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9 November 2012
File No. 36795-027/029

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 9
270 Michigan Avenue
Buffalo, New York 14203

Attention: Mr. Glenn May
Environmental Geologist II

Subject: Sub-Slab Depressurization Systems Pilot Testing Report
Interim Remedial Measures (IRM) Work Plan
Buildings 7 and 8 BCP Sites # C932138 / C932139
200 Upper Mountain Road
Lockport, New York

Dear Mr. May:

On behalf of GM Components Holdings, LLC, (GMCH) Haley & Aldrich of New York (Haley & Aldrich) has prepared this report of Pre-Design Investigation (PDI) activities and the proposed Interim Remedial Measures (IRMs) for the GMCH Lockport facility located at 200 Upper Mountain Road, Lockport, New York.

The PDI was conducted in accordance with the work plan for the Pre-Design Investigation – Sub-Slab Depressurization Systems (SSDS) Buildings 7 and 8, BCP Sites #C932138 / C932139, 200 Upper Mountain Road, Lockport, New York. The goals of the PDI were to determine the design parameters for the installation and operation of a sub-slab depressurization system (SSDS) as part of the proposed remedy for Building 7 (BCP Site #C932138) and Building 8 (BCP Site #C932139) as outlined in each building's respective Draft Remedial Work Plan (RWP) submitted to the NYSDEC on 29 December 2011.

SSDS pilot testing activities were conducted from 29 May through 13 June 2012. Sections 1 through 3 presents a summary of the activities conducted, a tabulation of data collected, analytical testing results, observations and findings. Section 4 provides recommendations for implementation of the sub-slab depressurization system (SSDS) remedy with a proposed schedule for implementation.

1. SUB-SLAB DEPRESSURIZATION PILOT TESTING ACTIVITIES

Two (2) pilot test locations within Building 7 and one (1) pilot test location within Building 8 were selected based on current plant operations and the results of sub-slab vapor samples collected during the Remedial Investigation (RI). The PDI provided data and information to assess the following system specifications:

- Determine the number of suction points to maintain sub-slab depressurization (vacuum) for the area of sub-slab vapor impacts identified during the RI. Applied vacuum measurements were collected from installed temporary vacuum measurement points using a handheld micro-manometer;

- Determine the annual potential to emit (PTE) of hazardous air pollutants (HAP) from the proposed SSDS within each building based on the analysis of the vacuum blower effluent obtained during the PDI to determine chemical-specific discharge rates.

1.1 Suction Pit Installations

During the period from 29 May through 1 June 2012, three (3) suction pits were installed, two (2) located within Building 7 and one (1) located within Building 8. Refer to Figures 1 and 2 for pit locations, Figure 3 for details regarding pit construction and blower system set-up, and the Photo Log Summary in Attachment 1A.

The suction pits were completed utilizing an electric 10-inch diameter coring machine, hand excavation to approximately 18-inch below the bottom of the concrete slab, and backfilling a mix of number 1 and 2 stone. The horizontal trenching work was completed with a propane-powered concrete saw cutting machine to cut the concrete, an electrical jackhammer for concrete material removal, hand excavation of the sub-based materials to approximately 12-inches below the bottom of the existing slabs. 4-inch diameter schedule-40 PVC pipe and fittings were installed in each trench from the suction pit for the horizontal run to the nearest building column, and number 1 and 2 stone were backfilled around the PVC piping before restoration.

At the nearest column, the suction pit piping was routed vertically and terminated at approximate 5-feet above the top of the existing slab. Restoration of the concrete floor was completed by placing a vapor barrier over the stone backfill, installing 3/8-inch reinforcement pins lagged and epoxy sealed into the existing slab at approximately 12-inch centers and pouring 4,000 psi concrete into the trenched area. Concrete, sub-based soils, and gravel materials removed during completion of the work were placed in GMCH provided waste containers for management by the facility. Real time ambient air monitoring was conducted around the work area utilizing a MiniRAE organic vapor meter (OVM) equipped with a photo-ionization detector (PID) with a 10.6eV lamp during the installation of the suction pits.

1.2 Blower System Set-up, Operation, and PDI Data Collection

Eight (8) temporary sub-slab vacuum measurement (VM) points were initially installed around each test location by drilling 1/2-inch diameter holes through the concrete floor to a depth of approximately 1/2-inch below the slab. Sub-slab vacuum measurements were collected from each VM point prior to start-

up of the blower system utilizing a handheld Testo 506–500Pa/2 IWC micro-manometer. The micro manometer was connected to 1/4-inch high density polyethylene (HDPE) tubing extended through the floor surface and temporarily sealed with clay to provide an air-tight surface seal, to determine background conditions. Refer to Figures 5, 6, and 7 for locations of the installed VM points at test locations located in Buildings 8, 7-East and 7-West, respectively.

A three (3) horsepower (Hp) explosion proof regenerative blower system was utilized to conduct the PDI testing. During the period 4 through 13 June 2012, the blower operating parameters ranged from:

- 74 to 98 cubic feet per minute (CFM);
- 14 to 60-inches of water column ("W.C.) vacuum, and
- 4 to 23 inches W.C. discharge pressure under steady state operations.

The blower system inlet (vacuum) side and discharge (pressure) side piping were equipped with adjustable valves, vacuum and pressure gauges and in-line flow sensors with magnehelic gauges to measure differential pressure used to calculate vapor discharge flow rates. Conveyance piping to and from the blower unit consisted of 2-inch flex hose connected from the trench vertical PVC piping at the column to the blower inlet piping, and from the blower discharge piping routed through existing roof penetrations above each test location. At each test location, the blower system was operated for approximately 44 to 51 hours during which the following data collection, monitoring, and sampling were completed.

- Real-time ambient air monitoring utilizing the referenced OVM;
- Vacuum measurements at the respective VM points;
- Blower discharge OVM readings;
- Blower system operating data;
- Installation of additional VM points to further define potential extents of vacuum influence; and
- Blower system vapor effluent samples using Tedlar® sampling bags and analyzed for VOCs using EPA Method 8260B.

Vapor samples were collected during steady state operating conditions in which the system achieved either maximum or stable blower vacuum or air flow rates. A summary of the blower operating conditions, corresponding VM point readings, blower discharge OVM readings, blower vapor phase effluent analytical results, and blower discharge vapor flow rates for each of these test locations are provided in Tables 1A through 1C.

2. OBSERVATIONS

Extent and Degree of Sub-Surface Depressurization (Vacuum) Influence

As indicated in the Draft RWP developed for the Building 7 BCP Site and Building 8 BCP Site, the assumed design parameters for each pit installation included an estimated maximum area of vacuum influence of approximately 50,000 square feet (SF). As shown on Figures 5, 6 and 7, the extent of vacuum influence and measurements varied with each test location.

The observed estimated maximum vacuum influence for each pilot test location was estimated at:

- Building 8 – 10,000 SF;
- Building 7-East – 36,150 SF; and
- Building Bldg 7-West – 31,850 SF.

The observed variance from the initial assumed design parameters relative to coverage area per suction pit location could potentially be attributed to limited building slab sub-base thickness observed during pit installations, the presence of shallow sub-grade utilities and/or concrete floor penetrations within each pilot test area. The building slab sub-base thickness ranged from 1 to 3-inches of bank run and crusher run gravel materials. More uniform sub-bases thickness and material typically provide greater pore space thus greater air volume capacity to support greater propagation of vacuum influence within the sub-surface.

Sub-grade features such as utility piping and conduits (i.e., vertical roof drains and associated conductors), equipment or building foundations, floor penetrations, or imperfections in the concrete surface in the form of cracks or abutting flooring systems, may also contribute to preferential air flow pathways. These apparent air-flow preferential pathways or obstructions are evidenced by the non-radial vacuum influence contours that appear to align with known sub-slab features. One area affected by these potential conditions was the Building 7-West location in which several large cracks and seams in the concrete were observed proximal to the test pit area.

A simple field test was conducted by temporarily sealing these cracked areas with sealing tape and measuring the vacuum influence range under the taped areas and at target VM points. The results of the field test indicated that an increase in VM point readings from 0.062-inches to 0.074-inches at point E-1 and from 0.044-inches to 0.070-inches in point W-1, and the cracked area ranged from no measurable readings to exceeding the upper micro-manometer range of 2-inches W.C. after sealing, suggesting that the limited vacuum influence could be due to these types of floor surface conditions.

3. FINDINGS

Based on the pilot testing results, field observations, and existing site conditions proximal to the pilot testing areas, the features of the pilot test blower system and associated suction pits appear feasible for full-scale implementation of the proposed SSDS in each building area as identified in the Draft RWP with the following final design considerations.

Target Depressurization Levels and Areas of Vacuum Influence

A vacuum level of 0.002-inches water column (W.C.) is prescribed as the criteria to demonstrate sub-slab depressurization in the USEPA standards for the control of radon gas and the NYSDOH guidance for the control of soil vapor intrusion[1]. In the Draft RWP, a sub-slab vacuum level of 0.025-inches W.C. was identified as the target sub-slab vacuum level for the development of the preliminary design and cost estimates of the proposed full-scale SSDS within Building 7 and 8. The following areas of influence in square feet of floor space (SF) for each target sub-slab vacuum level estimated from the pilot test sub-slab vacuum monitoring data are presented below:

Suction Pit Location	Vacuum Measurement (inches W.C.)	Approximate Area of Influence (SF)	Vacuum Measurement (inches W.C.)	Approximate Area of Influence (SF)
Bldg 8	0.025	8,145	0.002	10,000
Bldg 7-East	0.025	25,000	0.002	36,150
Bldg 7-West	0.025	9,470	0.002	31,850

The sub-slab vacuum monitoring data collected during the SSDS pilot testing suggests that the area of the influence of the blower system was potentially limited by sub-surface utility structures, facility floor penetrations for floor and roof drains and settling cracks near existing and former equipment locations.

Based on the pilot testing data collected, the full-scale SSDS should be designed and installed at a spacing to meet the minimum sub-slab depressurization vacuum level of 0.002-inches W.C. between each suction pit location. In addition, with the flooring conditions observed, sealing of floor cracks, voids, seams or other observable floor penetrations should be completed to extent practical to maximize the effectiveness of the blower systems and potentially increase the area of vacuum influence. A contingency to install additional suction pits should be performed if during commissioning of the full scale SSDS sub-slab vacuum measurements indicate that the sub-slab vacuum of 0.002- inches W.C. is not achieved at the vacuum monitoring points installed between suction pit locations.

Extracted Vapor Flow Rates and Potential to Emit

Representative vapor samples of the blower effluent were collected during the performance of the SSD pilot testing program. The effluent samples were collected from a port installed in the side of the 2-inch piping connection on the discharge side of the vacuum blower system. The samples were collected

[1] New York State Department of Health, (2006). Guidance for Evaluating Soil Vapor Intrusion in the State of New York. Center for Environmental Health, Bureau of Environmental Exposure Investigation, October 2006. Radon Prevention in the Design and Construction of Schools and Other Large Buildings EPA [EPA 625-R-92-016, June 1994]

in pre-cleaned Tedlar® sampling bags and submitted under a chain of custody to a NYSDOH certified environmental laboratory for the analysis of volatile organic compounds (VOC) via USEPA Method 8260B.

A worst-case analysis of the short term and projected annual emissions or Potential-to-Emit (PTE) from the discharge of the SSDS was conducted using calculations provided in the NYSDEC *Guidelines for the Control of Toxic Ambient Air Contaminants* (DAR-1) published 12 November 1997. Using the blower system effluent sample analysis results and the observed discharge flow rates in cubic feet per minute (CFM), the short term or annual impacts for the SSDS for Building 8 and Building 7 were calculated and compared to the Short-Term and Annual Guideline Concentration (SGC/AGC) values published by NYSDEC on 18 October 2010.

The calculated SGC/AGC for each VOC detected at each suction pit during the pilot test was over one-order of magnitude below the current NYSDEC guideline values indicating that the direct discharge of the proposed SSDS will not require VOC emission controls. Therefore, vapor phase treatment, typically in the form of granulated activated carbon (GAC), would likely not be required for the effluent from the full-scale SSDS installations proposed in the Draft RWP for each building.

The results of the laboratory analyses and the process discharge flow rates calculated from the observed vacuum level at the discharge of the blower system was also used to calculate the amount of each VOC that could be emitted from the system for comparison to the Major Source thresholds for hazardous air pollutants (HAP). Based on the analytical results and blower operating data at each pilot test location, the annual HAP PTE rates were calculated as follows:

Suction Pit Location	Analyte	Concentration (mg/m^3) ***A***	Flow Rate (CFM) ***B***	HAPs PTE (lb/yr) ***C***	HAPs PTE (ton/yr) ***D***
Bldg 8	Trichloroethene*	1.82 J	74	4.4	0.0022
	Total HAPs	1.82		4.4	0.0022
Bldg 7-East	cis-1,2-Dichloroethene	2.83	98	NA	NA
	Trichloroethene*	2.84		9.1	0.0046
	Tetrachloroethene*	1.67 J		5.4	0.0027
	Total HAPs	4.51		14.5	0.0073
Bldg 7-West	cis-1,2-Dichloroethene	0.712	78	NA	NA
	Tetrachloroethene*	4.97		12.7	0.0064
	Total HAPs	4.97		12.7	0.0064

J – Estimated Concentration
NA – Not Applicable
* - hazardous air pollutant (HAP)

Example equation: $\boldsymbol{A}\,\frac{mg}{m^3} \times \frac{1\ lb}{453{,}592.37\ mg} \times \boldsymbol{B}\,\frac{ft^3}{min} \times \frac{m^3}{35.31\ ft^3} \times \frac{525{,}600\ min}{1\ yr} = \boldsymbol{C}\,\frac{lb}{yr} \times \frac{ton}{2000\ lb} = D\ \frac{ton}{yr}$

Based on the data and information collected during the SSD pilot testing activities, the maximum HAPs PTE for Building 8 is estimated to be approximately 0.022 tons/yr with a per-pit average emission rate of 0.0022 tons/yr. The HAP PTE estimate assumes the installation of 10 suction pits over approximately a 100,000 SF area where sub-slab vapor Site COC concentrations greater than 250 ug/m^3 was identified during the RI.

For Building 7 and 7A, the maximum HAP PTE is estimated at 0.139 tons/yr with a per-pit average emission rate of 0.0073 tons/yr. The PTE estimate assumes the installation of 19 suction pits over approximately 620,000 SF where sub-slab vapor Site COC concentrations greater than 250 ug/m^3 was identified during the RI.

Thus, the maximum increase in the facility HAP PTE from the assumed annual operation of the maximum number of SSDS suction pits that could be installed in Building 7/7A and Building 8 would be approximately 0.16 tons/yr. The estimate of maximum PTE for the installation of the proposed SSDS within Buildings 7/7A and 8 is well below the USEPA regulatory threshold of 10 tons/yr and should not affect the facility's current status as an Area (Minor) Source of HAP.

The calculations used in the evaluation of the short term and projected annual emissions from the SSDS, the sample chain of custody documentation and the final laboratory reports are provided in Attachments 1B and 1C respectively.

4. RECOMMENDATIONS/ SSDS INSTALLATION WORK PLAN

Due to the variability in Site conditions as evidenced by the range in the approximate areas of vacuum influence and pilot test system operating parameters (i.e. vapor flow rate and VOC concentration), implementation of the full-scale SSDS remedy for each building should be implemented in the following steps:

4.1 SSDS Installation

Install suction pits/blower systems in the areas where the Site COC were detected in the sub-slab vapor during the RI for each building at concentrations above 1,000 ug/m^3. Based on the areas of vacuum influence observed during the pilot testing program install:

- six (6) additional suctions pits in the Building 7-West area;
- two (2) suction pits in Building 7A; and
- seven (7) additional suction pits in Building 8.

  (Note: No additional pits need to be installed in the Building 7 East area)

- In addition, seal visually identified cracks, seams, and other potential short-circuit pathways in the concrete floor for the proposed areas of operation to improve vacuum influence;

Final pit and monitoring point locations will be determined and adjusted during final design based on field conditions and plant operating requirements. This proposed SSDS installation area covers approximately 235,000 SF within Building 7/7A and approximately 80,000 SF within Building 8. Proposed locations for additional suction pits and sub-slab vacuum monitoring points are presented on Figure 8 (for Building 7/7A) and Figure 9 (for Building 8) Construction details for suction pit and fans installations at each location are shown on Figure 10.

4.2 SSDS Operations, Monitoring, and Testing

- Operate and monitor the installed SSDS for three (3)-months to determine vacuum influence and associated coverage areas; and
- After the initial three (3) months of operation, conduct an indoor-air and sub slab vapor quality sampling event at locations in each building where the observed vacuum influence is below (<) 0.002 inches WC.

Upon receipt of the analytical results from the sampling event and compiling of the system operations data and vacuum measurements obtained during the initial operating period, GMCH will confer with the Department to determine if additional actions are needed to achieve the Remedial Action Objectives (RAO) for indoor air.

If additional actions are deemed necessary; additional suction pits and associated blower systems should be installed to extend the vacuum influence. Prior to the additional suction pit installations, floor

sealing in the additional areas for SSDS operations should be performed as presented above. If additional suction pits are installed, operations, monitoring and testing should be completed as prescribed above.

The proposed schedule for full-scale SSDS installation and monitoring program is provided at the end of this report. Schedule for implementation is contingent upon manufacturing activities in the area targeted for system installation and subcontractor selection and availability.

CLOSING

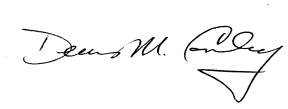
This report has provided a summary of the PDI activities performed and proposed SSDS IRM Work Plan associated with the GMCH Lockport facility located at 200 Upper Mountain Road, Lockport, New York. The PDI was conducted in accordance with the work plan for the Pre-Design Investigation – Sub-Slab Depressurization Systems (H&A, 14 May 2012).

The PDI provided sufficient data to proceed with the full-scale installation and operation of the proposed SSDS remedy for Building 7 (BCP Site #C932138) and Building 8 (BCP Site #C932139) as outlined in Draft RWP for each building.

GMCH requests your review and concurrence with the implementation approach presented in this report so that the SSDS design and installation can proceed concurrent with the Department's development of the Proposed Decision Documents (PDD) for the GMCH Lockport facility BCP Sites.

If there are questions or any require additional information concerning the information provided in this report, please do not hesitate to contact us 585.321.4245.

Sincerely yours,
HALEY & ALDRICH OF NEW YORK



Denis Conley
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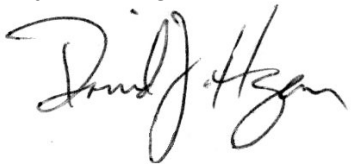


David Hagen
Sr. Vice President

Schedule
Tables
Figures
Attachments

Schedule

Pre-Design Investigation (PDI) - Sub-Slab Depressurization Systems/ Interim Remedial Measures (IRM) Work Plan

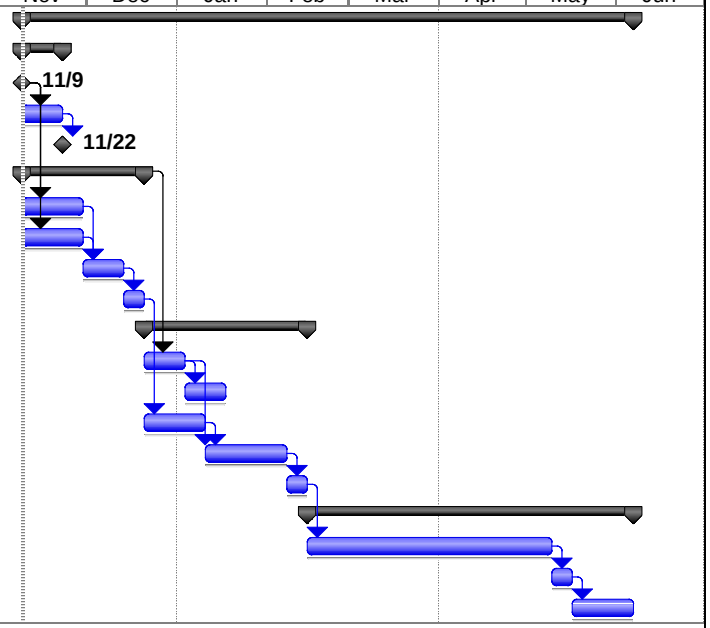
BCP Sites #C932138/932139

GMCH Lockport Facility

200 Upper Mountain Road

Lockport, New York

ID	Task Name	Duration	Start	Finish
1	**SSDS IRM Installation**	**150 days**	**Fri 11/9/12**	**Thu 6/6/13**
2	**IRM Work Plan Approval**	**10 days**	**Fri 11/9/12**	**Thu 11/22/12**
3	IRM Work Plan submission to NYSDEC	0 days	Fri 11/9/12	Fri 11/9/12
4	NYSDEC Review	2 wks	Fri 11/9/12	Thu 11/22/12
5	NYSDEC Approval	0 days	Thu 11/22/12	Thu 11/22/12
6	**Final Design / Pre-Construction**	**30 days**	**Fri 11/9/12**	**Thu 12/20/12**
7	Complete Final Design/ Bid Spec	3 wks	Fri 11/9/12	Thu 11/29/12
8	Contractor Prequalification	3 wks	Fri 11/9/12	Thu 11/29/12
9	Bid Phase/ Contract Award	2 wks	Fri 11/30/12	Thu 12/13/12
10	Pre-mob site reviews / plant coordination/ set-up	1 wk	Fri 12/14/12	Thu 12/20/12
11	**Construction - Bldg 7/7A/8**	**40 days**	**Fri 12/21/12**	**Thu 2/14/13**
12	Pit installations/ Floor Sealing - Critical Plant Areas	2 wks	Fri 12/21/12	Thu 1/3/13
13	Pit installations/ Floor Sealing - Remaining areas	2 wks	Fri 1/4/13	Thu 1/17/13
14	Submittal Review/ Order & Receive Mech/ Elec Equip	3 wks	Fri 12/21/12	Thu 1/10/13
15	Fan/ Piping/ Elec/ Controls Installations	4 wks	Fri 1/11/13	Thu 2/7/13
16	System Commissioning	1 wk	Fri 2/8/13	Thu 2/14/13
17	**System Monitoring**	**80 days**	**Fri 2/15/13**	**Thu 6/6/13**
18	System Operations	3 mons	Fri 2/15/13	Thu 5/9/13
19	Indoor Air/ Sub-Slab Vapor Sampling	1 wk	Fri 5/10/13	Thu 5/16/13
20	Analytical Results/ Data Summary	3 wks	Fri 5/17/13	Thu 6/6/13



GMCH Lockport Facility
Project: SSDS Installation
Date: Fri 11/9/12

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External Milestone
Deadline

Figures

Pre-Design Investigation (PDI) - Sub-Slab Depressurization Systems/ Interim Remedial Measures (IRM) Work Plan

BCP Sites #C932138/932139

GMCH Lockport Facility

200 Upper Mountain Road

Lockport, New York

7-VI-6	7-VI-6IA 1/18/2011	7-VI-6IA 1/20/2011	7-VI-6SS 1/20/2011
1,1,1-Trichloroethane	2.2 U/1.1 U	0.87 U	0.87 U
1,1-Dichloroethene	0.79 U/1.6 U	0.63 U	0.63 U
Carbon tetrachloride	1.3 U/0.64	0.51	0.50 U
cis-1,2-Dichloroethene	0.79 U/1.6 U	1.2	2.0
Tetrachloroethene	9.6/11	4.7	12
Trichloroethene	7.2/5.6	3.5	160
Vinyl chloride	1.0 U/0.51 U	0.41 U	0.41 U

7-VI-7	7-VI-7IA 1/18/2011	7-VI-7SS 1/18/2011
1,1,1-Trichloroethane	1.1 U	10000 U
1,1-Dichloroethene	0.79 U	7900
Carbon tetrachloride	0.63 U	6000 U
cis-1,2-Dichloroethene	1.3	2400000
Tetrachloroethene	16	7600000
Trichloroethene	10	1800000
Vinyl chloride	0.51 U	24000

7-VI-8	7-VI-8IA 1/18/2011	7-VI-8SS 1/18/2011
1,1,1-Trichloroethane	2.3 U	220 U
1,1-Dichloroethene	1.7 U	160 U
Carbon tetrachloride	1.4 U	130 U
cis-1,2-Dichloroethene	34	2000
Tetrachloroethene	230	70000
Trichloroethene	53	16000
Vinyl chloride	1.1 U	100 U

7-VI-9	7-VI-9IA 1/18/2011	7-VI-9SS 1/18/2011
1,1,1-Trichloroethane	0.44 U	20 U
1,1-Dichloroethene	0.32 U	130
Carbon tetrachloride	0.51	11 U
cis-1,2-Dichloroethene	1.9	1000
Tetrachloroethene	5.4	11000
Trichloroethene	5.8	1300
Vinyl chloride	0.24	16

7-VI-3	7-VI-3IA 1/18/2011	7-VI-3SS 1/18/2011
1,1,1-Trichloroethane	1.1 U	1.1 U
1,1-Dichloroethene	0.79 U	0.79 U
Carbon tetrachloride	0.63 U	1.7
cis-1,2-Dichloroethene	1.2	0.79 U
Tetrachloroethene	7.3	290
Trichloroethene	6.9	63
Vinyl chloride	0.51 U	0.51 U

7-VI-10	7-VI-10IA 1/18/2011	7-VI-10SS 1/18/2011
1,1,1-Trichloroethane	4.4 U	2.2 U
1,1-Dichloroethene	3.2 U	1.6 U
Carbon tetrachloride	2.5 U	1.3 U
cis-1,2-Dichloroethene	3.2 U	1.6 U
Tetrachloroethene	13	110
Trichloroethene	7.9	17
Vinyl chloride	2.0 U	1.0 U

7-VI-5	7-VI-5IA 1/18/2011	7-VI-5SS 1/18/2011
1,1,1-Trichloroethane	1.1 U	230 U
1,1-Dichloroethene	0.79 U	170 U
Carbon tetrachloride	0.63 U	130 U
cis-1,2-Dichloroethene	0.86	310
Tetrachloroethene	6.5	760
Trichloroethene	4.8	480
Vinyl chloride	0.51 U	310

7-VI-4	7-VI-4IA 1/18/2011	7-VI-4SS 1/18/2011
1,1,1-Trichloroethane	0.87 U	8.7 U
1,1-Dichloroethene	0.63 U	6.3 U
Carbon tetrachloride	0.61	5.0 U
cis-1,2-Dichloroethene	2.3	1700
Tetrachloroethene	6.7	280
Trichloroethene	7.3	2300
Vinyl chloride	0.41 U	46

7-VI-2	7-VI-2IA 1/18/2011	7-VI-2SS 1/18/2011
1,1,1-Trichloroethane	2.2 U	53 U
1,1-Dichloroethene	1.6 U	41
Carbon tetrachloride	1.3 U	31 U
cis-1,2-Dichloroethene	1.6 U	410
Tetrachloroethene	5.0	2200
Trichloroethene	2.7	10000
Vinyl chloride	1.0 U	25 U

7-VI-1	7-VI-1IA 1/18/2011	7-VI-1SS 1/18/2011
1,1,1-Trichloroethane	4.4 U/2.2 U	4.4 U
1,1-Dichloroethene	3.2 U/1.6 U	3.2 U
Carbon tetrachloride	2.5 U/1.3 U	2.5 U
cis-1,2-Dichloroethene	3.2 U/1.6 U	15
Tetrachloroethene	5.4 U/4.0	39
Trichloroethene	2.7/3.0	9.9
Vinyl chloride	2.0 U/1.0 U	2.0 U

7-VI-11	7-VI-11IA 1/18/2011	7-VI-11SS 1/18/2011
1,1,1-Trichloroethane	0.87 U	1.1 U
1,1-Dichloroethene	0.63 U	0.79 U
Carbon tetrachloride	0.59	0.70
cis-1,2-Dichloroethene	0.63 U	6.4
Tetrachloroethene	8.2	200
Trichloroethene	6.5	15
Vinyl chloride	0.41 U	0.51 U

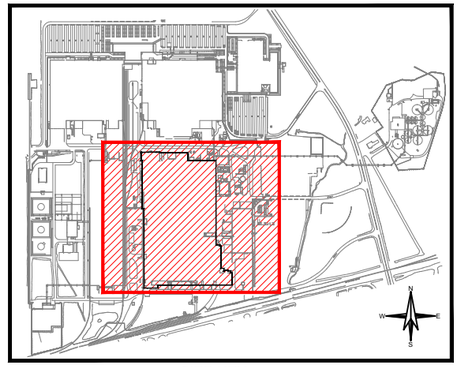
APPROXIMATE PILOT TEST LOCATIONS

LEGEND:

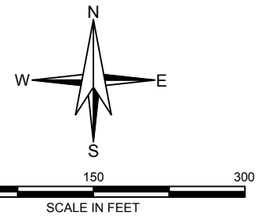
- VAPOR INTRUSION SAMPLING POINT
- APPROXIMATE LOCATION OF SOIL BORING
- ERM BORING LOCATION
- APPROXIMATE LOCATION OF MONITORING WELL

NOTES:

1. THIS FIGURE IS BASED ON THE DRAWING PROVIDED BY DELPHI THERMAL AND INTERIOR SYSTEMS, DATED SEPTEMBER 2007.
2. THE LOCATIONS OF THE MONITORING WELLS WERE DETERMINED BY GEOENVIRONMENTAL OF NEW YORK. THE LOCATIONS OF MONITORING WELLS SHOULD BE CONSIDERED APPROXIMATE.
3. DATABOXES SHOWN IN UG/M3.
4. ONLY CHEMICALS WITH CRITERIA SHOWN IN BOXES.
5. DATA QUALIFIERS:
   U - RESULT WAS NOT DETECTED ABOVE REPORTING LIMIT.
   J - ESTIMATED RESULT



SITE KEY:
NOT TO SCALE



0 150 300
SCALE IN FEET

HALEY & ALDRICH

GM COMPONENTS HOLDINGS, LLC.
LOCKPORT FACILITY
200 UPPER MOUNTAIN ROAD
LOCKPORT, NEW YORK

BUILDING 7
APPROXIMATE SSDS TEST LOCATIONS

SCALE: AS SHOWN
NOVEMBER 2012

FIGURE 1

G:\36795_GM LOCKPORT\CAD\36795-BLDG7-11.DWG

8-VI-2	8-VI-2IA 1/18/2011	8-VI-2SS 1/18/2011
1,1,1-Trichloroethane	0.87 U	2.2 U
1,1-Dichloroethene	0.63 U	1.6 U
Carbon tetrachloride	0.54	1.3 U
cis-1,2-Dichloroethene	1.5	190
Tetrachloroethene	5.0	35
Trichloroethene	7.0	190
Vinyl chloride	0.41 U	1.9

8-VI-1	8-VI-1IA 1/18/2011	8-VI-1SS 1/18/2011
1,1,1-Trichloroethane	2.2 U/1.5	0.87 U
1,1-Dichloroethene	1.6 U/0.63 U	0.63 U
Carbon tetrachloride	0.60/1.3 UJ	0.50 U
cis-1,2-Dichloroethene	2.2/2.1	0.63 U
Tetrachloroethene	9.6/8.9	13
Trichloroethene	11/11	5.7
Vinyl chloride	1.0 U/0.41 U	0.41 U

8-VI-4	8-VI-4IA 1/18/2011	8-VI-4SS 1/18/2011
1,1,1-Trichloroethane	0.87 U	2.2 U
1,1-Dichloroethene	0.63 U	1.6 U
Carbon tetrachloride	0.63	1.3 U
cis-1,2-Dichloroethene	3.7	6.7
Tetrachloroethene	8.7	11
Trichloroethene	16	45
Vinyl chloride	0.41 U	1.0 U

8-VI-3	8-VI-3IA 1/18/2011	8-VI-3SS 1/18/2011
1,1,1-Trichloroethane	0.87 U	0.44 U
1,1-Dichloroethene	0.63 U	0.32 U
Carbon tetrachloride	0.63	0.57
cis-1,2-Dichloroethene	2.6	3.3
Tetrachloroethene	7.2	1.2
Trichloroethene	13	19
Vinyl chloride	0.41 U	0.20 U

8-VI-5	8-VI-5IA 1/18/2011	8-VI-5SS 1/18/2011
1,1,1-Trichloroethane	4.4 U	16000 U
1,1-Dichloroethene	3.2 U	12000 U
Carbon tetrachloride	2.5 U	9400 U
cis-1,2-Dichloroethene	3.3	830000
Tetrachloroethene	11	20000 U
Trichloroethene	11	4200000
Vinyl chloride	2.0 U	7700 U

BUILDING 8

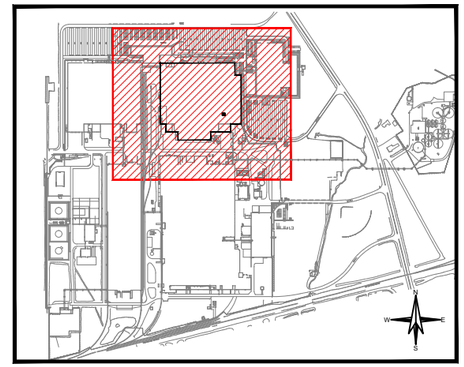
APPROXIMATE PILOT TEST LOCATION

LEGEND:

- VAPOR INTRUSION SAMPLING POINT
- TCE AREA MONITORING WELL WITHIN THE ENVIRONMENTAL EASEMENT AREA, PREVIOUSLY LOCATED. (APPROXIMATE LOCATION)
- APPROXIMATE LOCATION OF SOIL BORING
- ERM BORING LOCATION
- APPROXIMATE LOCATION OF MONITORING WELL

NOTES:

1. THIS FIGURE IS BASED ON THE DRAWING PROVIDED BY DELPHI THERMAL AND INTERIOR SYSTEMS, DATED SEPTEMBER 2007.
2. THE LOCATIONS OF THE MONITORING WELLS WERE DETERMINED BY GEOENVIRONMENTAL OF NEW YORK. THE LOCATIONS OF MONITORING WELLS SHOULD BE CONSIDERED APPROXIMATE.
3. DATABOXES SHOWN IN UG/M3.
4. ONLY CHEMICALS WITH CRITERIA SHOWN IN BOXES.
5. DATA QUALIFIERS:
   U - RESULT WAS NOT DETECTED ABOVE REPORTING LIMIT.
   J - ESTIMATED RESULT



SITE KEY:
NOT TO SCALE

N W E S

0 60 120 180 240
SCALE IN FEET

HALEY & ALDRICH

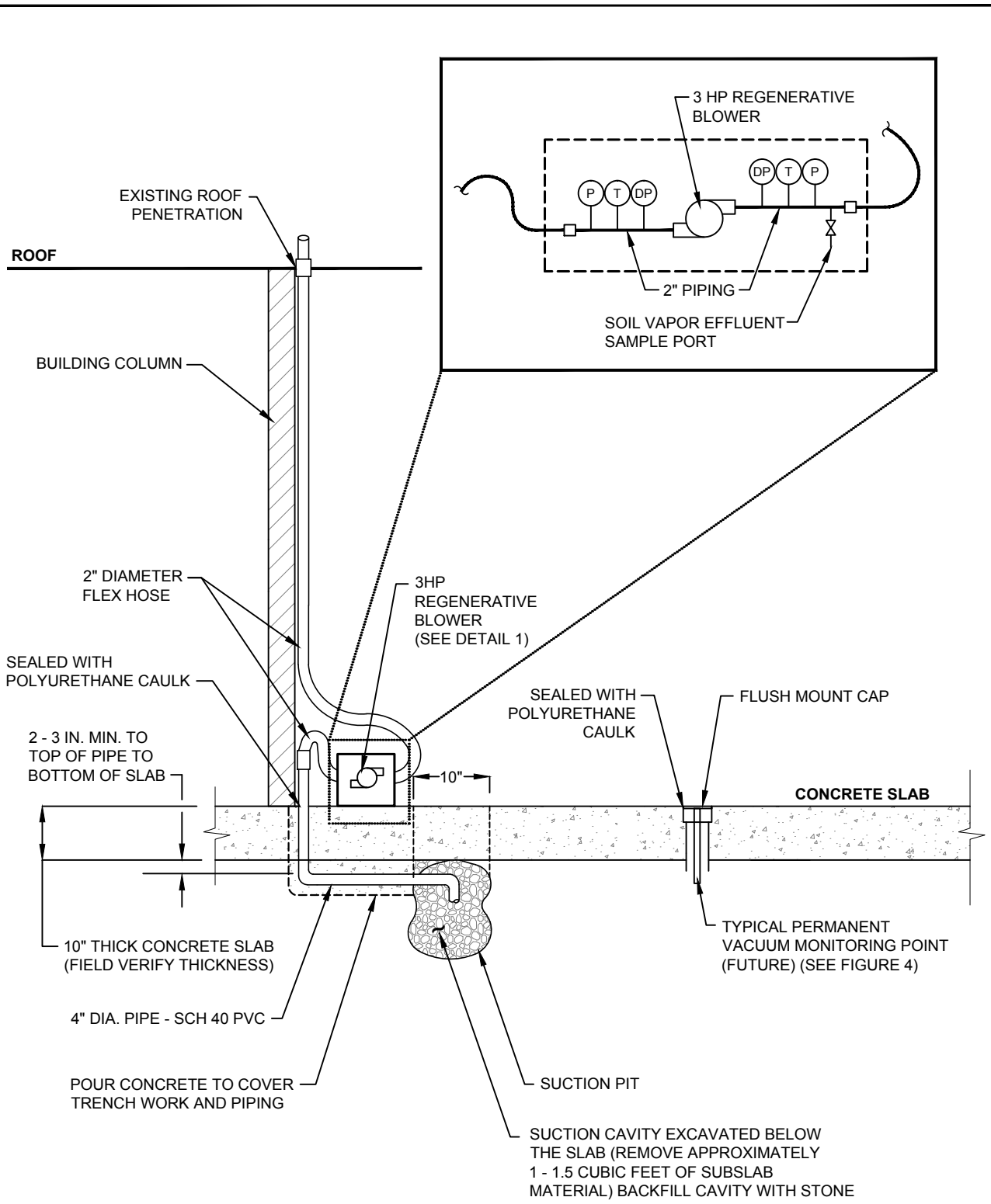
GM COMPONENTS HOLDINGS, LLC.
LOCKPORT FACILITY
200 UPPER MOUNTAIN ROAD
LOCKPORT, NEW YORK

BUILDING 8
APPROXIMATE SSDS TEST LOCATIONS

SCALE: AS SHOWN
NOVEMBER 2012

FIGURE 2

G:\36795_GM LOCKPORT\CAD\36795-BLDG8-11.DWG



KEY:

(DP) VAPOR FLOW MEASUREMENT GAUGE (DIFFERENTIAL PRESSURE)

(T) TEMPERATURE GAUGE

(P) PRESSURE GAUGE

HALEY & ALDRICH

SUB-SLAB DEPRESSURIZATION SYSTEM PILOT TEST
GMCH LOCKPORT FACILITY
200 UPPER MOUNTAIN ROAD
LOCKPORT, NEW YORK

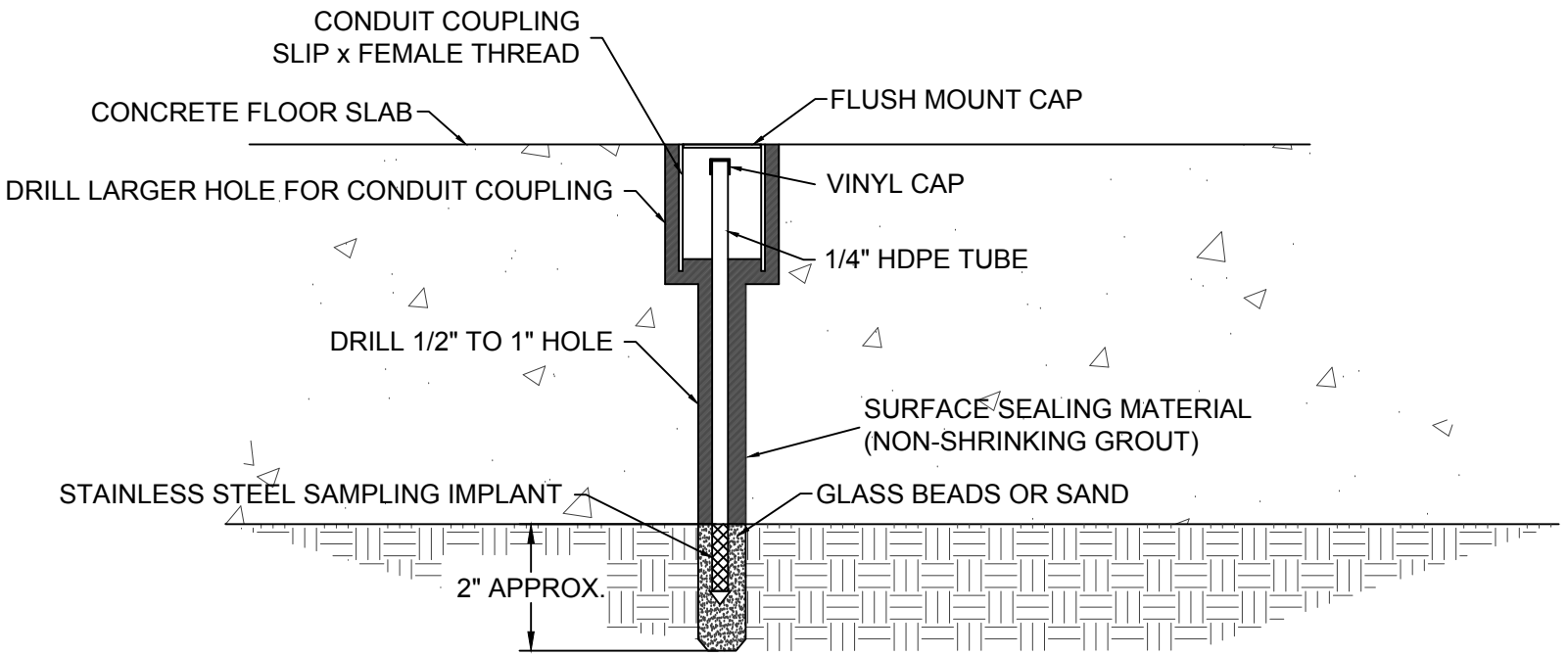
SUB SLAB DEPRESSURIZATION TYPICAL DETAILS

SCALE: NOT TO SCALE
NOVEMBER 2012

FIGURE 3

Drawing Name: G:\36795_GM Lockport\CAD\36795-BLDG7-DTLS-1.dwg Plot Date: November 9, 2012 Layout: Sub Slab Detail
Operator Name: LUCIDO, SAM

G:\36795_GM LOCKPORT\CAD\36795-BLDG7-DTLS-VMP.DWG



HALEY & ALDRICH

SUB-SLAB DEPRESSURIZATION SYSTEM PILOT TEST
GMCH LOCKPORT FACILITY
200 UPPER MOUNTAIN ROAD
LOCKPORT, NEW YORK

SCHEMATIC FOR TYPICAL SUB-SLAB VACUUM MONITORING POINT

SCALE: NOT TO SCALE
MAY 2012

FIGURE 4

NW-2
(0)

NE-2
(0)

NW-1.5
(0)

N-1.5
(0)

NE-1.5
(0)

POTENTIAL LIMIT OF INFLUENCE ± WHERE VACUUM MAY EXCEED 0.00" H2O

NW-1

N-1
(0.028)

NE-1

W-3
(0)

W-2.5
(0)

W-2
(0.056)

W-1
(0.202)

SUCTION CAVITY

0.300"H2O

0.200"H2O

0.100"H2O

0.025"H2O

0.002"H2O

E-1
(0.174)

E-2
(0)

E-3
(0)

S-0.5
(0.079)

ABANDONED TRI-CHLOR SUMP - FILLED W/ CONC. 1994

SE-1

SW-1

S-1
(0)

SE-1.5
(0)

SW-2

S-2
(0)

SE-2

P-63

N-I.E. 609.76
W-I.E. 612.56
E-I.E. 612.56

91

89

87

85

N

W

E

S

0 20 40

SCALE IN FEET

PRELIMINARY

G:\36795_GM LOCKPORT\CAD\36795-BLDG8-12.DWG

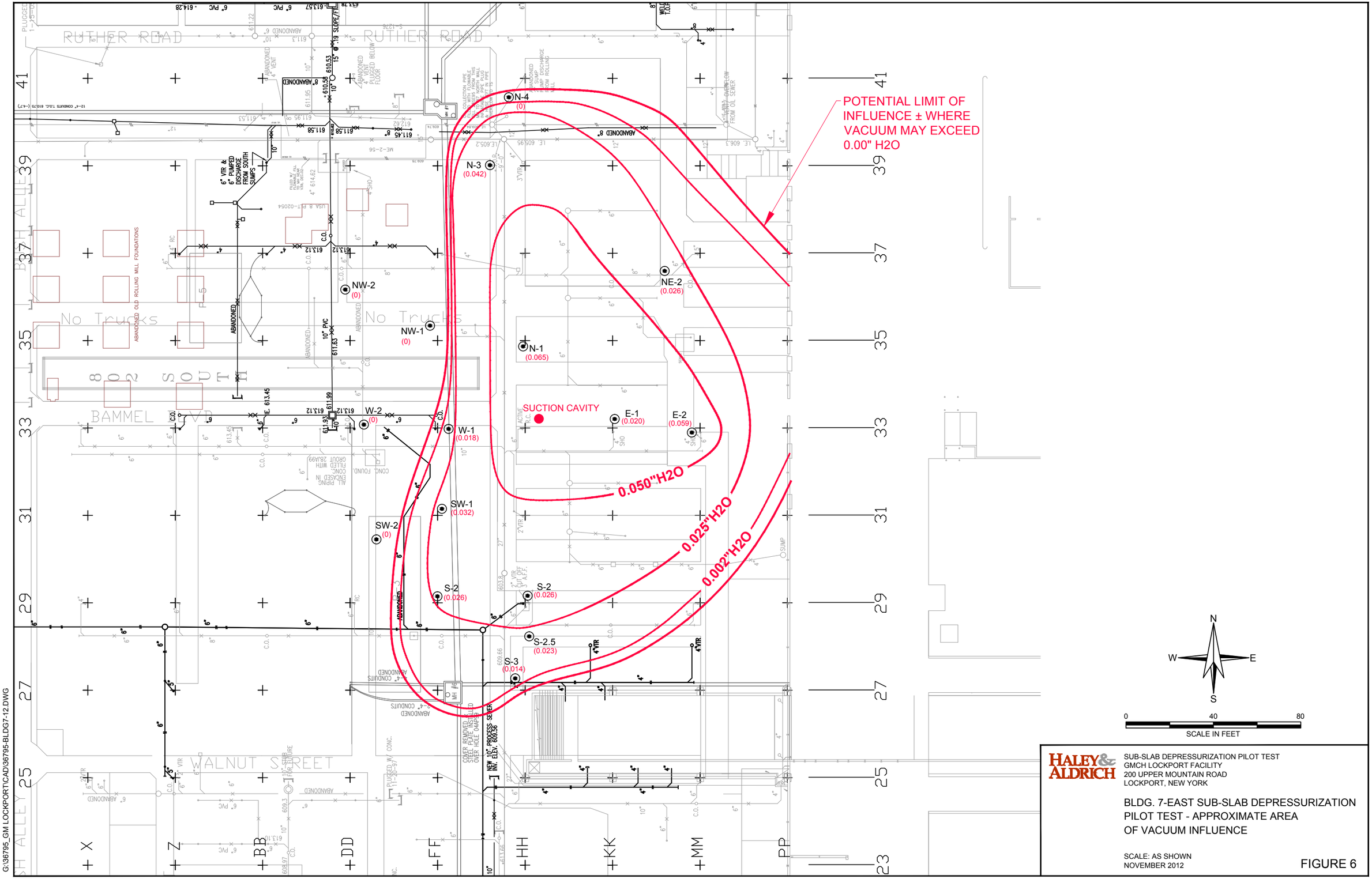
HALEY & ALDRICH

SUB-SLAB DEPRESSURIZATION PILOT TEST
GMCH LOCKPORT FACILITY
200 UPPER MOUNTAIN ROAD
LOCKPORT, NEW YORK

BLDG 8 - SUB-SLAB DEPRESSURIZATION PILOT TEST - APPROXIMATE AREA OF VACUUM INFLUENCE

SCALE: AS SHOWN
NOVEMBER 2012

FIGURE 5



G:\36795_GM LOCKPORT\CAD\36795-BLDG7-12.DWG

HALEY & ALDRICH

SUB-SLAB DEPRESSURIZATION PILOT TEST
GMCH LOCKPORT FACILITY
200 UPPER MOUNTAIN ROAD
LOCKPORT, NEW YORK

BLDG. 7-EAST SUB-SLAB DEPRESSURIZATION PILOT TEST - APPROXIMATE AREA OF VACUUM INFLUENCE

SCALE: AS SHOWN
NOVEMBER 2012

FIGURE 6

POTENTIAL LIMIT OF INFLUENCE
± WHERE VACUUM MAY EXCEED
0.00" H2O

0.050"H2O

0.025"H2O

0.002"H2O

SUCTION CAVITY

N-3 (0.012)

NE-2.5 (0)

NW-2 (0.004)

N-1 (0.015)

NE-1 (0.032)

W-2 (0.004)

W-1 (0.047)

W-2.5 (0.001)

E-1 (0.070)

E-2 (0)

E-3 (0)

SE-2 (0)

SE-1.5 (0.003)

SSE-2 (0.004)

SW-2 (0.004)

S-2 (0.035)

S-3 (0)

N
W E
S

0 40 80
SCALE IN FEET

HALEY & ALDRICH

SUB-SLAB DEPRESSURIZATION PILOT TEST
GMCH LOCKPORT FACILITY
200 UPPER MOUNTAIN ROAD
LOCKPORT, NEW YORK

BLDG. 7-WEST SUB-SLAB DEPRESSURIZATION PILOT TEST - APPROXIMATE AREA OF VACUUM INFLUENCE

SCALE: AS SHOWN
NOVEMBER 2012

FIGURE 7

G:\36795_GM LOCKPORT\CAD\36795-BLDG7-12.DWG

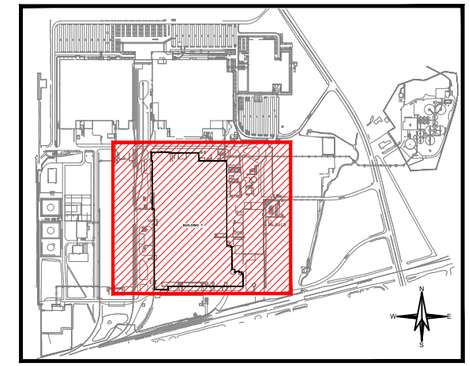
BUILDING 7

LEGEND:

- ESTIMATED AREA OF SUB-SLAB VACUUM INFLUENCE - PROPOSED FULL SCALE SYSTEM
- ESTIMATED AREA OF OBSERVED VACUUM INFLUENCE DURING SSDS PILOT TESTING
- EXISTING SUCTION PIT LOCATION
- PROPOSED SUCTION PIT LOCATION
- PROPOSED VACUUM MONITORING POINT LOCATION

NOTES:

1. THIS FIGURE IS BASED ON THE DRAWING PROVIDED BY DELPHI THERMAL AND INTERIOR SYSTEMS, DATED SEPTEMBER 2007.
2. THE LOCATIONS OF THE PROPOSED SSDS FEATURE LOCATIONS SHOULD BE CONSIDERED APPROXIMATE AND WILL BE FIELD VERIFIED DURING FINAL DESIGN BASED ON PLANT PRODUCTION REQUIREMENTS AND EXISTING CONDITIONS.



SITE KEY:
NOT TO SCALE

N
W E
S

0 200 400
SCALE IN FEET

HALEY & ALDRICH

GM COMPONENTS HOLDINGS, LLC.
LOCKPORT FACILITY
200 UPPER MOUNTAIN ROAD
LOCKPORT, NEW YORK

BUILDING 7
SSDS INSTALLATION FOCUS AREAS

SCALE: AS SHOWN
NOVEMBER 2012

FIGURE 8

G:\36795_GM LOCKPORT\CAD\36795-BLDG7-03.DWG

BUILDING 8

LEGEND:

- ESTIMATED AREA OF SUB-SLAB VACUUM INFLUENCE - PROPOSED FULL SCALE SYSTEM
- ESTIMATED AREA OF OBSERVED VACUUM INFLUENCE DURING SSDS PILOT TESTING
- EXISTING SUCTION PIT LOCATION
- PROPOSED SUCTION PIT LOCATION
- PROPOSED VACUUM MONITORING POINT LOCATION

NOTES:

1. THIS FIGURE IS BASED ON THE DRAWING PROVIDED BY DELPHI THERMAL AND INTERIOR SYSTEMS, DATED SEPTEMBER 2007.
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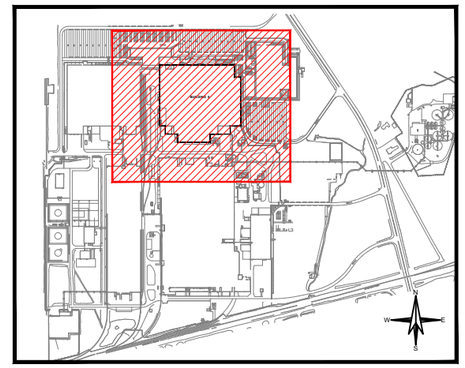


SITE KEY:
NOT TO SCALE

N
W E
S

0 200 400
SCALE IN FEET

HALEY & ALDRICH

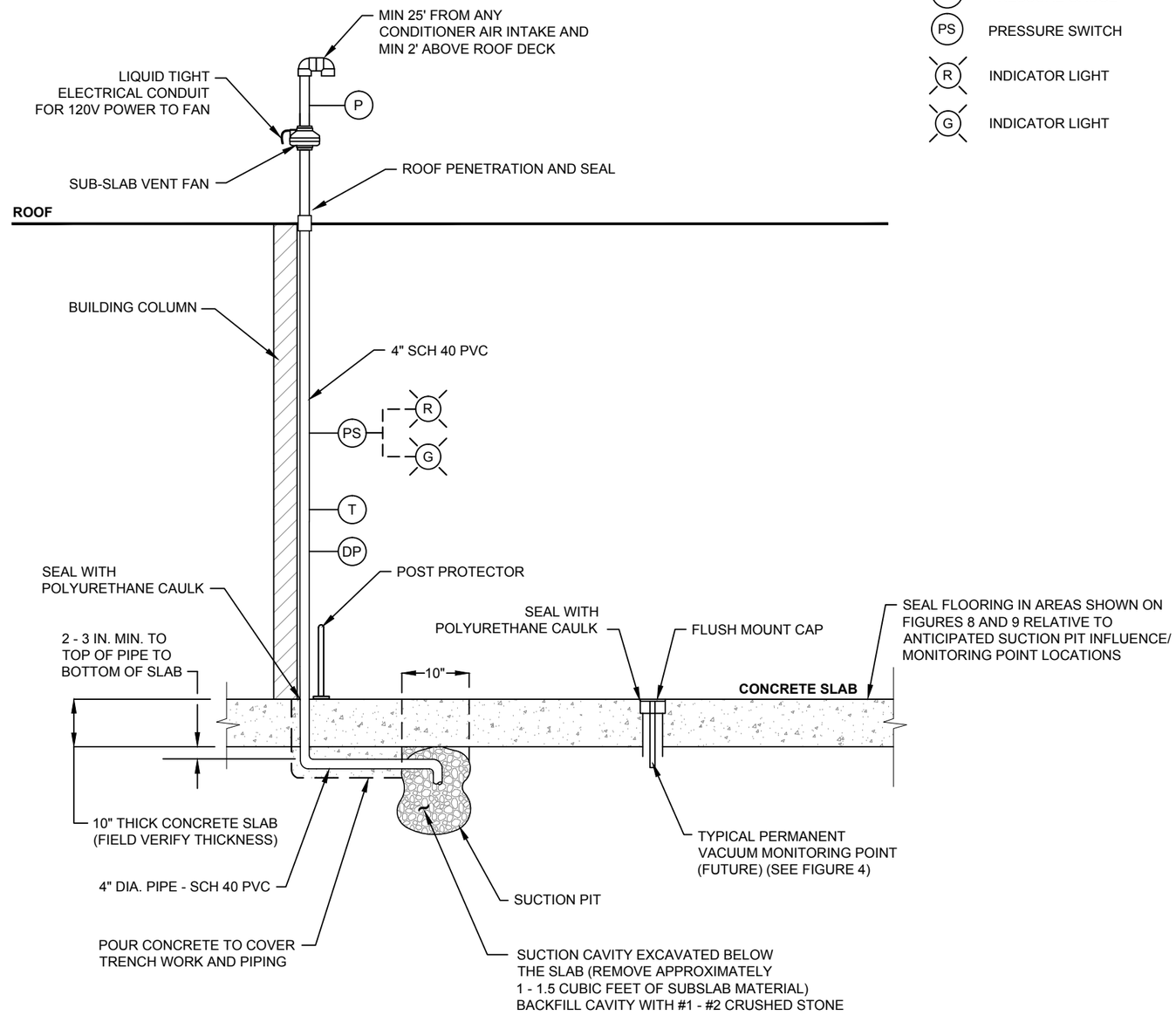
GM COMPONENTS HOLDINGS, LLC.
LOCKPORT FACILITY
200 UPPER MOUNTAIN ROAD
LOCKPORT, NEW YORK

BUILDING 8
SSDS INSTALLATION FOCUS AREAS

SCALE: AS SHOWN
NOVEMBER 2012

FIGURE 9

G:\36795_GM LOCKPORT\CAD\36795-BLDG8-03.DWG



KEY:

- DP — VAPOR FLOW MEASUREMENT GAUGE (DIFFERENTIAL PRESSURE)
- T — TEMPERATURE GAUGE
- P — PRESSURE GAUGE
- PS — PRESSURE SWITCH
- R — INDICATOR LIGHT
- G — INDICATOR LIGHT

GENERAL NOTES:

1. ALL COMPONENTS OF THE SUB-SLAB DEPRESSURIZATION (SSDS) SYSTEM SHALL BE INSTALLED BY A LICENSED CONTRACTOR IN COMPLIANCE WITH APPLICABLE MECHANICAL, ELECTRICAL, PLUMBING, ENERGY, AND FIRE PREVENTION CODES, STANDARDS, AND REGULATIONS OF THE LOCAL JURISDICTION AND PLANT STANDARDS.
2. ALL PENETRATIONS TO THE SLAB ARE TO BE SEALED WITH HIGH ADHESIVE POLYURETHANE SEALANT, PLASTIC SEAL™ BY HERCULES OR EQUIVALENT.
3. ALL SYSTEM PIPING SHALL BE LABELED AS "SUB-SLAB DEPRESSURIZATION SYSTEM".
4. DISCHARGE POINT SHALL BE A MINIMUM OF 25 FEET AWAY FROM ANY AIR INTAKE TO THE BUILDING.
5. DISCHARGE POINT SHALL BE LOCATED A MINIMUM OF 10 FEET FROM ANY OPENING OR INTAKE INTO CONDITIONED SPACE (I.E. WINDOW OR DOOR) OR AT LEAST 2 FEET ABOVE ANY SUCH OBJECT.
6. ANY HORIZONTAL PIPING SHALL BE SLOPED A MINIMUM OF 1/8 INCH PER 1 FOOT TO PERMIT DRAINAGE BACK TO THE SUCTION PIT.
7. PIPE FITTINGS AND CONNECTIONS ARE TO BE AIR TIGHT. CONNECT A LOW PRESSURE PNEUMATIC TEST FOR TIGHTNESS.
8. PIPES SHALL BE FASTENED TO THE STRUCTURE OF THE BUILDING WITH HANGERS, STRAPPING OR OTHER SUPPORTS THAT WILL ADEQUATELY SECURE THE VENT PIPING.
9. SUPPORTS FOR VERTICAL VENT PIPES SHALL BE INSTALLED EITHER ABOVE OR BELOW THE POINTS OF PENETRATIONS THROUGH FLOORS, CEILINGS, AND ROOFS, OR AT LEAST EVERY 8 FEET ON RUNS THAT DO NOT PENETRATE FLOORS.
10. PIPES SHALL NOT BLOCK ACCESS TO ANY AREAS REQUIRING MAINTENANCE OR INSPECTION.
11. ACTIVATION RANGE OF PRESSURE SWITCHES INDICATING FAN OPERATIONS SHALL BE ADJUSTED AFTER FIELD TESTING OF THE SYSTEM.
12. SYSTEM PIPING SHALL BE CARBON STEEL IF ROUTED IN A FIRE RATED AREA.

ELECTRICAL AND CONTROL NOTES:

1. ONE CIRCUIT BREAKER AND LOCAL DISCONNECT FOR EACH SUB SLAB VENT SHALL BE INSTALLED TO PERMIT DEACTIVATION OF THE FAN FOR MAINTENANCE OR REPAIR.
2. FOR EACH SUB-SLAB VENT FAN, SYSTEM FAILURE INDICATION DEVICES CONSISTING OF A PRESSURE SWITCH IN THE RISER ON THE SUCTION SIDE OF THE FAN AND PRESSURE INDICATOR LIGHTS MOUNTED PROXIMAL TO THE PIT LOCATIONS SHALL BE INSTALLED PRIOR TO SYSTEM OPERATION. PRESSURE SWITCHES SHALL BE INSTALLED IN LOCATIONS ACCESSIBLE FOR MAINTENANCE.

HALEY & ALDRICH

GM COMPONENTS HOLDINGS, LLC.
LOCKPORT FACILITY
200 UPPER MOUNTAIN ROAD
LOCKPORT, NEW YORK

SSDS INSTALLATION DETAILS

SCALE: NONE
NOVEMBER 2012

FIGURE 10

G:\36795_GM LOCKPORT\CAD\36795-BLDG7-DTLS.DWG

Tables

Pre-Design Investigation (PDI) - Sub-Slab Depressurization Systems/ Interim Remedial Measures (IRM) Work Plan

BCP Sites #C932138/932139

GMCH Lockport Facility

200 Upper Mountain Road

Lockport, New York

TABLE - 1A
SSDS Pilot Testing - Log Sheet Summary

GMCH Lockport Facility
Bldg No.: 8
Project No.: 36795-029
November 2012

	Date:	6/4/2012	6/4/2012		6/4/2012	6/4/2012		6/4/2012	6/4/2012		6/4/2012	6/4/2012		6/4/2012	6/5/2012		6/5/2012	6/5/2012		6/5/2012	6/6/2012	6/6/2012	
	Measurement Time Range:	12:15	12:45-13:00		13:00	13:37-15:15		15:30	15:35	15:40-16:17		16:30	16:45-17:12		17:30	9:15	9:31-9:45		13:00	13:00-14:25		14:40	9:15	9:10-10:22	
Sub Slab Monitoring Point ID	Proximal Column Reference		Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)		Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)			Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)		Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)			Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)		Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)			Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)
N-1	HH-89		0.005	0.007		0.011	0.014			0.013	0.02		0.018	0.027			Steady	0.021		Steady	0.026			Steady	0.028
E-1	KK-87		0.017	0.021		0.086	0.088			0.059	0.072		0.161	0.168			Steady	0.168		Steady	0.198			Steady	0.174
W-2	DD-87		0	0		0.011	0.016			0.036	0.039		0.048	0.054			Steady	0.048		Steady	0.056			Steady	0.056
NW-2	DD-91		0	0		0	0			0	0		0	0			0	0		0	0			0	0
NE-2	MM-91		0	0		0	0			0	0		0	0			0	0		0	0			0	0
S-2	HH-83		0	0		0	0			0	0		0	0			0	0		0	0			0	0
N-3	HH-93		NM	NM		0	0			0	0		0	0			0	0		0	0			0	0
E-3	PP-87		NM	NM		0	0			0	0		0	0			0	0		0	0			0	0
W-1	FF-87	Blower Adjustment			Blower Adjustment	0.108	0.115	Blower Adjustment	Blower Adjustment	0.139	0.147	Blower Adjustment	0.185	0.187	Blower Adjustment	Blower Data Collection	Steady	0.198	Blower Adjustment	Steady	0.218	Blower Adjustment	Blower Data Collection	0.198	0.202
S-1	HH-85					0	0			0	0		0	0			0	0		0	0			0	0
S-0.5	HH-85					0.035	0.046			0.062	0.072		0.074	0.079			Steady	0.059		0.065	0.071			0.068	0.074
E-2	Wall					0	0			0	0		0.005	0.014			0	0		0.002	0.007			0	0
SE-1.5	KK-85												0	0			0	0		0	0			0	0
W-3	BB-87																			0	0			0	0
N-1.5	HH-89																			0	0			0	0
NE-1.5	KK-89																			0.001	0.010			0	0
NW-1.5	FF-89																			0	0			0	0
W-2.5	BB-87																							0	0
Test Blower Data Point	Units	Reading			Reading			Reading	Reading			Reading			Reading	Reading			Reading			Reading	Reading		
By-pass Valve Position	% Open	25%			50%			50%	75%			100%			75%	75%			100%			75%	75%		
Inlet Vacuum	in. w.c.	15			46			45	60			76			60	59			72			60	60		
Inlet Pressure Diff.	in. w.c.	0.2			1.0			0.9	1.2			1.8			NM	1.2			1.4			NM	1.2		
Inlet Temp.	°F	72			72			72	72			72			NM	70			74			NM	74		
Outlet Pressure	in. w.c.	2.0	Vapor Monitoring Point Data Collection		0.5	Vapor Monitoring Point Data Collection		0.5	1.0	Vapor Monitoring Point Data Collection		3.5	Vapor Monitoring Point Data Collection		NM	2	Vapor Monitoring Point Data Collection		5	Vapor Monitoring Point Data Collection		NM	4	Vapor Monitoring Point Data Collection & Blower Effluent Vapor Sample (10:50)	
Outlet Pressure Diff.	in. w.c.	0.5			1.3			1.1	1.5			1.5			NM	1.6			1.9			NM	1.7		
Outlet Temp.	°F	85			100			100	110			120			NM	115			120			NM	115		
PID Reading at Blower Discharge	ppm	1.8			0.4			NM	0.4			0.6			NM	0.2			0.4			NM	0.3		
Vapor Discharge Flow Rate	CFM	40			63			NM	66			65			NM	68			74			NM	70		

Notes:

in. w.c.	inches of water column
NM	Indicated point not measured
	Indicates monitoring point not installed at time of measurement
ppm	parts per million
°F	degrees Fahrenheit
CFM	cubic feet per minute
74	indicates vapor flow rate value used for mass removal estimates
Steady	indicates vacuum reading did not fluctuate during measurement

TABLE - 1B
SSDS Pilot Testing - Log Sheet Summary

GMCH Lockport Facility
Bldg No.: 7-East
Project No.: 36795-027
November 2012

	Date:	6/6/2012	6/6/2012		6/6/2012	6/6/2012		6/7/2012	6/7/2012		6/7/2012	6/7/2012	6/7/2012		6/8/2012	6/8/2012	
	Measurement Time Range:	14:07	14:13-14:33		15:00	15:00-16;30		9:30	9:33-9:48		10:20	15:00	15:21-15:31		9:15	9:10-9:35	
Sub Slab Monitoring Point ID	Proximal Column Reference		Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)		Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)		Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)			Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)		Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)
N-1	HH-35		Steady	0.056		Steady	0.077		Steady	0.077			Steady	0.042		Steady	0.065
E-1	KK-33		Steady	0.017		Steady	0.023		Steady	0.020			Steady	0.016		Steady	0.020
E-2	MM-33		Steady	0.052		Steady	0.062		Steady	0.064			Steady	0.035		Steady	0.059
NE-2	MM-37		Steady	0.049		Steady	0.056		Steady	0.056			Steady	0.033		Steady	0.026
S-2	HH-29		Steady	0.030		Steady	0.032		Steady	0.032			Steady	0.018		Steady	0.026
W-2	DD-33		Steady	0.003		0	0.003		0	0			0	0		0	0
NW-2	DD-37	Blower Adjustment	0	0	Blower Data Collection	0	0	Blower Data Collection	0	0	Blower Data Collection	Blower Data Collection	0	0	Blower Data Collection	0	0
N-3	HH-39		Steady	0.030		Steady	0.055		Steady	0.032			Steady	0.004		Steady	0.042
NW-1	F-35					Steady	0.053		Steady	0.011			0	0		0	0
W-1	FF-33					Steady	0.077		Steady	0.060			0	0		Steady	0.018
S-3	HH27					Steady	0.191		Steady	0.218			0	0		Steady	0.014
N-4	HH-41												0	0		0	0
S-2.5	HH-27												Steady	0.013		Steady	0.023
SW-1	FF-31															0.011	0.032
SW-2	DD-31															0	0

Test Blower Data Point	Units	Reading		Reading		Reading		Reading	Reading		Reading	
By-pass Valve Position	% Open	100%		100%		100%		100%	100%		100%	
Inlet Vacuum	in. w.c.	15		17		17		17	7		14	
Inlet Pressure Diff.	in. w.c.	2.6		4.0		3.9		2.7	1		2.7	
Inlet Temp.	°F	78	Vapor Monitoring Point Data Collection	79	Vapor Monitoring Point Data Collection	76	Vapor Monitoring Point Data Collection	74	70	Vapor Monitoring Point Data Collection	78	Vapor Monitoring Point Data Collection & Blower Effluent Vapor Sample (11:30)
Outlet Pressure	in. w.c.	24.0		28		28		28	12		23	
Outlet Pressure Diff.	in. w.c.	4		10		10		3.9	1.2		3	
Outlet Temp.	°F	92		105		100		100	110		100	
PID Reading at Blower Discharge	ppm	4.6		3.7		1.3		NM	1.3		1.7	
Vapor Discharge Flow Rate	CFM	115		178		180		NM	60		98	

Notes:

in. w.c.	inches of water column
NM	Indicated point not measured
	Indicates monitoring point not installed at time of measurement
ppm	parts per million
°F	degrees Fahrenheit
CFM	cubic feet per minute
98	indicates vapor flow rate value used for mass removal estimates
Steady	indicates vacuum reading did not fluctuate during measurement

TABLE - 1C
SSDS Pilot Testing - Log Sheet Summary

GMCH Lockport Facility
Bldg No.: 7-West
Project No.: 36795-027
November 2012

		Date:	6/11/2012	6/11/2012		6/11/2012	6/11/2012		6/11/2012		6/11/2012	6/11/2012	6/11/2012		6/12/2012	6/12/2012	6/12/2012		6/12/2012		6/13/2012	6/13/2012		6/13/2012	6/13/2012		6/13/2012	
		Measurement Time Range:	10:15	10:16-10:30		10;50	10:55-11:04		11:15		11:17-11:26	13:30	15:20		15:24-15:37		8:40		8:41-8:55		11:30	11:29-11:47		9:30	9:35-10:02		12:30	12:40-12:59	
Sub Slab Monitoring Point ID	Proximal Column Reference			Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)		Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)		Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)			Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)		Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)			Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)		Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)		Vacuum Reading Low (in.w.c.)	Vacuum Reading High (in.w.c.)
N-1	L-51			0	0		Steady	0.009		Steady	0.014			Steady	0.009		Steady	0.015			Steady	0.011		Steady	0.015		Steady	0.015
N-3	L-55			0	0		Steady	0.006		0.003	0.007			0	0		Steady	0.004			0	0		Steady	0.012		0	0.004
E-1	N-49			Steady	0.011		Steady	0.036		Steady	0.062			Steady	0.063		Steady	0.071			Steady	0.074		Steady	0.061		Steady	**0.074**
E-3	S-49			0	0		0	0		0	0			0	0		0	0			0	0		0	0		0	0
SE-2	O-47			0	0		0	0		0	0			0	0		0	0			0	0		0	0		0	0
S-2	J-45			Steady	0.014		Steady	0.017		Steady	0.056			Steady	0.069		Steady	0.044			Steady	0.023		Steady	0.012		Steady	0.035
W-2	G-49			0	0		0	0		0	0			0	0		Steady	0.011			0	0.014		Steady	0.004		0	0
NW-2	E-53			0	0		0	0		0	0			0	0		0	0			0	0		0	0		0	0
W-1	J-49													Steady	0.068		Steady	0.026			Steady	0.086		Steady	0.044		Steady	**0.070**
E-2	Q-49													0	0		0	0			Steady	0.011		0	0		0	0
S-3	J-43													0	0		0	0			0	0		0	0		0	0
NE-1	L-49													Steady	0.028		Steady	0.038			Steady	0.038		Steady	0.026		Steady	0.032
SSE-2	N-45													0	0		0	0			0	0		0	0		Steady	0.004
W-2.5	E-49																				0	0		Steady	0.001		0	0
SW-2	E-47																				0	0		Steady	0.004		Steady	0.002
SE-1.5	N-45																				0	0		0	0		Steady	0.003
NE-2.5	Q-53																				0	0		0	0		0	0
Test Blower Data Point	Units		Reading			Reading			Reading			Reading	Reading			Reading			Reading				Reading			Reading			Reading	
By-pass Valve Position	% Open		25%			50%			100%			100%	100%			100%			100%				100%			100%			100%	
Inlet Vacuum	in. w.c.		15			30			51			51	52			52			52				50			50			50	
Inlet Pressure Diff.	in. w.c.		0.4			0.4			1.5			1.4	1.4			1.4			1.4				1.5			1.5			1.5	
Inlet Temp.	°F		80			80			80			80	80			78			81				70			75			75	
Outlet Pressure	in. w.c.		3			5			14			13	13			12			12				13			14			14	
Outlet Pressure Diff.	in. w.c.		0.4			0.9			2			1.9	1.9			1.9			1.9				2.0			2.2			2.2	
Outlet Temp.	°F		100			115			115			115	120			115			115				110			115			115	
PID Reading at Blower Discharge	ppm		1.8			1.8			2.3			2.1	2.7			2.1			2.0				1.6			1.6			1.6	
Vapor Discharge Flow Rate	CFM		35			51			77			75	74			75			75				78			81			81	

Blower Adjustment	Vapor Monitoring Point Data Collection	Blower Data Collection	Vapor Monitoring Point Data Collection & Blower Effluent Vapor Sample (10:30)

Notes:

in. w.c.	inches of water column
NM	Indicated point not measured
	Indicates monitoring point not installed at time of measurement
ppm	parts per million
°F	degrees Fahrenheit
CFM	cubic feet per minute
78	indicates vapor flow rate value used for mass removal estimates
Steady	indicates vacuum reading did not fluctuate during measurement

1. Vacuum data collected at points E-1 and W-1 after temporary sealing of observed cracks and seeams in existing concrete at areas North, East, and West of the test pit. Vacuum measurement under temporary sealant was measured at >2.000 inches W.C. (limits of micromanometer) at approximately 6-feet South of column L49.

Attachment 1A

Photo Log Summary

Pre-Design Investigation (PDI) - Sub-Slab Depressurization Systems/ Interim Remedial Measures (IRM) Work Plan

BCP Sites #C932138/932139

GMCH Lockport Facility

200 Upper Mountain Road

Lockport, New York

Bldg 8 – Construction of suction pit

Bldg 8 – Completed suction pit

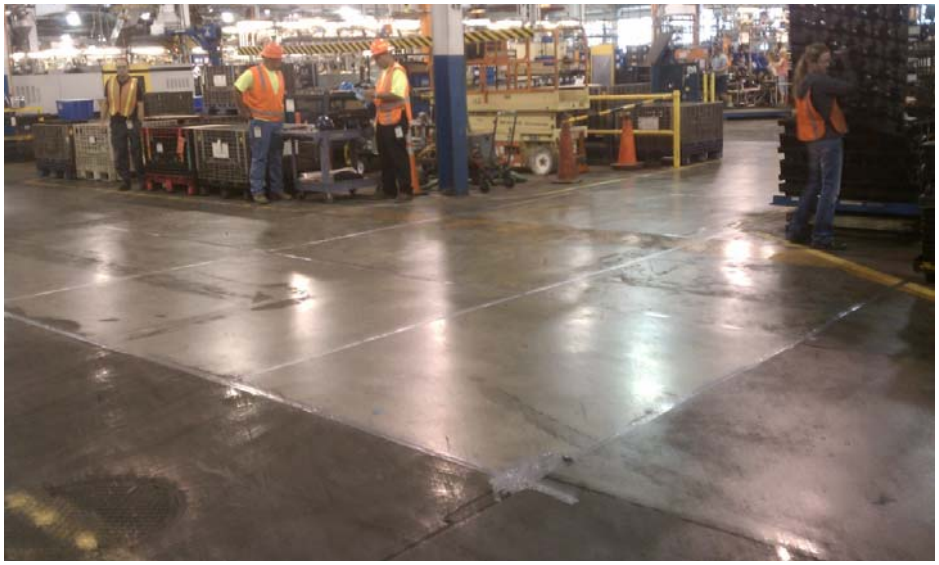
Bldg 7 West – Completed suction pit

Bldg 7 East – Completed suction pit

3 Hp Blower System

Micromanometer at Vacuum Monitoring Point

Bldg 7-West Concrete Floor with Cracks and Seams



Bldg 7-West Concrete Floor with Temporary Sealing

Attachment 1B

NYSDEC DAR-1 Area Source Method Analysis

Pre-Design Investigation (PDI) - Sub-Slab Depressurization Systems/ Interim Remedial Measures (IRM) Work Plan

BCP Sites #C932138/932139

GMCH Lockport Facility

200 Upper Mountain Road

Lockport, New York

Air Guide -1 Review
Area Source Method - SSDS Pilot Testing
GMCH - Lockport Facility
Bldg No: 8
Project No.: 36795-029

s - Bldg side length (ft) 800 (Assumes area source is a square)

Contaminant	No. of Suction Pits (pilot test)	Q (lb/hr)	Q_a (lb/yr)	C_a (µg/m^3)	C_p (µg/m^3)	AGC (µg/m^3)	C_{st} (µg/m^3)	SGC (µg/m3)
Bldg 8	1							
trichloroethene		0.0005	4.38	0.002	0.002	0.5	0.05	14000

Potential No. of Suction Pits (full-scale)	Q (lb/hr)	Q_a (lb/yr)	C_a (µg/m^3)	C_p (µg/m^3)	AGC (µg/m^3)	C_{st} (µg/m^3)	SGC (µg/m3)
10							
	0.005	43.80	0.020	0.020	0.5	0.50	14000

Assumptions
Method used to determine the maximum overall actual annual, potential annual, and short term impacts from an area source.

Calculations
Maximum Actual Annual Impact (C_a): C_a (µg/m^3) = (76.6*Q_a)/($s^{1.8}$)
Maximum Potential Annual Impact (C_p): C_p (µg/m^3) = (670600*Q)/($s^{1.8}$)
Maximum Short Term Impact (C_{st}): C_{st} (µg/m^3) = C_p * 25

Q: Hourly Emissions (lbs/hr)
Q_a: Annual Emissions Rate (lbs/yr)
s: Building Side Dimension (feet)
SGC: Short-Term Guidance Concentrations - Guidance Values
AGC: Annual Guidance Concentrations - Guidance Valves
µg/m^3 micro-grams per cubic meter

Area Source Method - SSDS Pilot Testing

GMCH - Lockport Facility

Bldg No: 7

Project No.: 36795-027

s - Bldg side length (ft) 1200 (Assumes area source is a square)

Contaminant	No. of Suction Pits (pilot test)	Q (lb/hr)	Q_a (lb/yr)	C_a (µg/m^3)	C_p (µg/m^3)	AGC (µg/m^3)	C_{st} (µg/m^3)	SGC (µg/m3)	Potential No. of Suction Pits (full-scale)	Q (lb/hr)	Q_a (lb/yr)	C_a (µg/m^3)	C_p (µg/m^3)	AGC (µg/m^3)	C_{st} (µg/m^3)	SGC (µg/m3)
Bldg 7E	1								9							
cis, 1-2 dichloroethene		0.001	8.76	0.0019	0.0019	63.0	0.05	NGV		0.009	78.84	0.017	0.017	63.0	0.43	NGV
trichloroethene		0.001	8.76	0.0019	0.0019	0.5	0.05	14000		0.009	78.84	0.017	0.017	0.5	0.43	14000
tetrachloroethene		0.00061	5.34	0.0012	0.0012	1.0	0.03	1000		0.00549	48.09	0.011	0.011	1.0	0.26	1000
Bldg 7W	1								10							
cis, 1-2 dichloroethene		0.00021	1.84	0.00040	0.00040	63.0	0.01	NGV		0.0021	18.40	0.0040	0.0040	63.0	0.10	NGV
tetrachloroethene		0.00145	12.7	0.0028	0.0028	1.0	0.07	1000		0.0145	127.02	0.028	0.028	1.0	0.70	1000
Totals	2								19							
cis, 1-2 dichloroethene		0.00121	10.6	0.0023	0.0023	63.0	0.06	NGV		0.02299	201.39	0.044	0.044	63.0	1.11	NGV
trichloroethene		0.001	8.76	0.0019	0.0019	0.5	0.05	14000		0.019	166.44	0.037	0.037	0.5	0.91	14000
tetrachloroethene		0.00206	18.0	0.0040	0.0040	1.0	0.10	1000		0.03914	342.87	0.075	0.075	1.0	1.88	1000

Assumptions

Method used to determine the maximum overall actual annual, potential annual, and short term impacts from an area source.

Calculations

Maximum Actual Annual Impact (C_a): C_a (µg/m^3) = $(76.6*Q_a)/(s^{1.8})$

Maximum Potential Annual Impact (C_p): C_p (µg/m^3) = $(670600*Q)/(s^{1.8})$

Maximum Short Term Impact (C_{st}): C_{st} (µg/m^3) = C_p * 25

Q: Hourly Emissions (lbs/hr)

Q_a: Annual Emissions Rate (lbs/yr)

s: Building Side Dimension (feet)

SGC: Short-Term Guidance Concentrations - Guidance Values

AGC: Annual Guidance Concentrations - Guidance Valves

NGV: No Guidance Value

µg/m^3 micro-grams per cubic meter

Attachment 1C

Chain of Custody Documentation
Final Laboratory Reports

Pre-Design Investigation (PDI) - Sub-Slab Depressurization Systems/
Interim Remedial Measures (IRM) Work Plan

BCP Sites #C932138/932139

GMCH Lockport Facility

200 Upper Mountain Road

Lockport, New York

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Analytical Report Cover Page

Haley & Aldrich

For Lab Project # 12:2412
Issued June 7, 2012
Re-Issued June 18, 2012
This report contains a total of 7 pages

This project has been amended to report the sample with "J" flags, per client request.

The reported results relate only to the samples as they have been received by the laboratory.

Any noncompliant QC parameters having impact on the data are flagged or documented on the final report.

All soil/sludge samples have been reported on a dry weight basis, unless qualified "reported as received". Other solids are reported as received.

The Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt. Sample condition requirements are defined under the 2003 NELAC Standard, sections 5.5.8.3.1 and 5.5.8.3.2. Aliquots separated for certain tests, such as TCLP, are indicated on the Chain of Custody and final reports with an "A" suffix.

NYSDOH ELAP does not certify for all parameters. Paradigm Environmental Services or the indicated subcontracted laboratory does hold certification for all analytes where certification is offered by ELAP unless otherwise specified.

Data qualifiers are used, when necessary, to provide additional information about the data. This information may be communicated as a flag or as text at the bottom of the report. Please refer to the following list of frequently used data flags and their meaning:

"<" = analyzed for but not detected at or above the reporting limit.
"E" = Result has been estimated, calibration limit exceeded.
"Z" = See case narrative.
"D" = Duplicate results outside QC limits. May indicate a non-homogenous matrix.
"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.
"B" = Method blank contained trace levels of analyte. Refer to included method blank report.

PARADIGM ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Air

Client: Haley & Aldrich

Client Job Site:	N/A	**Lab Project Number:**	12:2412
		Lab Sample Number:	12:2412-01
Client Job Number:	36795-027		
Field Location:	B8 PTEFF-20120606-1050	**Date Sampled:**	06/06/2012
Field ID Number:	N/A	**Date Received:**	06/07/2012
Sample Type:	Air	**Date Analyzed:**	06/08/2012
		Date Reissued:	06/18/2012

Compound	Results in mg / m3	Compound	Results in mg / m3
Bromodichloromethane	< 2.00	1,1-Dichloroethene	< 2.00
Bromoform	< 5.00	cis-1,2-Dichloroethene	< 2.00
Bromomethane	< 2.00	trans-1,2-Dichloroethene	< 2.00
Carbon Tetrachloride	< 2.00	1,2-Dichloropropane	< 2.00
Chlorobenzene	< 2.00	cis-1,3-Dichloropropene	< 2.00
Chloroethane	< 2.00	trans-1,3-Dichloropropene	< 2.00
2-Chloroethyl vinyl Ether	< 10.0	Methylene chloride	< 5.00
Chloroform	< 2.00	1,1,2,2-Tetrachloroethane	< 2.00
Chloromethane	< 2.00	Tetrachloroethene	< 2.00
Dibromochloromethane	< 2.00	1,1,1-Trichloroethane	< 2.00
1,2-Dichlorobenzene	< 2.00	1,1,2-Trichloroethane	< 2.00
1,3-Dichlorobenzene	< 2.00	Trichloroethene	J 1.82
1,4-Dichlorobenzene	< 2.00	Trichlorofluoromethane	< 2.00
1,1-Dichloroethane	< 2.00	Vinyl chloride	< 2.00
1,2-Dichloroethane	< 2.00		

ELAP Number 10958 Method: EPA 8260B Modified for Tedlar Bag Data File: V97832.D

Comments: mg / m3 = milligram per cubic meter

Signature:

Bruce Hoogesteger: Technical Director

PARADIGM
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Air

Client: Haley & Aldrich

Client Job Site: N/A
Client Job Number: 36795-027
Field Location: N/A
Field ID Number: N/A
Sample Type: Air

Lab Project Number: 12:2412
Lab Sample Number: LRB 06/07
Date Sampled: N/A
Date Received: N/A
Date Analyzed: 06/07/2012

Compound	Results in mg / m3	Compound	Results in mg / m3
Bromodichloromethane	< 2.00	1,1-Dichloroethene	< 2.00
Bromoform	< 5.00	cis-1,2-Dichloroethene	< 2.00
Bromomethane	< 2.00	trans-1,2-Dichloroethene	< 2.00
Carbon Tetrachloride	< 2.00	1,2-Dichloropropane	< 2.00
Chlorobenzene	< 2.00	cis-1,3-Dichloropropene	< 2.00
Chloroethane	< 2.00	trans-1,3-Dichloropropene	< 2.00
2-Chloroethyl vinyl Ether	< 10.0	Methylene chloride	< 5.00
Chloroform	< 2.00	1,1,2,2-Tetrachloroethane	< 2.00
Chloromethane	< 2.00	Tetrachloroethene	< 2.00
Dibromochloromethane	< 2.00	1,1,1-Trichloroethane	< 2.00
1,2-Dichlorobenzene	< 2.00	1,1,2-Trichloroethane	< 2.00
1,3-Dichlorobenzene	< 2.00	Trichloroethene	< 2.00
1,4-Dichlorobenzene	< 2.00	Trichlorofluoromethane	< 2.00
1,1-Dichloroethane	< 2.00	Vinyl chloride	< 2.00
1,2-Dichloroethane	< 2.00		

ELAP Number 10958 Method: EPA 8260B Data File: V97819.D
Modified for Tedlar Bag

Comments: mg / m3 = milligram per cubic meter

Signature: _____
Bruce Hoogesteger: Technical Director

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4

Volatile Analysis Report for Air

Client: Haley & Aldrich

Client Job Site: N/A
Client Job Number: 36795-027
Field Location: N/A
Field ID Number: N/A
Sample Type: Air

Lab Project Number: 12:2412
Lab Sample Number: LCS 06/07
Date Sampled: N/A
Date Received: N/A
Date Analyzed: 06/07/2012

SDG# : N/A

Spiked Compound	Blank Results in mg / m3	LCS Spiked in mg / m3	LCS Results in mg / m3	LCS Percent Recovery	MSD Spiked in mg / m3	MSD Results in mg / m3	MSD Percent Recovery	MS / MSD % RPD
1,1-Dichloroethene	< 4.00	100	89.6	89.6	N/A	N/A	N/A	N/A
Benzene	< 4.00	100	94.9	94.9	N/A	N/A	N/A	N/A
Trichloroethene	< 4.00	100	88.7	88.7	N/A	N/A	N/A	N/A
Toluene	< 4.00	100	90.9	90.9	N/A	N/A	N/A	N/A
Chlorobenzene	< 4.00	100	90.5	90.5	N/A	N/A	N/A	N/A

ELAP Number 10958 Data File: V97819.D Data File: V97818.D Method: EPA 8260B modified

PARADIGM ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

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Volatile Analysis Report for Air

Client: Haley & Aldrich

Client Job Site: N/A
Client Job Number: 36795-027
Sample Type: Air

Lab Project Number: 12:2412
Date Sampled: 06/06/2012
Date Received: 06/07/2012
Date Analyzed: 06/07/2012

SDG Group: N/A

Lab Sample Number	Field Number	Field Location	Pentafluorobenzene % Recovery	1,2-Dichloroethane-d4 % Recovery	Toluene-d8 % Recovery	4-BFB % Recovery
LCS 06/07	N/A	N/A	104	99.8	106	102
LRB 06/07	N/A	N/A	97.7	103	102	94.8
12:2412-01	N/A	B8PTEFF-20120606-1050	108	119	96.9	96.1

ELAP Number 10958

Method: EPA 8260B

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179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis QC Limits

Limits effective: Jun 05,2012
Through: Jun 30,2012

Spiked Compound	Soil Spike Limits		Soil % RPD Limits		Water Spike Limits		Water % RPD Limits	
	Lower %	Upper %	Lower %	Upper %	Lower %	Upper %	Lower %	Upper %
1,1-Dichloroethene	67.4	120	0	29.2	70.4	117	0	21.8
Benzene	82.7	107	0	15.4	81.0	110	0	15.1
Trichloroethene	82.2	106	0	12.0	78.2	112	0	16.0
Toluene	81.9	104	0	14.2	79.2	110	0	16.6
Chlorobenzene	81.1	104	0	16.5	78.3	109	0	14.5
Surrogate*	**Soil Surrogate Limits**				**Water Surrogate Limits**			
	Lower %	Upper %			Lower %	Upper %		
Pentafluorobenzene	80.0	120			80.0	120		
1,2-Dichloroethane-d4	80.0	120			80.0	120		
Toluene-D8	80.0	120			80.0	120		
4-Bromofluorobenzene	80.0	120			80.0	120		

ELAP Number 10958

Method: EPA 8260B

* - Due to an equipment change, generic limits are being used for surrogates until enough data are collected to generate new limits.

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

PARADIGM
ENVIRONMENTAL SERVICES, INC.

CHAIN OF CUSTODY

7

REPORT TO:		INVOICE TO:			
COMPANY: Haley & Aldrich of NY		COMPANY: Same		LAB PROJECT #: 12:2412	CLIENT PROJECT #: 36795-027
ADDRESS: 200 Town Centre Dr.		ADDRESS:			
CITY: Rochester	STATE: NY ZIP: 14623	CITY:	STATE: ZIP:	TURNAROUND TIME: (WORKING DAYS)	
PHONE: 585 321 4241	FAX:	PHONE:	FAX:	STD	OTHER
PROJECT NAME/SITE NAME:	ATTN: Denis Conley	ATTN:		☐ 1 ☐ 2 ☐ 3 ☒ 5	☐
	COMMENTS:			Quotation #	

REQUESTED ANALYSIS

	DATE	TIME	COMPOSITE	GRAB	SAMPLE LOCATION/FIELD ID	MATRIX	NUMBER CONTAINERS	VOC / 8260B										REMARKS	PARADIGM LAB SAMPLE NUMBER				
1	6/6/12	1050	—	X	B8PTEFF-20120606-1050	Air	1	X										Chlorinated VOCs	01				
2																							
3																							
4																							
5																							
6																		per DC analyze					
7																		within 48 hrs					
8																		of sample date					
9																		1 day std.					
10																							

10-7-2011

LAB USE ONLY BELOW THIS LINE

Sample Condition: Per NELAC/ELAP 210/241/242/243/244

Receipt Parameter		NELAC Compliance	
Container Type:	Comments: Ted Lor Bag	Y ☐	N ☐
Preservation:	Comments:	Y ☐	N ☐
Holding Time:	Comments: 48 hrs	Y ☐	N ☐
Temperature:	Comments: Room Temperature	Y ☐	N ☐

Ben Drayn — Sampled By — 6/6/12 1050 — Date/Time

Relinquished By — 6/7/12 15:03 — Date/Time

Received By — 6/7/12 1503 — Date/Time

Received @ Lab By — Mike Pagen — 6/7/12 1532 — Date/Time

Total Cost:

P.I.F.

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Analytical Report Cover Page

Haley & Aldrich

For Lab Project # 12:2443
Issued June 12, 2012
Re-Issued June 18, 2012
This report contains a total of 7 pages

This project has been amended to report the sample with "J" flags, per client request.

The reported results relate only to the samples as they have been received by the laboratory.

Any noncompliant QC parameters having impact on the data are flagged or documented on the final report.

All soil/sludge samples have been reported on a dry weight basis, unless qualified "reported as received". Other solids are reported as received.

The Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt. Sample condition requirements are defined under the 2003 NELAC Standard, sections 5.5.8.3.1 and 5.5.8.3.2. Aliquots separated for certain tests, such as TCLP, are indicated on the Chain of Custody and final reports with an "A" suffix.

NYSDOH ELAP does not certify for all parameters. Paradigm Environmental Services or the indicated subcontracted laboratory does hold certification for all analytes where certification is offered by ELAP unless otherwise specified.

Data qualifiers are used, when necessary, to provide additional information about the data. This information may be communicated as a flag or as text at the bottom of the report. Please refer to the following list of frequently used data flags and their meaning:

"<" = analyzed for but not detected at or above the reporting limit.
"E" = Result has been estimated, calibration limit exceeded.
"Z" = See case narrative.
"D" = Duplicate results outside QC limits. May indicate a non-homogenous matrix.
"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.
"B" = Method blank contained trace levels of analyte. Refer to included method blank report.

PARADIGM ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Air

Client: Haley & Aldrich

Client Job Site:	N/A	**Lab Project Number:**	12:2443
		Lab Sample Number:	12:2443-01
Client Job Number:	36795-027		
Field Location:	BTEPTEFF-20120608-1130	**Date Sampled:**	06/08/2012
Field ID Number:	N/A	**Date Received:**	06/11/2012
Sample Type:	Air	**Date Analyzed:**	06/11/2012
		Date Reissued:	06/18/2012

Compound	Results in mg / m3	Compound	Results in mg / m3
Bromodichloromethane	< 2.00	1,1-Dichloroethene	< 2.00
Bromoform	< 5.00	cis-1,2-Dichloroethene	2.83
Bromomethane	< 2.00	trans-1,2-Dichloroethene	< 2.00
Carbon Tetrachloride	< 2.00	1,2-Dichloropropane	< 2.00
Chlorobenzene	< 2.00	cis-1,3-Dichloropropene	< 2.00
Chloroethane	< 2.00	trans-1,3-Dichloropropene	< 2.00
2-Chloroethyl vinyl Ether	< 10.0	Methylene chloride	< 5.00
Chloroform	< 2.00	1,1,2,2-Tetrachloroethane	< 2.00
Chloromethane	< 2.00	Tetrachloroethene	J 1.67
Dibromochloromethane	< 2.00	1,1,1-Trichloroethane	< 2.00
1,2-Dichlorobenzene	< 2.00	1,1,2-Trichloroethane	< 2.00
1,3-Dichlorobenzene	< 2.00	Trichloroethene	2.84
1,4-Dichlorobenzene	< 2.00	Trichlorofluoromethane	< 2.00
1,1-Dichloroethane	< 2.00	Vinyl chloride	< 2.00
1,2-Dichloroethane	< 2.00		

ELAP Number 10958 Method: EPA 8260B Modified for Tedlar Bag Data File: V97893.D

Comments: mg / m3 = milligram per cubic meter

Signature:

Bruce Hoogesteger: Technical Director

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Volatile Analysis Report for Air

Client: Haley & Aldrich

Client Job Site: N/A
Client Job Number: 36795-027
Field Location: N/A
Field ID Number: N/A
Sample Type: Air

Lab Project Number: 12:2443
Lab Sample Number: LRB 06/11
Date Sampled: N/A
Date Received: N/A
Date Analyzed: 06/11/2012

Compound	Results in mg / m3	Compound	Results in mg / m3
Bromodichloromethane	< 2.00	1,1-Dichloroethene	< 2.00
Bromoform	< 5.00	cis-1,2-Dichloroethene	< 2.00
Bromomethane	< 2.00	trans-1,2-Dichloroethene	< 2.00
Carbon Tetrachloride	< 2.00	1,2-Dichloropropane	< 2.00
Chlorobenzene	< 2.00	cis-1,3-Dichloropropene	< 2.00
Chloroethane	< 2.00	trans-1,3-Dichloropropene	< 2.00
2-Chloroethyl vinyl Ether	< 10.0	Methylene chloride	< 5.00
Chloroform	< 2.00	1,1,2,2-Tetrachloroethane	< 2.00
Chloromethane	< 2.00	Tetrachloroethene	< 2.00
Dibromochloromethane	< 2.00	1,1,1-Trichloroethane	< 2.00
1,2-Dichlorobenzene	< 2.00	1,1,2-Trichloroethane	< 2.00
1,3-Dichlorobenzene	< 2.00	Trichloroethene	< 2.00
1,4-Dichlorobenzene	< 2.00	Trichlorofluoromethane	< 2.00
1,1-Dichloroethane	< 2.00	Vinyl chloride	< 2.00
1,2-Dichloroethane	< 2.00		

ELAP Number 10958 Method: EPA 8260B Data File: V97892.D
Modified for Tedlar Bag

Comments: mg / m3 = milligram per cubic meter

Signature:

Bruce Hoogesteger: Technical Director

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Volatile Analysis Report for Air

Client: Haley & Aldrich

Client Job Site: N/A
Client Job Number: 36795-027
Field Location: N/A
Field ID Number: N/A
Sample Type: Air

Lab Project Number: 12:2443
Lab Sample Number: LCS 06/11
Date Sampled: N/A
Date Received: N/A
Date Analyzed: 06/11/2012

SDG# : N/A

Spiked Compound	Blank Results in mg / m3	LCS Spiked in mg / m3	LCS Results in mg / m3	LCS Percent Recovery	MSD Spiked in mg / m3	MSD Results in mg / m3	MSD Percent Recovery	MS / MSD % RPD
1,1-Dichloroethene	< 4.00	100	108	108	N/A	N/A	N/A	N/A
Benzene	< 4.00	100	102	102	N/A	N/A	N/A	N/A
Trichloroethene	< 4.00	100	101	101	N/A	N/A	N/A	N/A
Toluene	< 4.00	100	102	102	N/A	N/A	N/A	N/A
Chlorobenzene	< 4.00	100	100	100	N/A	N/A	N/A	N/A

ELAP Number 10958 Data File: V97892.D Data File: V97891.D Method: EPA 8260B modified

PARADIGM ENVIRONMENTAL SERVICES, INC.
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Volatile Analysis Report for Surrogate Recoveries

Client: Haley & Aldrich

Client Job Site: N/A
Lab Project Number: 12:2443
SDG Group: N/A

Client Job Number: 36795-027

Date Sampled: 06/08/2012
Date Received: 06/11/2012
Sample Type: Air
Date Analyzed: 06/11/2012

Lab Sample Number	Field Number	Field Location	Pentafluorobenzene % Recovery	1,2-Dichloroethane-d4 % Recovery	Toluene-d8 % Recovery	4-BFB % Recovery
LCS 06/11	N/A	MW-1	97.7	98.2	100	100
LRB 06/11	N/A	MW-2	106	112	105	100
12:2443-01	N/A	BTEPTEFF-20120608-1130	96.3	106	95.1	91.0

ELAP Number 10958

Method: EPA 8260B modified

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Volatile Analysis QC Limits

Limits effective: Jun 05,2012
Through: Jun 30,2012

Spiked Compound	Soil Spike Limits		Soil % RPD Limits		Water Spike Limits		Water % RPD Limits	
	Lower %	Upper %	Lower %	Upper %	Lower %	Upper %	Lower %	Upper %
1,1-Dichloroethene	67.4	120	0	29.2	70.4	117	0	21.8
Benzene	82.7	107	0	15.4	81.0	110	0	15.1
Trichloroethene	82.2	106	0	12.0	78.2	112	0	16.0
Toluene	81.9	104	0	14.2	79.2	110	0	16.6
Chlorobenzene	81.1	104	0	16.5	78.3	109	0	14.5

Surrogate*	Soil Surrogate Limits				Water Surrogate Limits			
	Lower %	Upper %			Lower %	Upper %		
Pentafluorobenzene	80.0	120			80.0	120		
1,2-Dichloroethane-d4	80.0	120			80.0	120		
Toluene-D8	80.0	120			80.0	120		
4-Bromofluorobenzene	80.0	120			80.0	120		

ELAP Number 10958

Method: EPA 8260B

* - Due to an equipment change, generic limits are being used for surrogates until enough data are collected to generate new limits.

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

PARADIGM
ENVIRONMENTAL SERVICES, INC.

CHAIN OF CUSTODY

7

REPORT TO:		INVOICE TO:			
COMPANY:	Haley & Aldrich of NY	COMPANY:	Same	LAB PROJECT #: 12:2443	CLIENT PROJECT #: 36795-027
ADDRESS:	200 Town Centre Drive	ADDRESS:			
CITY: Rochester STATE: NY ZIP: 14623		CITY: STATE: ZIP:		TURNAROUND TIME: (WORKING DAYS)	
PHONE: FAX:		PHONE: FAX:		1 day per JD/DC 6/8 EAH 6/11	
PROJECT NAME/SITE NAME:	ATTN: Denis Conley	ATTN:		☐ 1 ☐ 2 ☐ 3 ☒ STD 5 ☐ OTHER	
	COMMENTS:			Quotation #	

REQUESTED ANALYSIS

	DATE	TIME	COMPOSITE	GRAB	SAMPLE LOCATION/FIELD ID	MATRIX	NUMBER CONTAINERS	VOC/8260B									REMARKS	PARADIGM LAB SAMPLE NUMBER				
1	6/8/12	1130	—	X	BTEPTEPP-20120608-1130	Air	1	X									Chlorinated VOCs	01				
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

LAB USE ONLY BELOW THIS LINE

Sample Condition: Per NELAC/ELAP 210/241/242/243/244

Receipt Parameter	NELAC Compliance	
Container Type:	Y ☒	N ☐
Comments:		
Preservation: N/A	Y ☐	N ☐
Comments:		
Holding Time:	Y ☒	N ☐
Comments:		
Temperature: N/A	Y ☐	N ☐
Comments:		

Ben Drayn	6/8/12 11:30	Total Cost:
Sampled By	Date/Time	
[signature]	6/11/12 12:10	
Relinquished By	Date/Time	
[signature]	6/11/12 1240	P.I.F.
Received By	Date/Time	
Elizabeth A Homch	6/11/12 1240	
Received @ Lab By	Date/Time	

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Analytical Report Cover Page

Haley & Aldrich

For Lab Project # 12:2522
Issued June 18, 2012
This report contains a total of 8 pages

The reported results relate only to the samples as they have been received by the laboratory.

Any noncompliant QC parameters having impact on the data are flagged or documented on the final report.

All soil/sludge samples have been reported on a dry weight basis, unless qualified "reported as received". Other solids are reported as received.

The Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt. Sample condition requirements are defined under the 2003 NELAC Standard, sections 5.5.8.3.1 and 5.5.8.3.2. Aliquots separated for certain tests, such as TCLP, are indicated on the Chain of Custody and final reports with an "A" suffix.

NYSDOH ELAP does not certify for all parameters. Paradigm Environmental Services or the indicated subcontracted laboratory does hold certification for all analytes where certification is offered by ELAP unless otherwise specified.

Data qualifiers are used, when necessary, to provide additional information about the data. This information may be communicated as a flag or as text at the bottom of the report. Please refer to the following list of frequently used data flags and their meaning:

"<" = analyzed for but not detected at or above the reporting limit.
"E" = Result has been estimated, calibration limit exceeded.
"Z" = See case narrative.
"D" = Duplicate results outside QC limits. May indicate a non-homogenous matrix.
"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.
"B" = Method blank contained trace levels of analyte. Refer to included method blank report.

PARADIGM
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179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Air

Client: Haley & Aldrich

Client Job Site:	N/A	**Lab Project Number:**	12:2522
		Lab Sample Number:	12:2522-01
Client Job Number:	36795-027		
Field Location:	B7WPTEFF-20120613-1030	**Date Sampled:**	06/13/2012
Field ID Number:	N/A	**Date Received:**	06/14/2012
Sample Type:	Air	**Date Analyzed:**	06/14/2012

Compound	Results in mg / m3	Compound	Results in mg / m3
Bromodichloromethane	< 0.500	1,1-Dichloroethene	< 0.500
Bromoform	< 2.50	cis-1,2-Dichloroethene	0.712
Bromomethane	< 0.500	trans-1,2-Dichloroethene	< 0.500
Carbon Tetrachloride	< 0.500	1,2-Dichloropropane	< 0.500
Chlorobenzene	< 0.500	cis-1,3-Dichloropropene	< 0.500
Chloroethane	< 0.500	trans-1,3-Dichloropropene	< 0.500
2-Chloroethyl vinyl Ether	< 2.50	Methylene chloride	< 2.50
Chloroform	< 0.500	1,1,2,2-Tetrachloroethane	< 0.500
Chloromethane	< 0.500	Tetrachloroethene	4.97
Dibromochloromethane	< 0.500	1,1,1-Trichloroethane	< 0.500
1,2-Dichlorobenzene	< 0.500	1,1,2-Trichloroethane	< 0.500
1,3-Dichlorobenzene	< 0.500	Trichloroethene	< 0.500
1,4-Dichlorobenzene	< 0.500	Trichlorofluoromethane	< 0.500
1,1-Dichloroethane	< 0.500	Vinyl chloride	< 0.500
1,2-Dichloroethane	< 0.500		

ELAP Number 10958 Method: EPA 8260B Data File: V98017.D

Modified for Tedlar Bag

Comments: mg / Kg = milligram per Kilogram

Signature:

Bruce Hoogesteger: Technical Director

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179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Air

Client: Haley & Aldrich

Client Job Site: N/A
Client Job Number: 36795-027
Field Location: N/A
Field ID Number: N/A
Sample Type: Air

Lab Project Number: 12:2522
Lab Sample Number: LRB
Date Sampled: N/A
Date Received: N/A
Date Analyzed: 06/14/2012

Compound	Results in mg / m3	Compound	Results in mg / m3
Bromodichloromethane	< 0.500	1,1-Dichloroethene	< 0.500
Bromoform	< 2.50	cis-1,2-Dichloroethene	< 0.500
Bromomethane	< 0.500	trans-1,2-Dichloroethene	< 0.500
Carbon Tetrachloride	< 0.500	1,2-Dichloropropane	< 0.500
Chlorobenzene	< 0.500	cis-1,3-Dichloropropene	< 0.500
Chloroethane	< 0.500	trans-1,3-Dichloropropene	< 0.500
2-Chloroethyl vinyl Ether	< 2.50	Methylene chloride	< 2.50
Chloroform	< 0.500	1,1,2,2-Tetrachloroethane	< 0.500
Chloromethane	< 0.500	Tetrachloroethene	< 0.500
Dibromochloromethane	< 0.500	1,1,1-Trichloroethane	< 0.500
1,2-Dichlorobenzene	< 0.500	1,1,2-Trichloroethane	< 0.500
1,3-Dichlorobenzene	< 0.500	Trichloroethene	< 0.500
1,4-Dichlorobenzene	< 0.500	Trichlorofluoromethane	< 0.500
1,1-Dichloroethane	< 0.500	Vinyl chloride	< 0.500
1,2-Dichloroethane	< 0.500		

ELAP Number 10958 Method: EPA 8260B Data File: V97998b.D
Modified for Tedlar Bag

Comments: mg / m3 = milligram per cubic meter

Signature: _____
Bruce Hoogesteger: Technical Director

PARADIGM ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Non-potable Water

Client: Haley & Aldrich

Client Job Site: N/A
Client Job Number: 36795-027
Field Location: N/A
Field ID Number: N/A
Sample Type: Water

Lab Project Number: 12:2522
Lab Sample Number: LCS
Date Sampled: N/A
Date Received: N/A
Date Analyzed: 06/14/2012

SDG# : N/A

Spiked Compound	Blank Results in mg / m3	LCS Spiked in mg / m3	LCS Results in mg / m3	LCS Percent Recovery	MSD Spiked in mg / m3	MSD Results in mg / m3	MSD Percent Recovery	MS / MSD % RPD
1,1-Dichloroethene	< 0.500	25.0	22.7	90.8	N/A	N/A	N/A	N/A
Benzene	< 0.500	25.0	21.4	85.6	N/A	N/A	N/A	N/A
Trichloroethene	< 0.500	25.0	21.0	84.0	N/A	N/A	N/A	N/A
Toluene	< 0.500	25.0	21.3	85.2	N/A	N/A	N/A	N/A
Chlorobenzene	< 0.500	25.0	21.3	85.2	N/A	N/A	N/A	N/A

ELAP Number 10958 Data File: V97998b.D Data File: V97997a.D Method: EPA 8260B modified

PARADIGM
ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Surrogate Recoveries

Client: Haley & Aldrich

Client Job Site: N/A
Client Job Number: 36795-027
Sample Type: Water

Lab Project Number: 12:2522
Date Sampled: 07/27/2009
Date Received: 07/28/2009
Date Analyzed: 06/14/2012

SDG Group: N/A

Lab Sample Number	Field Number	Field Location	Pentafluorobenzene % Recovery	1,2-Dichloroethane-d4 % Recovery	Toluene-d8 % Recovery	4-BFB % Recovery
LCS 06/14	N/A	N/A	95.0	88.2	88.3	83.5
LRB 06/14	N/A	N/A	114	108	106	98.7
12:2522-01	N/A	B7WPTEFF-20120613-1030	93.0	83.4	90.3	89.6

ELAP Number 10958

Method: EPA 8260B modified

PARADIGM
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179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis QC Limits

Limits effective: Jun 05,2012
Through: Jun 30,2012

Spiked Compound	Soil Spike Limits		Soil % RPD Limits		Water Spike Limits		Water % RPD Limits	
	Lower %	Upper %	Lower %	Upper %	Lower %	Upper %	Lower %	Upper %
1,1-Dichloroethene	67.4	120	0	29.2	70.4	117	0	21.8
Benzene	82.7	107	0	15.4	81.0	110	0	15.1
Trichloroethene	82.2	106	0	12.0	78.2	112	0	16.0
Toluene	81.9	104	0	14.2	79.2	110	0	16.6
Chlorobenzene	81.1	104	0	16.5	78.3	109	0	14.5

Surrogate*	Soil Surrogate Limits				Water Surrogate Limits			
	Lower %	Upper %			Lower %	Upper %		
Pentafluorobenzene	80.0	120			80.0	120		
1,2-Dichloroethane-d4	80.0	120			80.0	120		
Toluene-D8	80.0	120			80.0	120		
4-Bromofluorobenzene	80.0	120			80.0	120		

ELAP Number 10958

Method: EPA 8260B

* - Due to an equipment change, generic limits are being used for surrogates until enough data are collected to generate new limits.

PARADIGM ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

CHAIN OF CUSTODY

REPORT TO:	INVOICE TO:	
COMPANY: Haley & Aldrich of NY	COMPANY: Same	LAB PROJECT #: 12:2522 / CLIENT PROJECT #: 36795-027
ADDRESS: 200 Town Centre Dr.	ADDRESS:	
CITY: Rochester STATE: NY ZIP: 14623	CITY: STATE: ZIP:	TURNAROUND TIME: (WORKING DAYS) 1 day per DC/JD 6/14.
PHONE: 585 321 4245 FAX:	PHONE: FAX:	STD / OTHER
PROJECT NAME/SITE NAME:	ATTN: Denis Conley	ATTN: [X] 1 [ ] 2 [ ] 3 [X] 5 [ ]
	COMMENTS:	Quotation #

REQUESTED ANALYSIS

	DATE	TIME	COMPOSITE	GRAB	SAMPLE LOCATION/FIELD ID	MATRIX	NUMBER CONTAINERS	VOC/8260B									REMARKS	PARADIGM LAB SAMPLE NUMBER				
1	6/13/12	1030	—	X	BTWPTEFF-20120613-1030	AIR	1	X									CHLORINATED VOCs	01				
2																						
3																	Per DC/JD need					
4																	RL of 0.5 mg/m³.					
5																	EAH 6/14					
6																						
7																						
8																						
9																						
10																						

LAB USE ONLY BELOW THIS LINE

Sample Condition: Per NELAC/ELAP 210/241/242/243/244

Receipt Parameter		NELAC Compliance
Container Type:	Comments: Tedlar Bag Sep. 2	Y [ ] N [ ]
Preservation:	Comments: —	Y [ ] N [ ]
Holding Time:	Comments: 48 Hrs	Y [ ] N [ ]
Temperature:	Comments: Room Temperature	Y [ ] N [ ]

Sampled By — Date/Time: 6/13/12 1030

Relinquished By — Date/Time: 6/14/12 11:37

Received By — Date/Time: 6/14/12 1137 AM

Received @ Lab By: Elizabeth A Hom ch — Date/Time: 6/14/12 1305

Total Cost:

P.I.F.

Chain of Custody Supplement

Client: H+A

Lab Project ID: 12:2522

Sample Condition Requirements

Per NELAC/ELAP 210/241/242/243/244

Condition	*NELAC compliance with the sample condition requirements upon receipt* Yes	No	N/A
Container Type	X		
Comments			
Transferred to method-compliant container			X
Headspace (<1 mL)			X
Comments			
Preservation			X
Comments			
Chlorine Absent (<0.05 ppm per test strip)			X
Comments			
Holding Time	X		
Comments			
Temperature			X
Comments			
Sufficient Sample Quantity	X		
Comments			