-7329
FAX # 608-224-2839

DNR User ID RR043

Collected By Tyler Munson
Date Sampled 5/12/2014

Project Larson Cleaners, BRRTS #02-08-221491

Email rlangdon@scsengineers.com

P.O. # _____

Address(s) 2830 Dairy Drive
Madison, WI 53718

Tracer used (Y/N) N
Which Tracer? _____

Sample Type: AR - Outdoor Air
AI - Indoor Air
SB - Sub-Slab

SPECIAL INSTRUCTIONS:

LAB USE ONLY	WSLH SAMPLE #	CUSTOMER FIELD #	SAMPLE TYPE (AR, AI, SB)	SAMPLE DATE	TIME ON	TIME OFF	INITIAL PRESSURE	FINAL PRESSURE	CANISTER NUMBER	(ppb) PID READING	SAMPLER NUMBER
		<u>IA - FIRST FLOOR</u>	<u>AI</u>	<u>5/12/14</u>	<u>1208</u>	<u>1200</u>	<u>-30" Hg</u>	<u>-6.5"</u>	<u>ESS6023</u>	<u>4</u>	<u>5839</u>
		<u>IA - BASEMENT NW</u>	<u>AI</u>	<u>5/12/14</u>	<u>1205</u>	<u>1103</u>	<u>-28" Hg</u>	<u>0</u>	<u>ESS6061</u>	<u>28</u>	<u>5474</u>
		<u>IA - BASEMENT CENTER</u>	<u>AI</u>	<u>5/12/14</u>	<u>1210</u>	<u>1210</u>	<u>-29" Hg</u>	<u>-4</u>	<u>ESS6054</u>	<u>24</u>	<u>5343</u>
		<u>OA - BACKGROUND</u>	<u>AR</u>	<u>5/12/14</u>	<u>1215</u>	<u>1215</u>	<u>-28" Hg</u>	<u>-4</u>	<u>ESS6020</u>	<u>0</u>	<u>5466</u>

chain of custody: Relinquished Tyler Munson Date: 5/14/14 Received: 9/5 Tyler Munson
5/14/14

TO-15, PCE, TCE, cis+trans 1,2 DCE AND, VINYL CHLORIDE
CALL ROB LANGDON @ 608 216 7329 w/ QUESTIONS



Wisconsin State Laboratory of Hygiene
 2601 Agriculture Drive, PO Box 7996
 Madison, WI 53707-7996
 (800)442-4618 - FAX (608)224-6213
<http://www.slh.wisc.edu>

Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Charles D. Brokopp, Dr.P.H., Director

Environmental Health Division

WDNR LAB ID: 113133790 NELAP LAB ID: E37658 EPA LAB ID: WI00007 WI DATCP ID: 105-415

WSLH Sample: 132517001

Report To:
 R LANGDON - SCS
 SCS ENGINEERS
 2830 DAIRY DRIVE
 MADISON, WI 53718

Invoice To:
 RON ARNESON
 WISCONSIN DEPARTMENT OF NATURAL
 RESOURCES

Customer ID: RR043

Field #: IA-FIRST FLOOR
 Project No:
 Collection End: 5/12/2014 12:00:00 PM
 Collection Start: 05/12/14 1200
 Collected By: TYLER MUNSON
 Date Received: 5/14/2014
 Date Reported: 5/22/2014
 Sample Reason:

ID#:
 Sample Location:
 Sample Description:
 Sample Type: AI-INDOOR AIR
 Waterbody:
 Point or Outfall:
 Sample Depth:
 Program Code:
 Region Code:
 County:

Sample Comments

LARSON CLEANERS, BRRTS #02-08-221491

OC-Volatiles

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/20/14 Analysis Date 05/20/14					
Vinyl chloride	EPA TO-15	ND	ppbv	0.085	0.28
trans-1,2-Dichloroethene	EPA TO-15	ND	ppbv	0.085	0.28
cis-1,2-Dichloroethene	EPA TO-15	ND	ppbv	0.085	0.28
Trichloroethene	EPA TO-15	ND	ppbv	0.085	0.28
Tetrachloroethene	EPA TO-15	0.28	ppbv	0.085	0.28

The water microbiology unit analyzes samples as received and not all samples are tested for preservation before analysis is performed.

List of Abbreviations:

LOD = Level of detection
 LOQ = Level of quantification
 ND = None detected. Results are less than the LOD
 F next to result = Result is between LOD and LOQ
 Z next to result = Result is between 0 (zero) and LOD
 if LOD=LOQ, Limits were not statistically derived

*Test results for NELAP accredited tests are certified to meet the requirements of the NELAC standards. For a list of accredited analytes see <http://www.slh.edu/nelap/>



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Laboratory Report

D.F. Kurtyez, M.D., Medical Director - Charles D. Brokopp, Dr.P.H., Director

Environmental Health Division

WDNR LAB ID: 113133790

NELAP LAB ID: E37658

EPA LAB ID: WI00007

WI DATCP ID: 105-415

WSLH Sample: 132517001

Responsible Party

Microbiology: Sharon Kluender, Lab Manager, 608-224-6262

Inorganic Chemistry: Tracy Hanke, Lab Manager, 608-224-6270

Metals: DeWayne Kennedy-Parker, Lab Manager, 608-224-6282

Organic Chemistry: David Webb, Lab Manager, 608-224-6200

Emergency Chemical Response: Noel Stanton, Lab Manager, 608-224-6251



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Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Charles D. Brokopp, Dr.P.H., Director

Environmental Health Division

WDNR LAB ID: 113133790 NELAP LAB ID: E37658 EPA LAB ID: WI00007 WI DATCP ID: 105-415

WSLH Sample: 132517002

Report To:
 R LANGDON - SCS
 SCS ENGINEERS
 2830 DAIRY DRIVE
 MADISON, WI 53718

Invoice To:
 RON ARNESON
 WISCONSIN DEPARTMENT OF NATURAL
 RESOURCES

Customer ID: RR043

Field #: IA-BASEMENT NW
 Project No:
 Collection End: 5/12/2014 11:03:00 AM
 Collection Start: 05/12/14
 Collected By: TYLER MUNSON
 Date Received: 5/14/2014
 Date Reported: 5/22/2014
 Sample Reason:

ID#:
 Sample Location:
 Sample Description:
 Sample Type: AI-INDOOR AIR
 Waterbody:
 Point or Outfall:
 Sample Depth:
 Program Code:
 Region Code:
 County:

Sample Comments

LARSON CLEANERS, BRRTS #02-08-221491
 TIME ON LISTED AS 12:05, TIME OFF LISTED AS 11:03

OC-Volatiles

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/20/14 Analysis Date 05/20/14					
Vinyl chloride	EPA TO-15	ND	ppbv	0.085	0.28
trans-1,2-Dichloroethene	EPA TO-15	ND	ppbv	0.085	0.28
cis-1,2-Dichloroethene	EPA TO-15	ND	ppbv	0.085	0.28
Trichloroethene	EPA TO-15	ND	ppbv	0.085	0.28
Tetrachloroethene	EPA TO-15	0.27F	ppbv	0.085	0.28



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Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Charles D. Brokopp, Dr.P.H., Director

Environmental Health Division

WDNR LAB ID: 113133790

NELAP LAB ID: E37658

EPA LAB ID: WI00007

WI DATCP ID: 105-415

WSLH Sample: 132517002

The water microbiology unit analyzes samples as received and not all samples are tested for preservation before analysis is performed.

List of Abbreviations:

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LOQ = Level of quantification

ND = None detected. Results are less than the LOD

F next to result = Result is between LOD and LOQ

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if LOD=LOQ, Limits were not statistically derived

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Responsible Party

Microbiology: Sharon Kluender, Lab Manager, 608-224-6262

Inorganic Chemistry: Tracy Hanke, Lab Manager, 608-224-6270

Metals: DeWayne Kennedy-Parker, Lab Manager, 608-224-6282

Organic Chemistry: David Webb, Lab Manager, 608-224-6200

Emergency Chemical Response: Noel Stanton, Lab Manager, 608-224-6251



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Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Charles D. Brokopp, Dr.P.H., Director

Environmental Health Division

WDNR LAB ID: 113133790 NELAP LAB ID: E37658 EPA LAB ID: WI00007 WI DATCP ID: 105-415

WSLH Sample: 132517003

Report To:
 R LANGDON - SCS
 SCS ENGINEERS
 2830 DAIRY DRIVE
 MADISON, WI 53718

Invoice To:
 RON ARNESON
 WISCONSIN DEPARTMENT OF NATURAL
 RESOURCES

Customer ID: RR043

Field #: IA-BASEMENT CNTR
 Project No:
 Collection End: 5/12/2014 12:10:00 PM
 Collection Start: 05/12/14 1210
 Collected By: TYLER MUNSON
 Date Received: 5/14/2014
 Date Reported: 5/22/2014
 Sample Reason:

ID#:
 Sample Location:
 Sample Description:
 Sample Type: AI-INDOOR AIR
 Waterbody:
 Point or Outfall:
 Sample Depth:
 Program Code:
 Region Code:
 County:

Sample Comments

LARSON CLEANERS, BRRTS #02-08-221491

OC-Volatiles

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/20/14 Analysis Date 05/20/14					
Vinyl chloride	EPA TO-15	ND	ppbv	0.085	0.28
trans-1,2-Dichloroethene	EPA TO-15	ND	ppbv	0.085	0.28
cis-1,2-Dichloroethene	EPA TO-15	ND	ppbv	0.085	0.28
Trichloroethene	EPA TO-15	ND	ppbv	0.085	0.28
Tetrachloroethene	EPA TO-15	0.25F	ppbv	0.085	0.28

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 LOQ = Level of quantification
 ND = None detected. Results are less than the LOD
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 Z next to result = Result is between 0 (zero) and LOD
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Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Charles D. Brokopp, Dr.P.H., Director

Environmental Health Division

WDNR LAB ID: 113133790

NELAP LAB ID: E37658

EPA LAB ID: WI00007

WI DATCP ID: 105-415

WSLH Sample: 132517003

Responsible Party

Microbiology: Sharon Kluender, Lab Manager, 608-224-6262

Inorganic Chemistry: Tracy Hanke, Lab Manager, 608-224-6270

Metals: DeWayne Kennedy-Parker, Lab Manager, 608-224-6282

Organic Chemistry: David Webb, Lab Manager, 608-224-6200

Emergency Chemical Response: Noel Stanton, Lab Manager, 608-224-6251



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Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Charles D. Brokopp, Dr.P.H., Director

Environmental Health Division

WDNR LAB ID: 113133790 NELAP LAB ID: E37658 EPA LAB ID: WI00007 WI DATCP ID: 105-415

WSLH Sample: 132517004

Report To:
 R LANGDON - SCS
 SCS ENGINEERS
 2830 DAIRY DRIVE
 MADISON, WI 53718

Invoice To:
 RON ARNESON
 WISCONSIN DEPARTMENT OF NATURAL
 RESOURCES

Customer ID: RR043

Field #: OA-BACKGROUND
 Project No:
 Collection End: 5/12/2014 12:15:00 PM
 Collection Start: 05/12/14 1215
 Collected By: TYLER MUNSON
 Date Received: 5/14/2014
 Date Reported: 5/22/2014
 Sample Reason:

ID#:
 Sample Location:
 Sample Description:
 Sample Type: AR-AIR
 Waterbody:
 Point or Outfall:
 Sample Depth:
 Program Code:
 Region Code:
 County:

Sample Comments

LARSON CLEANERS, BRRTS #02-08-221491

OC-Volatiles

Analyte	Analysis Method	Result	Units	LOD	LOQ
Prep Date 05/20/14 Analysis Date 05/20/14					
Vinyl chloride	EPA TO-15	ND	ppbv	0.085	0.28
trans-1,2-Dichloroethene	EPA TO-15	ND	ppbv	0.085	0.28
cis-1,2-Dichloroethene	EPA TO-15	ND	ppbv	0.085	0.28
Trichloroethene	EPA TO-15	ND	ppbv	0.085	0.28
Tetrachloroethene	EPA TO-15	ND	ppbv	0.085	0.28

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Laboratory Report

D.F. Kurtycz, M.D., Medical Director - Charles D. Brokopp, Dr.P.H., Director

Environmental Health Division

WDNR LAB ID: 113133790

NELAP LAB ID: E37658

EPA LAB ID: WI00007

WI DATCP ID: 105-415

WSLH Sample: 132517004

Responsible Party

Microbiology: Sharon Kluender, Lab Manager, 608-224-6262

Inorganic Chemistry: Tracy Hanke, Lab Manager, 608-224-6270

Metals: DeWayne Kennedy-Parker, Lab Manager, 608-224-6282

Organic Chemistry: David Webb, Lab Manager, 608-224-6200

Emergency Chemical Response: Noel Stanton, Lab Manager, 608-224-6251