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RECEIVED

DEC 10 2015

Initial:

December 2, 2015

OHM Holdings, LLC
Attn: Mr. Brian Cass
W229N2494 Hwy F
Waukesha, WI 53186

RE: Supplemental Investigation and Vapor Mitigation Report
Success, Inc. One Hour Martinizing
2262 South 108th Street
West Allis, Wisconsin
FID # 241287530
BRRTS # 02-41-246246

Dear Mr. Cass:

Environmental Forensic Investigations, Inc. (EnviroForensics) is pleased to provide this Supplemental Investigation and Vapor Mitigation Report for activities conducted at the Success, Inc. property located at 2262 South 108th Street, West Allis, Wisconsin (Site).

EnviroForensics completed the investigation and vapor mitigation activities to continue compliance with Chapter NR 716 of the Wisconsin Administrative Code (WAC), and in response to the July 17, 2015 Wisconsin Department of Natural Resources (WDNR) letter, *Approval of Environmental Consultant Selection and Scope of Work.*

BACKGROUND AND SITE CONDITIONS

The Site is located at 2262 South 108th Street in West Allis, Milwaukee County, Wisconsin, at the northeast corner of South 108th Street and West Lincoln Avenue. The Site and surrounding area are depicted on the attached **Figure 1**. The Site is occupied by a one-story slab-on-grade building that houses a dry cleaning operation. An alley and apartment building (10710 West Lincoln Avenue) are located east of the Site. A commercial building is located north of the Site at 2248 South 108th Street.

The Site investigation has been ongoing since 1995. In response to a request for case closure submitted by ARCADIS in May 2014, the WDNR requested additional investigation and vapor mitigation. The following specific actions were requested:

1. Further investigate impacts on the north adjacent property by collecting a water sample from the basement sump;

Environmental Forensic Investigations, Inc.
N16 W23390 Stone Ridge Drive, Suite G, Waukesha, WI 53188
Phone: 262-290-4001 • Fax 317-972-7875

2. Conduct a vapor intrusion (VI) assessment and collect a sample of sump water at the east adjacent property;
3. Install a sub-slab depressurization (SSD) system at the Site building;
4. Install a SSD system on the north adjacent property; and
5. Prepare a letter report summarizing the results of the supplemental investigation and vapor mitigation activities.

ARCADIS prepared a scope of work dated January 9, 2015 to address WDNR's requests. Subsequently, OHM Holdings selected EnviroForensics as their environmental consultant to continue work at the Site. EnviroForensics prepared a cost estimate to complete the tasks listed above, and submitted the cost estimate to WDNR via email on July 15, 2015. The costs were approved in the July 17, 2015 letter.

SUPPLEMENTAL INVESTIGATION AND VAPOR MITIGATION ACTIVITIES

The supplemental investigation and vapor mitigation activities were conducted by EnviroForensics personnel and subcontractors from September 8 through September 11, 2015.

2248 South 108th Street Investigation

One (1) water sample designated '6406-2248-SUMP' was collected from the sump in the basement of the 2248 South 108th Street building, designated as the Marinello building in past reports. The sample was collect using a peristaltic pump and new, disposable tubing. The sample was submitted to a state-certified laboratory for analysis of volatile organic compounds (VOCs) according to EPA Test Method 8260B.

10710 West Lincoln Avenue Investigation

One (1) water sample designated '6406-10710-SUMP' was collected from the sump in the basement of the 10710 West Lincoln Avenue building, a four-family apartment building. The sample was collect using a peristaltic pump and submitted to a state-certified laboratory for analysis of VOCs according to EPA Test Method 8260B.

A VI assessment was also performed at the 10710 West Lincoln Avenue building. The assessment consisted of a building survey and the collection of paired sub-slab vapor and indoor air samples. Sampling activities were performed in consideration of the applicable methods in WDNR Publication RR-800: *Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin*; and RR-986: *Sub-Slab Vapor Sampling Procedures,* July 2014. The VI assessment procedures are detailed below.

Building Survey

A visual inspection was conducted for cracks or other penetrations in the concrete basement floor (i.e. floor drains, sumps, etc.) that could act as direct conduits for impacted vapors to migrate into the occupied space. Basement walls were also visually inspected for cracks and penetrations of subsurface utilities that may be conduits for vapors to migrate into the buildings. This information was incorporated into the sample port placement strategy to avoid damage to sub-slab utilities and reduce the possibility of "short circuiting", which could have biased sample results.

Indoor/Outdoor Air Sampling

Indoor air samples were collected prior to sub-slab vapor sampling to eliminate the possibility of sub-slab vapors from entering the building and influencing the indoor air sample results. Indoor air samples were collected from the basement (6406-10710-IA-B), first floor (6406-10710-IA-1), and second floor (6406-10710-IA-2) hallways of the building. An outdoor air sample was also collected to evaluate background conditions. The outdoor air sample was collected along the west wall of the building, which was up-wind at the start of sampling.

The indoor air samples were collected from the breathable space (3-5 feet above the floor) using 6-liter vacuum canisters, regulated to withdraw a time-integrated sample over a 24-hour period. The vacuum canisters were individually-certified clean by the analytical laboratory for quality assurance/quality control (QA/QC) purposes.

Weather data, including temperature, wind speed, wind direction, humidity, barometric pressure, and rainfall was acquired from the nearest fixed weather station throughout the 24-hour sampling period to evaluate potential effects on the samples.

A total of four (4) 6-liter vacuum canisters were submitted to EnvisionAir Laboratories, Inc. of Indianapolis, Indiana (EnvisionAir) under appropriate chain-of-custody procedures, for analysis of select chlorinated volatile organic compounds (CVOCs) according EPA Method TO-15.

Sub-Slab Vapor Sampling

Following the completion of indoor air sampling activities, two (2) Vapor Pin™ sub-slab vapor sampling ports were installed in the basement. One (1) sampling port was installed near the center, and one (1) sampling port was installed in the northwest part of the basement. To ensure that representative sub-slab vapor samples were collected, leak testing was performed. Testing the integrity of the sample ports was conducted using the water dam method, and the integrity of

the sampling train was confirmed via a negative pressure test. The vapor sampling ports were abandoned after sampling by removing the ports and sealing the holes with cement.

Two (2) sub-slab vapor samples designated 6406-10710 SS-1 and 6406-10710 SS-2 were collected from the sampling ports. The samples were collected in batch-certified 1-Liter vacuum canisters connected to the ports using compression fittings and Teflon-lined polyethylene tubing. Vacuum canisters were fitted with regulators to restrict flow rates to less than 200 ml/minute.

Two (2) 1-liter vacuum canisters were submitted to EnvisionAir for analysis of select CVOCs according to EPA Method TO-15. All samples were shipped under the appropriate chain-of-custody procedures.

Site Building and 2248 South 108th Street Vapor Mitigation

EnviroForensics contracted Vapor Protection Services of Indianapolis, Indiana (VPS) to design and install SSD systems in the Site building and the 2248 South 108th Street building. The installation report for both systems is provided in **Attachment 1**.

As can be seen in the photographs included in the installation report, cracks in the building floor slabs were repaired with cement prior to testing. At Marinello's, a basement sump was sealed. These actions were taken to prevent vapor intrusion from these breaches in the floor slab.

Each system is comprised of three (3) extraction points connected via 4-inch PVC piping to a single fan capable of depressurizing the entire sub-slab space. The exhaust point for each fan is positioned above the roofline of each building. Pressure field extension (PFE) measurements were collected in each building to confirm the effectiveness of each SSD system. The measurements, illustrated on pages 4 and 5 of the installation report, indicated a vacuum equal to or greater than 0.019 inches of water at each test point. The U.S. Environmental Protection Agency (EPA) recommends a negative pressure of 0.02 inches of water be induced across the entire slab to be fully protective. The PFE data indicate that the installed SSD systems are operating at EPA-recommended design criteria.

SUPPLEMENTAL INVESTIGATION RESULTS

The analytical results of water samples collected from the sumps at 2248 South 108th Street and 10710 West Lincoln Avenue are summarized and compared to WDNR groundwater standards on the attached **Table 1**. The laboratory analytical report is provided in **Attachment 2**.

As can be seen in **Table 1**, sample 6406-2248-SUMP collected at Marinello's contained tetrachloroethene (PCE) and vinyl chloride at concentrations of 81 micrograms per liter (µg/L) and 3.6 µg/L, respectively, which are above the WDNR enforcement standards of 5 µg/L and 0.2

µg/L, respectively. Cis-1,2-Dichloroethene was detected above the WDNR preventive action limit of 7 µg/L at a concentration of 33 µg/L. No other VOCs were detected in sample 6406-2248-SUMP. Sample 6406-10710-SUMP collected at the apartment building did not contain any VOCs above laboratory detection limits.

The 10710 West Lincoln Avenue VI assessment sample results are summarized and compared to WDNR standards in **Table 2** (attached). The laboratory analytical reports associated with the VI assessment samples are provided in **Attachment 2**.

PCE was detected in sub-slab vapor samples 6406-10710 SS-1 and 6406-10710 SS-2 at concentrations of 276 and 63.8 micrograms per cubic meter (µg/m^3), respectively. These concentrations are below the vapor risk screening level for residential and small commercial buildings of 1,400 µg/m^3. No other target CVOCs were detected in the sub-slab vapor samples. The target CVOCs were not detected in any of the indoor air samples.

CONCLUSIONS AND RECOMMENDATIONS

The apartment building located at 10710 West Lincoln Avenue did not contain concentrations of chlorinated solvents above regulatory standards in the media tested.

The SSD systems installed at the Site building and the Marinello building have induced negative pressure beneath the entire floor slab of each building at levels recommended by the EPA.

The sump sample collected from the Marinello building contained PCE and vinyl chloride at concentrations above groundwater enforcement standards.

Although all Site groundwater monitoring wells have been previously abandoned, past consultant reports indicate that the direction of groundwater flow is to the northwest. The detection of PCE beneath the north adjacent property (Marinello building) indicates that groundwater impacts have spread off-Site in the down-gradient direction. The groundwater impacts may intersect utility lines along 108th Street and may also have spread to additional commercial properties to the north. The utility lines could act as preferential pathways for further migration of groundwater and/or vapor impacts.

EnviroForensics recommends that a work scope and cost estimate be developed to complete the following additional activities:

- Obtain detailed subsurface utility information from all appropriate sources;
- Investigate utility corridors along South 108th Street for CVOC impacts;

- Conduct a vapor intrusion assessment at 2234 South 108th Street, two properties north of the Site (see **Figure 1**). If this property has a basement sump, then a water sample should also be collected;
- Collect a confirmation indoor air sample from the 2248 South 108th Street basement as recommended in the WDNR vapor intrusion guidance; and
- Prepare long-term operation, maintenance, and monitoring (OM&M) plans for the SSD systems.

If the results of the recommended additional investigation work indicate that all exposure pathways have been addressed, then an updated case closure request should be submitted.

We appreciate the opportunity to work with you on this project. If you have any questions regarding this report, please do not hesitate to call me at (414) 982-3988.

Sincerely,
Environmental Forensic Investigations, Inc.

Wayne Fassbender, PG, PMP
Senior Project Manager

Attachments

cc: John Hnat, WDNR Project Manager

TABLES

TABLE 1
SUMP SAMPLE ANALYTICAL RESULTS SUMMARY

One Hour Martinizing

2262 South 108th Street, West Allis, Wisconsin

Sample Identification	Sample Date	Tetrachloroethene	cis-1,2-Dichloroethene	Vinyl Chloride
6406-2248-SUMP	9/8/2015	**81**	**33**	**3.6 J**
6406-10710-SUMP	9/8/2015	<0.49	<0.45	<0.17
Enforcement Standard		**5**	**70**	**0.2**
Preventive Action Limit		**0.5**	**7**	**0.02**

Notes:

Only detected compounds are listed

All results reported in units of micrograms per liter (µg/L)

J = Estimated concentration above the method detection limit and below the reporting limit

Bolded values are above method detection limits

Bolded and orange shaded values exceed the Enforcement Standard

Bolded and blue shaded values exceed the Preventive Action Limit

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TABLE 2
VAPOR INTRUSION ASSESSMENT RESULTS SUMMARY - 10710 W. LINCOLN AVE

One Hour Martinizing
2262 South 108th Street, West Allis, Wisconsin

Sample Identification	Sample Location	Sample Date	Tetrachloroethene
Indoor Air Residential Vapor Action Level			**42**
6406-10710-IA-B	Basement	9/10/2015	<3.19
6406-10710-IA-1	First Floor	9/10/2015	<3.19
6406-10710-IA-2	Second Floor	9/10/2015	<3.19
6406-10710-OA	Outdoor	9/10/2015	<3.19
Sub-Slab Vapor Residential Vapor Risk Screening Level			**1,400**
6404-10710-SS-1	Basement	9/10/2015	**276**
6404-10710-SS-2		9/10/2015	**63.8**

Notes:

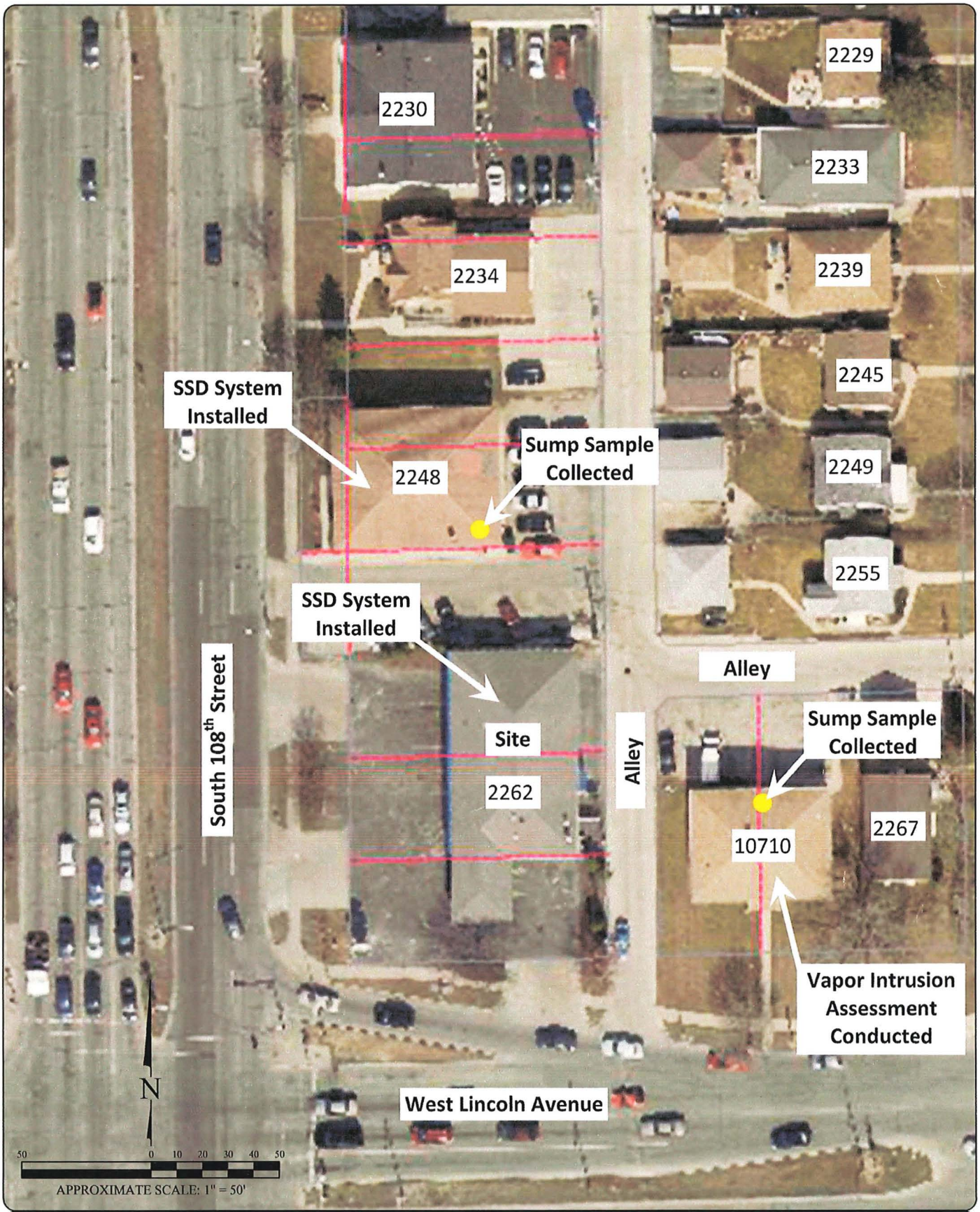
Vapor Risk Screeing Levels were calcuated according to the procedures described in WDNR Publication RR-800

Only detected compounds are listed

All concentrations reported in untis of micrograms per cubic meter ($\mu g/m^3$)

Bolded values are above method detection limits

FIGURES



No.	Date	Revision	Approved

ENVIRO forensics
ENVIRONMENTAL FORENSIC INVESTIGATIONS, INC.
602 N. Capitol Ave, Suite 210 • Indianapolis, IN 46204
EnviroForensics.com

Date:	10/30/15
Designed:	EB
Drawn:	EB
Checked:	BK
DWG file:	6406-0128

SITE AND SURROUNDING AREA LAYOUT
OHM - Lincoln
2262 South 108th Street
West Allis, Wisconsin

Figure
1
Project
6406

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ATTACHMENT 1

SUB-SLAB DEPRESSURIZATION SYSTEM INSTALLATION REPORT

VAPOR
PROTECTION
SERVICES

TABLE OF CONTENTS

Prepared for: **Kyle Heimstead and**
Wayne Fassbender
EnviroForensics

Site: **2248 & 2262 South 108th St.**
West Allis, WI 53227

Table of Contents

VAPOR PROTECTION SERVICES

INSTALLATION REPORT

September 30, 2015

VPS Proposal No. 201504186
Sub-Slab Depressurization System (SSDS)
2248 & 2262 South 108th St.
West Allis, WI 53227

Mr. Kyle Heimstead
Mr. Wayne Fassbender
EnviroForensics
N16 W23390 Stone Ridge Drive, Suite G
Waukesha, WI 53188
(612) 210-3374

Vapor Mitigation System Installation Report
2248 & 2262 South 108th St.
West Allis, WI 53227

Date of SSDS Installation: September 8-11, 2015

Vapor Protection Services (VPS) is pleased to provide a Vapor Mitigation System Installation Report that summarizes the scope of services performed at 2248 & 2262 South 108th St. West Allis, WI 53227 (Site). The scope of services performed at the Sites is detailed in VPS Proposal No. 201504186 and is noted below.

Scope of Service at 2248 South 108th St.:

- VPS utilized a sub-slab depressurization system (SSDS) and RadonAway Models GP501 Fan to depressurize the soil beneath approximately 3000 square foot concrete slab to meet performance criteria.
- The SSDS utilizes (3) Extraction points, approximately 130' of 4 inch schedule 40 PVC piping, and (1) model GP501 with u-tube manometers.
- The fan was hardwired to a dedicated circuit breaker in an existing electrical panel with dedicated on/off switches located next to the mitigation fan.
- Run Time meter was installed.

Scope of Service at 2262 South 108th St:

- VPS utilized a sub-slab depressurization system (SSDS) and RadonAway Models GP501 Fan to depressurize the soil beneath approximately 3100 square foot concrete slab to meet performance criteria.
- The SSDS utilizes (3) Extraction points, approximately 110' of 4 inch schedule 40 PVC piping, and (1) model GP501 with u-tube manometers.
- The fan was hardwired to a dedicated circuit breaker in an existing electrical panel with dedicated on/off switches located next to the mitigation fan.
- Run Time meter was installed.

Please Note:

- A figure depicting the SSDS layout is included as **Figure 1 and 2**.
- Photos taken during the installation have been included as **Attachment 1**.
- VPS's radon mitigation certification is included as **Attachment 2**.
- VI Mitigation Installation Checklist is included as **Attachment 3**.
- O & M manual is included as **Attachment 4**.
- Annual Operating Costs is included as **Attachment 5**.
- RadonAway fan 5 year warranty is included as **Attachment 6.**
- MSDS sheet is included as **Attachment 7**.

Conclusion:

VPS submits this report as written and visual documentation that the contracted work scope for vapor mitigation as detailed in Proposal No. 201504186 was successfully completed to the approval of EnviroForensics at Site. Please do not hesitate to contact me with any questions you might have regarding this report.

Respectfully Submitted,

Nick Martinez
Director of Technical Services
nick@vaporprotection.com
Vapor Protection Services®
6544 Ferguson Street
Indianapolis, IN 46220
317.252.5295
www.vaporprotection.com
NRPP Certification #106792 RMT
Indiana Mitigator License #RTM 00633
Indianapolis Contractor License #0555673

Figure 1
System Layout

Prepared for: EnviroForensics
Kyle Heimstead & Wayne Fassbender
Site: 2248 S. 108th St.
W. Allis, WI 53227

VPS # 201504186

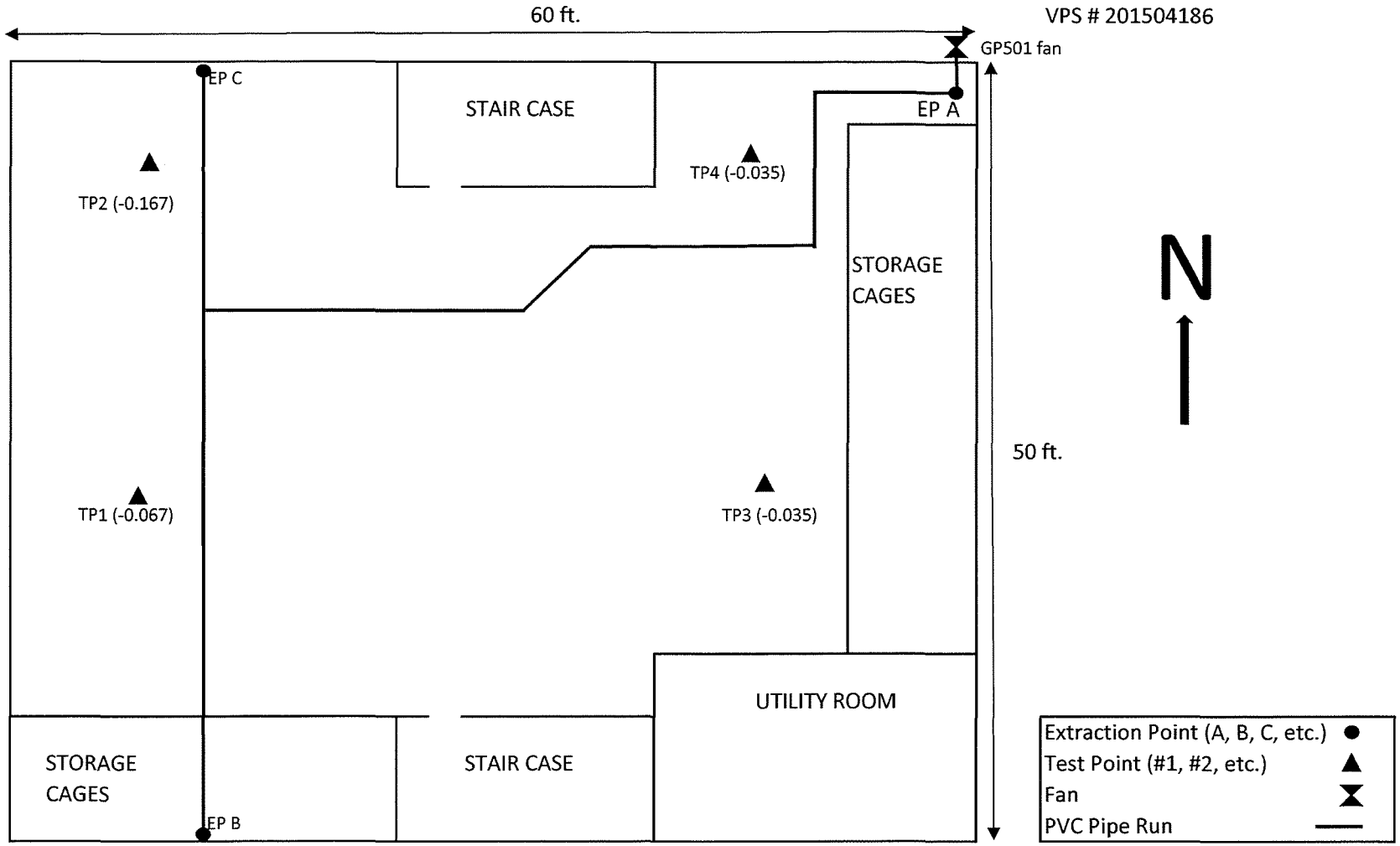


Figure 2
System Layout

VAPOR PROTECTION SERVICES

Prepared for: EnviroForensics
Kyle Heimstead & Wayne Fassbender
Site: 2262 S. 108th St.
West Allis, WI 53227
VPS # 201504186

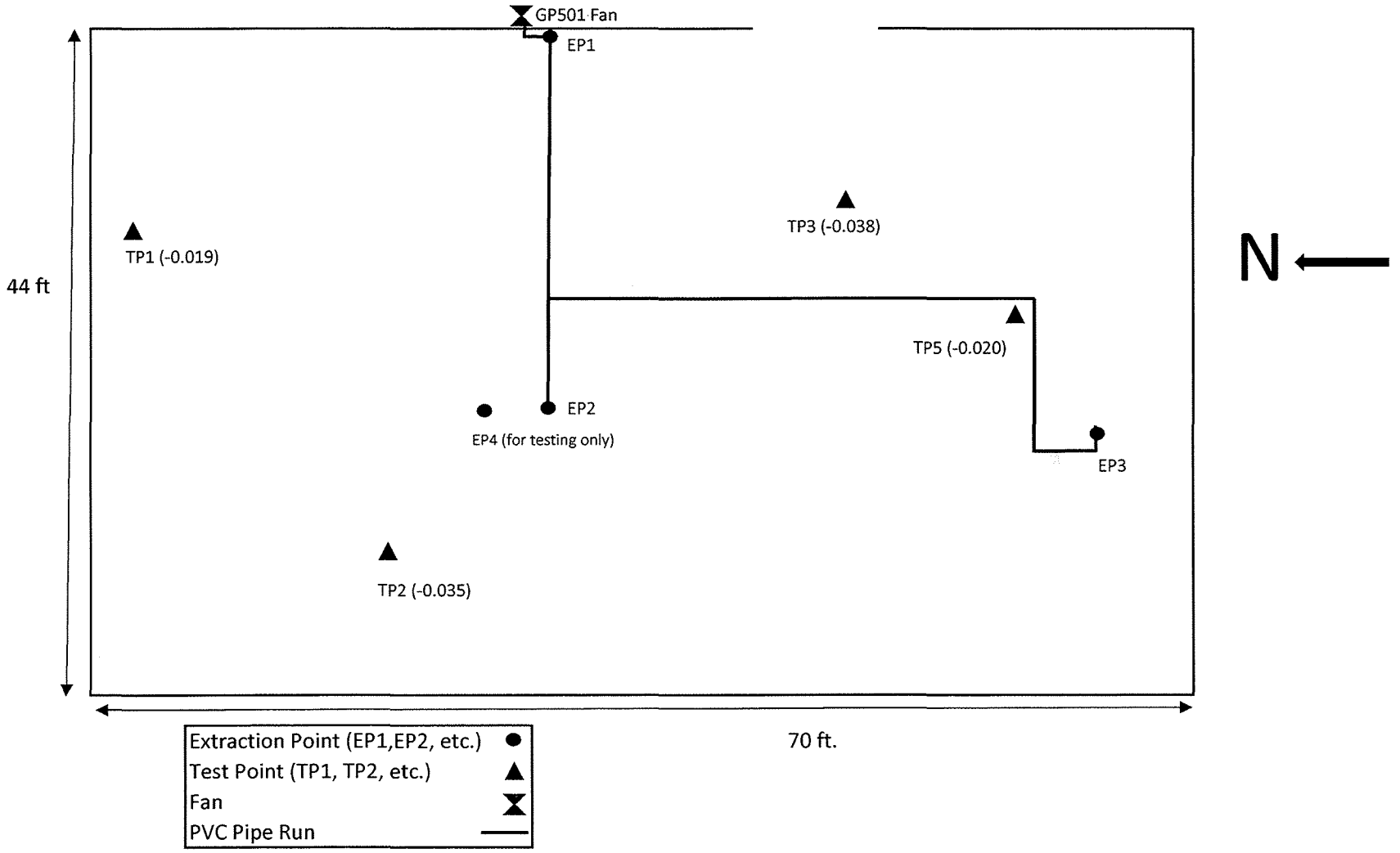


Figure 1 & 2
Pre-Install PFE Readings

Company:	**EnviroForensics**
Contact Name:	**Kyle Heimstead/ Wayne Fassbender**
Proposal #:	**201504186**

Pre-Install PFE Readings

Site Address: 2262 South 108th St., W. Allis, WI 53227

Test Point	Ext. Point 1	Ext. Point 2	Ext. Point 3	Ext. Point 4
TP 1	-0.012	-0.015		-0.008
TP 2	-0.003	-0.016	-0.001	-0.037
TP 3	-0.028	-0.004	-0.002	-0.010
TP 5	-0.002	-0.001	-0.140	-0.003

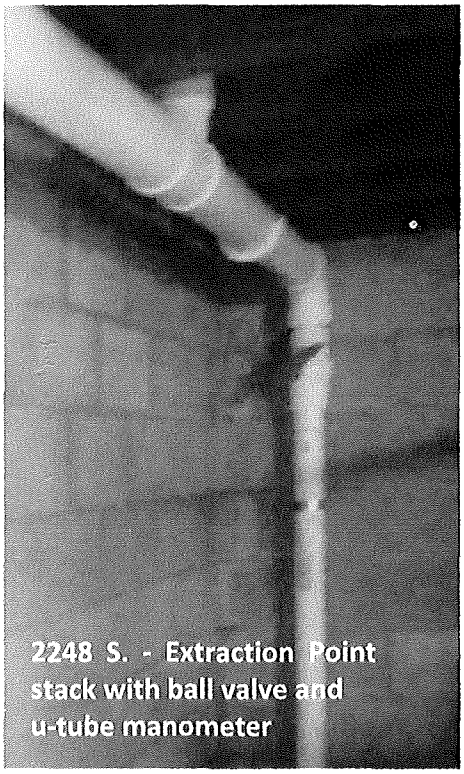
Site Address: 2248 South 108th St., W. Allis, WI 53227

Test Point	Ext. Point A	Ext. Point B	Ext. Point C
TP 1	0.000	-0.049	-0.062
TP 2	-0.002	-0.008	-0.017
TP 3	-0.014	-0.010	-0.380
TP 4	-0.020	-0.004	-0.013

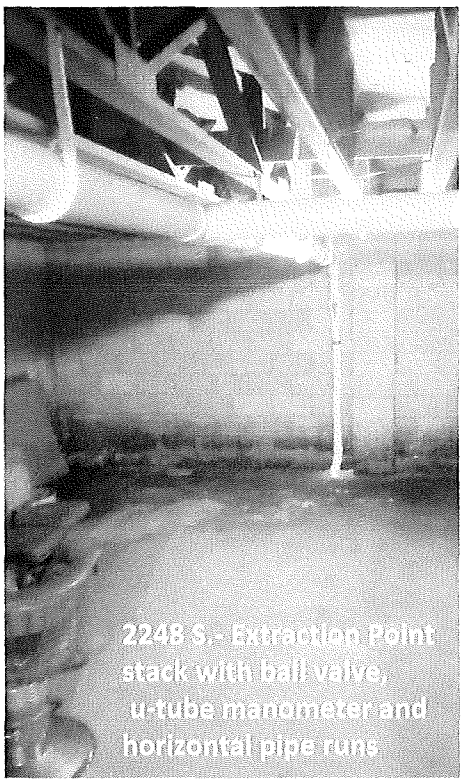
Please note that the above readings are in "inches of water".

Attachment 1
Installation Photos

2248 S. - Extraction Point stack with ball valve and u-tube manometer



2248 S. - Extraction Point stack with ball valve and u-tube manometer.

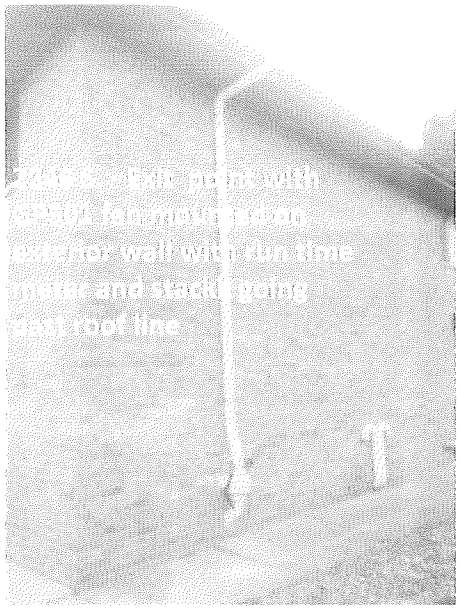


2248 S. - Extraction Point stack with ball valve, u-tube manometer and horizontal pipe runs

2248 S. - Horizontal pipe runs

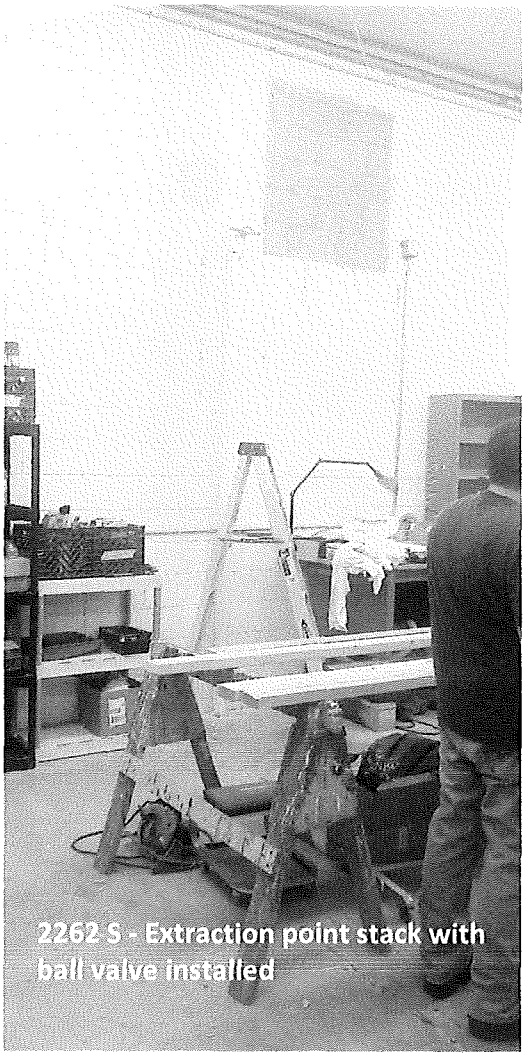
Attachment 1 (cont'd)
Installation Photos


2248 S. - Sealed crack in slab


2248 S. - Exit point with fan mounted on exterior wall with run time meter and shade going past roof line


2248 S. - Exit point with fan mounted on exterior wall

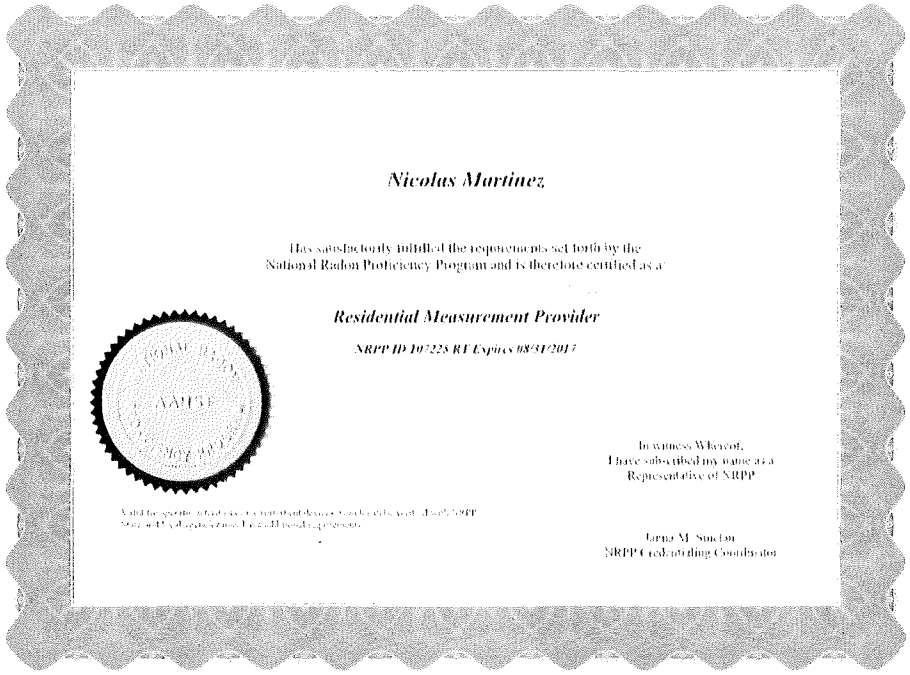
Attachment 1 ((cont'd))
Installation Photos



2262 S - Extraction point stack with ball valve installed

2262 S - Exit Point with GR501 fan installed on exterior wall with run time meter

Attachment 2
Mitigation Certifications



Nicolas Martinez

Has satisfactorily fulfilled the requirements set forth by the
National Radon Proficiency Program and is therefore certified as a

Residential Measurement Provider

NRPP ID 107225 RT Expires 08/31/2017

In witness Whereof,
I have subscribed my name as a
Representative of NRPP

Terra M. Sinclair
NRPP Credentialing Coordinator

National Radon Proficiency Program

Nicolas Martinez

Residential Measurement Provider

ID Number: 107225 RT Expiration 08/31/2017

To confirm validity of this certification call (800) 269-4174. Verification of adherence to state and local regulations is advised. See reverse for specific certification designations.

National Radon Proficiency Program

Nicolas Martinez

Residential Mitigation Provider

ID Number: 106792 RMT Expiration 05/31/2017

To confirm validity of this certification call (800) 269-4174. Verification of adherence to state and local regulations is advised. See reverse for specific certification designations.

Attachment 2 (cont'd)
Mitigation Certification

Midwest Universities Radon Consortium

Regional Radon Training Center

Founded in cooperation with the
U.S. Environmental Protection Agency

Acknowledges

NICOLAS MARTINEZ

Completed 16 Hours of Training in the

Advanced Mitigation Diagnostics

February 22-23, 2014
Nashville, Tennessee

William J. Angell
Professor and Director
Midwest Universities Radon Consortium

Indiana State Department of Health

Primary Radon Tester License

RTI00674	Active	12/31/2016

NICOLAS MARTINEZ

William C. VanNess II, M.D.
State Health Commissioner
Indiana State Department of Health

Midwest Universities Radon Consortium

Regional Radon Training Center

Founded in cooperation with the
U.S. Environmental Protection Agency

Acknowledges

NICOLAS MARTINEZ

Completed 16 Hours of Training in the

Chemical Vapor Intrusion Mitigation

February 24-25, 2014
Nashville, Tennessee

William J. Angell
Professor and Director
Midwest Universities Radon Consortium

Indiana State Department of Health

Radon Mitigator License

RTM00633	Active	12/31/2015

NICOLAS MARTINEZ

Gregory N. Larkin
Gregory N. Larkin M.D., F.A.A.F.P.
State Health Commissioner
Indiana State Department of Health

Attachment 3
Installation hecklist

VAPOR PROTECTION SERVICES™

Company:	**EnviroForensics**
Name:	**Kyle Heimstead**
Address:	**2248/2262 S.108th St. West Allis, WI 53227**
Proposal Number:	**201504186**
Date:	**9/8/15-9/11/15**
Fan Make/Model:	**GP501 (2)**

VI Mitigation Installation Checklist

Piping	**Yes**	**No**	**N/A**
Are all pipes solid schedule 40 PVC?	X		
Are all pipe connections permanently sealed?	X		
Are the system pipes supported by existing ductwork, piping, or any equipment?		X	
Do any of the system pipes obstruct windows, doors or service access points?		X	
Are horizontal pipe supports installed at 6- 4 foot increments?	X		
Are vertical pipe runs supported properly in accordance to building code?	X		
Extraction point vertical pipes supported and sealed permanently?	X		
Do Horizontal pipes slope toward extraction pits for condensate drainage?	X		
Are permanent test ports installed on extraction point suction pipes?		X	
Fans			
Is the fan level and properly supported to prevent unnecessary vibration?	X		
Does the fan have a condensate by-pass installed?	X		
Has the fan been mounted to piping using flexible connections?	X		
Is the exhaust vent pipe at least 10 feet above grade, 10 feet from any doors or windows, and 2 feet above the top of any opening into the conditioned space?	X		
If vent pipe exits through a roof penetration, does it extend at least 12 inches above the surface?			X
If vent pipe runs along the exterior wall, is it supported by brackets placed at least every 8 feet?	X		
Is the vent stack made of schedule 40 PVC piping?	X		
Vapor Barrier			
I crawl space(s) free or debris and obstruction that may prevent proper installation of vapor retarder or sub-slab depressurization system?			X
Has sub-membrane depressurization system been installed?			X
Was 6mil or thicker reinforced skrim used as the vapor retarder?			X
Are heavy traffic areas and/or storage areas protected from tears and punctures by carpet or heavy felt padding?			X
Are all membrane seams overlapped at least 12 inches and sealed properly?			X
Has the membrane been secured to walls with tape, furring strips, and/or caulk?			X
Has a perforated/slotted pipe been installed under the membrane and above the soil for proper de-pressurization?			X
Does suction pipe have permanent test port installed?			X
Are all utility, foundation, or other penetrations sealed properly?			X

Attachment 3 (cont'd)
Installation hecklist

Electrical	Yes	No	N/A
Has electrical wiring/switching been performed by a licensed electrician?	X		
Is the fan's power supply shutoff switch mounted in a weather tight enclosure?	X		
Is the circuit breaker clearly labeled "Vapor Mitigation System"?	X		
Has a run-time meter been installed, and is it in a weather tight enclosure?	X		
Has a KW meter been installed?		X	
Sump Pit			
Is there a sump pit(s) in the basement or crawl space?	X		
Does sump pit have impermeable cover attached with proper sealant?	X		
Are sump lid penetrations properly sealed?	X		
Has sump pit been used as an extraction point?		X	
Does sump lid have a clear view port for pump/pit observation and maintenance?	X		
Labels and Monitors			
Does each suction pipe have a u-tube manometer or magnehelic gage to measure pressure?	X		
Does each suction pipe have a permanent test port?		X	
Has an audible alarm to inform of possible system malfunction been installed?		X	
Are labels placed on pipes, membrane(s), and prominent locations to identify system components?	X		
Does label include name and number of person(s) to contact in case of system emergency?	X		
Testing and Sealing			
Has PFE testing been completed to verify system performance?	X		
Has foundation been smoke tested after mitigation system installation?		X	
Have leaks in slab, walls or membrane been sealed properly?	X		
Report			
Has an as built drawing been completed depicting system installation?	X		
Have all test point reading been recorded and inserted into the drawing?	X		
Has the system installation been recorded with photographs?	X		

Notes:

Attachment 4
Vapor Mitigation System Operation and Maintenance

We advise consultants, maintenance personnel or property owners to conduct routine visual inspections of all SSDS to verify that vapor mitigation system components are operating properly. The inspection should include but not be limited to the following:

- Observe the u tube or magnehelic gauges for pressure indication; a pressure of '0' indicates that there is a problem with system piping or fan operation.

- Observe the mitigation fan(s) and note any abnormal sounds or noises coming from the fan including buzzing, scraping, rattling, or et cetera. If any abnormal noises or sounds are audible, contact VPS.

- Most mitigation fans are factory sealed and designed to be maintenance free for the life of the fan. Should the fan's casing be opened or the factory seal broken, any service warranty may be voided. Factory maintenance documentation has been provided to consultant with recommended schedule for maintenance of fans if required.

- Inspect the PVC piping of the system for damage or cracks. If any damage occurs to the PVC piping, contact VPS Piping supports and Hangers should also be inspected for wear and integrity.

- Roof penetrations for system exhaust piping should be inspected to assure no moisture or other intrusion is apparent.

- Sub-membrane depressurization system (SMDS) components should also be periodically inspected to assure proper performance. Should a vapor barrier or membrane become damaged, loss of system pressure can occur affecting overall system performance. Tears should be repaired properly using approved methods.

- Any significant changes to building or structure can and may affect system performance. VPS should be advised of planned changes beforehand to avoid any possible performance issues or system failure.

Contact VPS for Additional Service & Maintenance should any occasion arise that may causes concern that the SMDS is not functioning properly as vapor intrusion may no longer be mitigated to meet performance criteria provided to VPS by consultant.

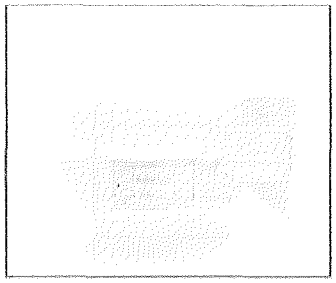
Attachment 5
ANNUAL OPERATING COSTS

RADONAWAY FANS	AVERAGE KWH	AVERAGE COST PER YEAR
RP140	$0.0894	$13.31
RP145	$0.0894	$42.29
RP260	$0.0894	$48.55
RP265	$0.0894	$88.50
RP380	$0.0894	$101.03
SF180	$0.0894	$42.29
GP201	$0.0894	$39.16
GP301	$0.0894	$56.39
GP401	$0.0894	$66.57
GP500	$0.0894	$78.31
GP501	$0.0894	$82.23
XP151	$0.0894	$40.72
XP201	$0.0894	$43.07
XP261	$0.0894	$66.57
HS2000	$0.0894	$164.46
HS3000	$0.0894	$117.47
HS5000	$0.0894	$250.61
FANTECH FANS		
HP2133	$0.0894	$13.31
HP2190	$0.0894	$56.78
HP175	$0.0894	$42.68
HP190	$0.0894	$56.78
HP220	$0.0894	$92.80
PLASTEC VENTILATION		
STORM 12		$250.00
PLASTEC 20		$250.00

Attachment 6
Fan Warranty

RadonAway™

The World's Leading Radon Fan Manufaturer



GP/XP/XR Series Installation & Operating Instructions

Please Read And Save These Instructions

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

1. **WARNING!** Do not use fan in hazardous environments where fan electrical system could provide ignition to combustible of flammable materials.
2. **WARNING!** Do not use fan to pump explosive or corrosive gases.
   See Vapor Intrusion Application Note #AN001 for important information on VI applications. RadonAway.com/vapor-intrusion
3. **WARNING!** Check voltage at the fan to insure it corresponds with nameplate.
4. **WARNING!** Normal operation of this device may affect the combustion airflow needed for safe operation of fuel burning equipment. Check for possible backdraft conditions on all combustion devices after installation.
5. **NOTICE!** There are no user serviceable parts located inside the fan unit.
   Do NOT attempt to open. Return unit to the factory for service.
6. All wiring must be performed in accordance with the National Fire Protection Association's (NFPA)"National Electrical Code, Standard #70"-current edition for all commercial and industrial work, and state and local building codes. All wiring must be performed by a qualified and licensed electrician.
7. **WARNING!** Do not leave fan unit installed on system piping without electrical power for more than 48 hours. Fan failure could result from this non-operational storage.
8. **WARNING - TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:**
   a) Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
   b) Before servicing or cleaning unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.

RadonAway™

Installation & Operating Instructions IN014 Rev J

XP/XR Series		GP Series	
XP101	p/n 23008-1	GP201	p/n 23007-1
XP151	p/n 23010-1	GP301	p/n 23006-1
XP201	p/n 23011-1	GP401	p/n 23009-1
XR261	p/n 23019-1	GP501	p/n 23005-1

1.0 SYSTEM DESIGN CONSIDERATIONS

1.1 INTRODUCTION

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

1.2 ENVIRONMENTALS

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

1.3 ACOUSTICS

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

1.4 GROUND WATER

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

1.5 SLAB COVERAGE

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

1.6 CONDENSATION & DRAINAGE

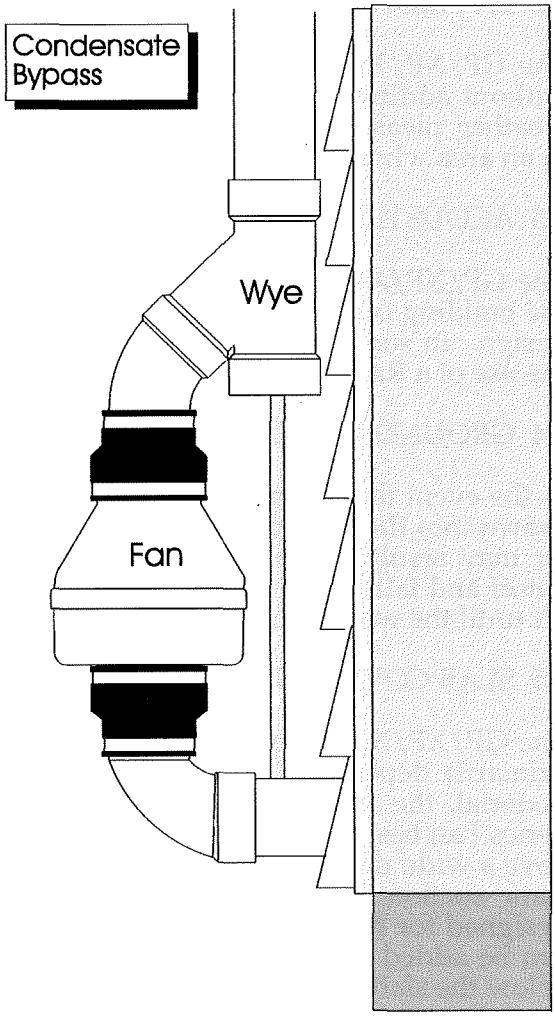
Condensation is formed in the piping of a mitigation system when the air in the piping is chilled below its dew point. This can occur at points where the system piping goes through unheated space such as an attic, garage or outside. The system design must provide a means for water to drain back to a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

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

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

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

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



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

1.7 SYSTEM MONITOR & LABEL

A System Monitor, such as a manometer (P/N 50006-1) or audible alarm (P/N 28001-2) is required to notify the occupants of a fan system malfunction. A System Label (P/N 15022) with instructions for contacting the installing contractor for service and also identifying the necessity for regular radon tests to be conducted by the building occupants, must be conspicuously placed where the occupants frequent and can see the label.

1.8 ELECTRICAL WIRING

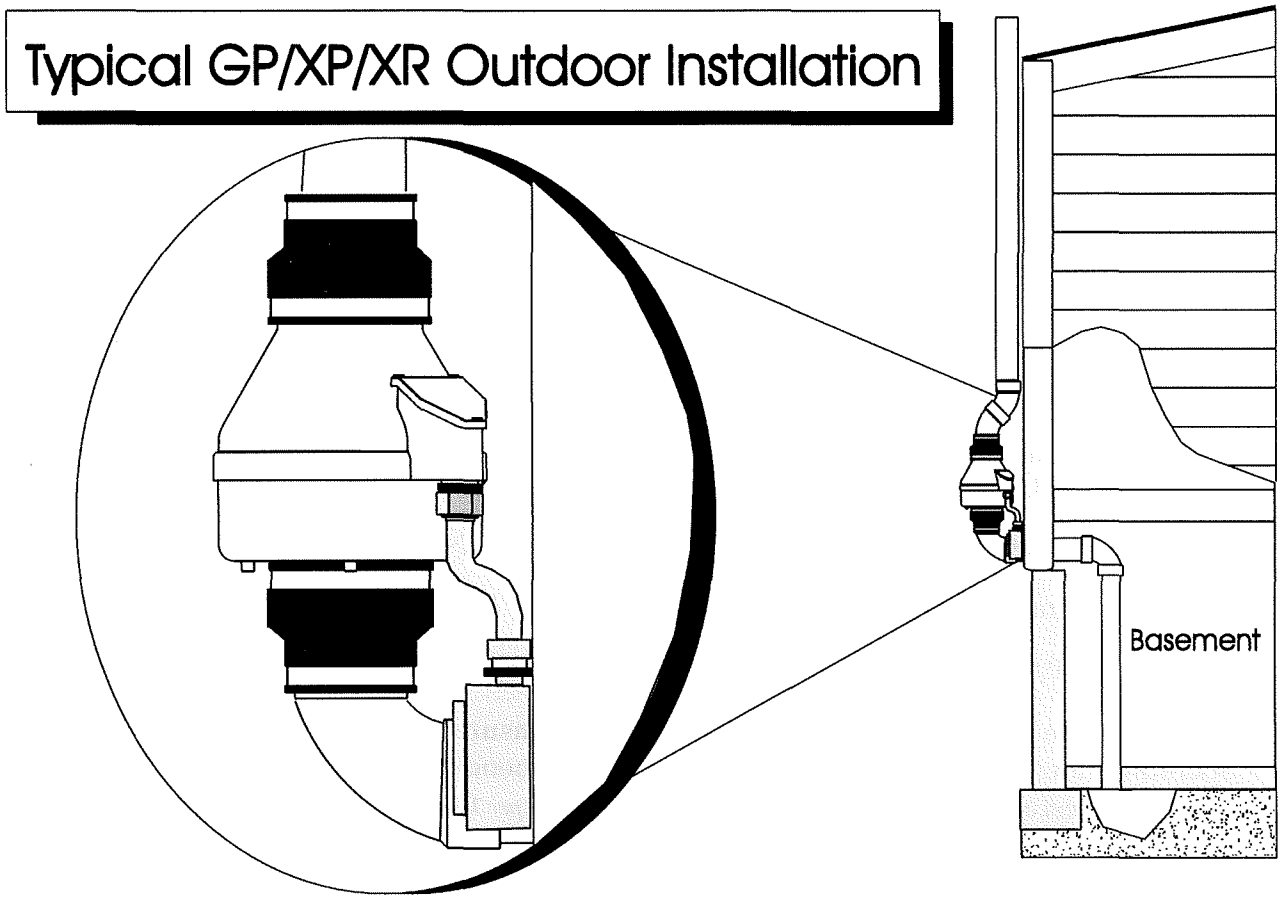
The GP/XP/XR Series Fans operate on standard 120V 60 Hz. AC. All wiring must be performed in accordance with the National Fire Protection Association's (NFPA)"National Electrical Code, Standard #70"-current edition for all commercial and industrial work, and state and local building codes. All wiring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

1.9 SPEED CONTROLS

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

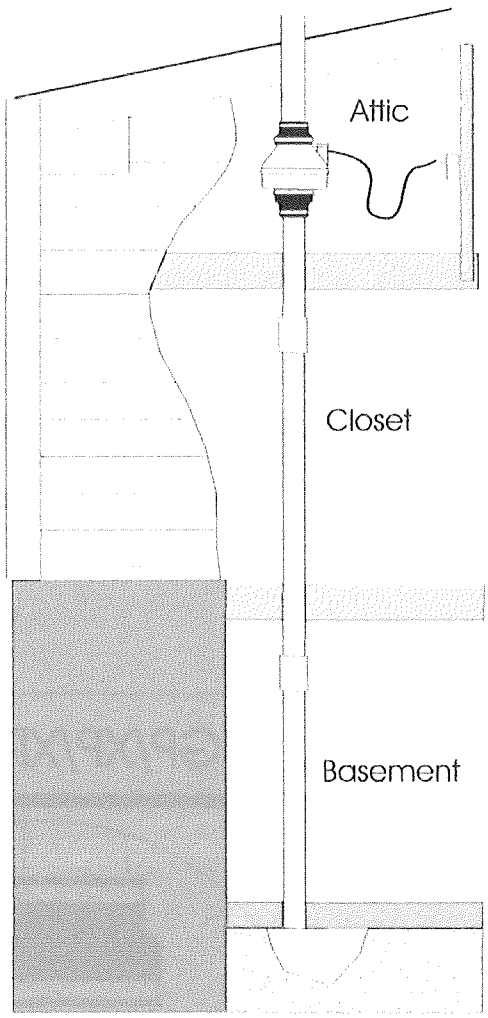
2.0 INSTALLATION

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



2.1 MOUNTING

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



2.2 MOUNTING BRACKET (optional)

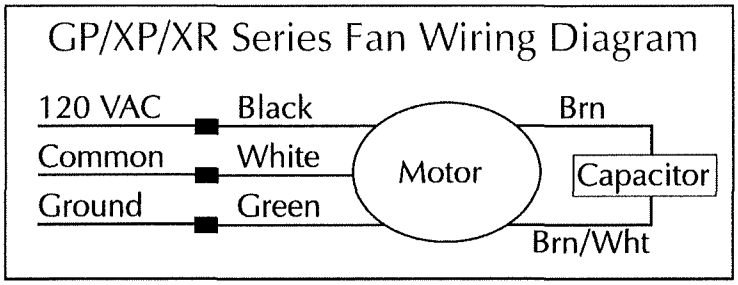
The GP/XP/XR Series Fan may be optionally secured with the integral mounting bracket on the GP Series fan or with RadonAway P/N 25007-2 mounting bracket for an XP/XR Series Fan. Foam or rubber grommets may also be used between the bracket and mounting surface for vibration isolation.

2.3 SYSTEM PIPING

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

2.4 ELECTRICAL CONNECTION

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



2.5 VENT MUFFLER (optional)

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

2.6 OPERATION CHECKS AND ANNUAL SYSTEM MAINTENANCE

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

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

_____ **Verify** system vacuum pressure with manometer. **Insure** vacuum pressure is within normal operating range and **less than** the maximum recommended operating pressure.

(Based on sea-level operation, at higher altitudes reduce by about 4% per 1000 Feet.)
(Further reduce Maximum Operating Pressure by 10% for High Temperature environments)
See Product Specifications. If this is exceeded, increase the number of suction points.

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

XP/XR SERIES PRODUCT SPECIFICATIONS

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

Typical CFM Vs Static Suction "WC									
	0"	.25"	.5"	.75"	1.0"	1.25"	1.5"	1.75"	2.0"
XP101	125	118	90	56	5	-	-	-	-
XP151	180	162	140	117	78	46	10	-	-
XP201	150	130	110	93	74	57	38	20	-
XR261	250	215	185	150	115	80	50	20	-

Maximum Recommended Operating Pressure*		
XP101	0.9" W.C.	(Sea Level Operation)**
XP151	1.3" W.C.	(Sea Level Operation)**
XP201	1.7" W.C.	(Sea Level Operation)**
XR261	1.6" W.C.	(Sea Level Operation)**

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

Power Consumption @ 120 VAC	
XP101	40 - 49 watts
XP151	45 - 60 watts
XP201	45 - 66 watts
XR261	65 - 105 watts

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

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

LISTED Electric Fan ETL® Tested to UL Std. 507
77728

GP SERIES PRODUCT SPECIFICATIONS

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

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

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

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

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

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

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

LISTED Electric Fan ETL® 77728 Tested to UL Std. 507

Attachment 6 (cont'd)
Fan Warranty
IMPORTANT INSTRUCTIONS TO INSTALLER

Inspect the GPx01/XP/XR Series Fan for shipping damage within 15 days of receipt. Notify RadonAway of any damages immediately. Radonaway is not responsible for damages incurred during shipping. However, for your benefit, Radonaway does insure shipments.

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

Install the GPx01/XP/XR Series Fan in accordance with all EPA standard practices, and state and local building codes and state regulations.

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

WARRANTY

Subject to any applicable consumer protection legislation, RadonAway warrants that the GPx01/XP/XR Series Fan (the "Fan") will be free from defects in materials and workmanship for a period of 90 days from the date of purchase (the "Warranty Term").

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

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

5 YEAR EXTENDED WARRANTY WITH PROFESSIONAL INSTALLATION.

RadonAway will extend the Warranty Term of the fan to 5 years from date of manufacture if the Fan is installed in a professionally designed and professionally installed radon system or installed as a replacement fan in a professionally designed and professionally installed radon system. Proof of purchase and/or proof of professional installation may be required for service under this warranty. Outside the Continental United States and Canada the extended Warranty Term is limited to one (1) year from the date of manufacture.

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

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

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

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

RadonAway
3 Saber Way
Ward Hill, MA 01835
TEL. (978) 521-3703
FAX (978) 521-3964

(2) GP501

2262 & 2248 S.108th St.
West Allis, WI.

Record the following information for your records:

Serial No. **2262 170417 2248 170418**
Purchase Date **2262 9 8 15 2248 - 9 10 15**

Material Name: OATEY PURPLE OR CLEAR PRIMER NSF LISTED

* * * Section 1 - Product and Company Identification * * *

MSDS #1402E

Part Numbers: Purple – 30755(TV), 30756(TV), 30757(TV), 30758, 30759, 30927 Clear - 30749, 30750, 30751, 30752, 30753, 30754, 31652, 31653

Manufacturer Information

Oatey Co.
4700 West 160th Street
Cleveland, OH 44135

Phone: 216-267-7100

For Emergency First Aid call 1-877-740-5015. For chemical transportation emergencies ONLY, call Chemtrec at 1-800-424-9300. Outside the U.S. 1- 703-527-3887.

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Liquids - Category 2
Acute Toxicity Oral - Category 4
Acute Toxicity Dermal - Category 4
Acute Toxicity Inhalation - Category 4
Eye Damage/Irritation - Category 2A
Carcinogenicity - Category 2
Specific Target Organ Toxicity Single Exposure - Category 3

GHS LABEL ELEMENTS

Symbol(s)

Signal Word

Danger

Hazard Statements

Highly flammable liquid and vapor.
Harmful if swallowed.
Harmful in contact with skin.
Harmful if inhaled.
Causes serious eye irritation.
Contains a chemical classified by the US EPA as a suspected possible carcinogen.
May cause respiratory irritation.
May cause drowsiness or dizziness.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames and hot surfaces. - No smoking.
Keep container tightly closed.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/eye protection/face protection.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing fume/gas/mist/vapors.
Use only outdoors or in a well-ventilated area.

Response
If on skin (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
If swallowed: Call a poison center or doctor/physician if you feel unwell. Rinse mouth. Do not induce vomiting.
If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.
If exposed or concerned: Get medical advice/attention.
In case of fire: Use dry chemical, CO2, or foam to extinguish fire.

Storage
Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
78-93-3	Methyl ethyl ketone	25-40
67-64-1	Acetone	25-40
108-94-1	Cyclohexanone	15-30
109-99-9	Tetrahydrofuran	15-30

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes
If material gets into eyes or if fumes cause irritation, immediately flush eyes with plenty of water until chemical is removed. If irritation persists, get medical attention immediately.

First Aid: Skin
Remove contaminated clothing immediately. Wash all exposed areas with soap and water. Get medical attention if irritation develops. Remove dried cement with hand cleaner or baby oil.

Material Name: OATEY PURPLE OR CLEAR PRIMER NSF LISTED

First Aid: Ingestion

DO NOT INDUCE VOMITING. Rinse mouth with water. Never give anything by mouth to a person who is unconscious or drowsy. Get immediate medical attention by calling a Poison Control Center, or hospital emergency room. If medical advice cannot be obtained, then take the person and product to the nearest medical emergency treatment center or hospital.

First Aid: Inhalation

If symptoms of exposure develop, remove to fresh air. If breathing becomes difficult, administer oxygen. Administer artificial respiration if breathing has stopped. Seek immediate medical attention.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.

Highly flammable liquid and vapor. Keep away from heat and all sources of ignition including sparks, flames, lighted cigarettes and pilot lights. Containers may rupture or explode in the heat of a fire. Vapors are heavier than air and may travel to a remote ignition source and flash back. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

Hazardous Combustion Products

Combustion will produce toxic and irritating vapors including carbon monoxide, carbon dioxide and hydrogen chloride.

Extinguishing Media

Use dry chemical, CO2, or foam to extinguish fire. Cool fire exposed container with water. Water may be ineffective as an extinguishing agent.

Unsuitable Extinguishing Media

None.

Fire Fighting Equipment/Instructions

Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for fires in areas where chemicals are used or stored.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Stop leak if it can be done without risk.

Materials and Methods for Clean-Up

Remove all sources of ignition and ventilate area. Soak up spill with an inert absorbent such as sand, earth or other noncombusting material. Put absorbent material in covered, labeled metal containers.

Emergency Measures

Isolate area. Keep unnecessary personnel away.

Personal Precautions and Protective Equipment

Personnel cleaning up the spill should wear appropriate personal protective equipment, including respirators if vapor concentrations are high.

Environmental Precautions

Prevent liquid from entering watercourses, sewers and natural waterways.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Avoid contact with eyes, skin and clothing. Avoid breathing vapors or mists. Use with adequate ventilation (equivalent to outdoors). Wash thoroughly after handling. Do not eat, drink or smoke in the work area. Keep product away from heat, sparks, flames and all other sources of ignition. No smoking in storage or use areas. Keep containers closed when not in use. "Empty" containers retain product residue and can be hazardous. Follow all SDS precautions in handling empty containers. Do not cut or weld on or near empty or full containers.

Storage Procedures

Store in a cool, dry, well-ventilated area away from incompatible materials. Keep containers closed when not in use.

Incompatibilities

Oxidizing agents, alkalis, amines, ammonia, acids, chlorine compounds, chlorinated inorganics (potassium, calcium and sodium hypochlorite) and hydrogen peroxides. May attack plastic, resins and rubber.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Acetone (67-64-1)

ACGIH: 500 ppm TWA
750 ppm STEL
OSHA: 1000 ppm TWA; 2400 mg/m3 TWA
NIOSH: 250 ppm TWA; 590 mg/m3 TWA

Methyl ethyl ketone (78-93-3)

ACGIH: 200 ppm TWA
300 ppm STEL
OSHA: 200 ppm TWA; 590 mg/m3 TWA
NIOSH: 200 ppm TWA; 590 mg/m3 TWA
300 ppm STEL; 885 mg/m3 STEL

Cyclohexanone (108-94-1)

ACGIH: 20 ppm TWA
50 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 50 ppm TWA; 200 mg/m3 TWA
NIOSH: 25 ppm TWA; 100 mg/m3 TWA
Potential for dermal absorption

Tetrahydrofuran (109-99-9)

ACGIH: 50 ppm TWA
100 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 200 ppm TWA; 590 mg/m3 TWA
NIOSH: 200 ppm TWA; 590 mg/m3 TWA
250 ppm STEL; 735 mg/m3 STEL

Engineering Measures

Open doors & windows. Provide ventilation capable of maintaining emissions at the point of use below recommended exposure limits. If used in enclosed area, use exhaust fans. Exhaust fans should be explosion-proof or set up in a way that flammable concentrations of solvent vapors are not exposed to electrical fixtures or hot surfaces.

Personal Protective Equipment: Respiratory

For operations where the exposure limit may be exceeded, a NIOSH approved organic vapor respirator or supplied air respirator is recommended. Equipment selection depends on contaminant type and concentration, select in accordance with 29 CFR 1910.134 and good industrial hygiene practice. For firefighting, use self-contained breathing apparatus.

Personal Protective Equipment: Hands

Rubber gloves are suitable for normal use of the product. For long exposures chemical resistant gloves may be required such as 4H(tm) or Silver Shield(tm) to avoid prolonged skin contact.

Personal Protective Equipment: Eyes

Safety glasses with side shields or safety goggles.

Personal Protective Equipment: Skin and Body

No additional protective equipment needed.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Purple or clear	**Odor:**	Ether-like
Physical State:	Liquid	**pH:**	NA
Vapor Pressure:	145 mmHg @ 20°C	**Vapor Density:**	2.5
Boiling Point:	151°F (66°C)	**Melting Point:**	NA
Solubility (H2O):	Negligible	**Specific Gravity:**	0.84 +/- 0.02 @ 20°C
Evaporation Rate:	(BUAC = 1) = 5.5 - 8.0	**VOC:**	99.96%
Octanol/H2O Coeff.:	ND	**Flash Point:**	14-23°F (-10 to -5°C)
Flash Point Method:	CCCFP	**Upper Flammability Limit (UFL):**	11.8
Lower Flammability Limit (LFL):	1.8	**Burning Rate:**	ND
Auto Ignition:	ND		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid heat, sparks, flames and other sources of ignition.

Incompatible Products

Oxidizing agents, alkalis, amines, ammonia, acids, chlorine compounds, chlorinated inorganics (potassium, calcium and sodium hypochlorite) and hydrogen peroxides. May attack plastic, resins and rubber.

Hazardous Decomposition Products

Combustion will produce toxic and irritating vapors including carbon monoxide, carbon dioxide and hydrogen chloride.

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

Component Analysis - LD50/LC50

Acetone (67-64-1)
Oral LD50 Rat 5800 mg/kg

Methyl ethyl ketone (78-93-3)
Inhalation LC50 Mouse 32 g/m3 4 h; Oral LD50 Rat 2737 mg/kg; Dermal LD50 Rabbit 6480 mg/kg

Cyclohexanone (108-94-1)
Inhalation LC50 Rat 10.7 mg/L 4 h; Inhalation LC50 Rat 8000 ppm 4 h; Oral LD50 Rat 800 mg/kg; Dermal LD50 Rabbit 948 mg/kg

Tetrahydrofuran (109-99-9)
Inhalation LC50 Rat 53.9 mg/L 4 h; Inhalation LC50 Rat 180 mg/L 1 h; Oral LD50 Rat 1650 mg/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

May cause irritation with redness, itching and pain. Methyl ethyl ketone and cyclohexanone may be absorbed through the skin causing effects similar to those listed under inhalation.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Vapors may cause irritation. Direct contact may cause irritation with redness, stinging and tearing of the eyes. May cause eye damage.

Potential Health Effects: Ingestion

Swallowing may cause abdominal pain, nausea, vomiting and diarrhea. Aspiration during swallowing or vomiting can cause chemical pneumonia and lung damage. May cause kidney and liver damage.

Potential Health Effects: Inhalation

Vapors or mists may cause mucous membrane and respiratory irritation, coughing, headache, dizziness, dullness, nausea, shortness of breath and vomiting. High concentrations may cause central nervous system depression, narcosis and unconsciousness. May cause kidney, liver and lung damage.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

Cyclohexanone has been positive in bacterial and mammalian assays. Acetone, methyl ethyl ketone and tetrahydrofuran are generally thought not to be mutagenic.

Carcinogenicity

A: General Product Information

In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure.

B: Component Carcinogenicity

Acetone (67-64-1)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

Cyclohexanone (108-94-1)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
IARC: Monograph 71 [1999]; Monograph 47 [1989] (Group 3 (not classifiable))

Tetrahydrofuran (109-99-9)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

Reproductive Toxicity

Methyl ethyl ketone and cyclohexanone have been shown to cause embryofetal toxicity and birth defects in laboratory animals. Acetone and tetrahydrofuran has been found to cause adverse developmental effects only when exposure levels cause other toxic effects to the mother.

Specified Target Organ General Toxicity: Single Exposure

May cause respiratory irritation. Inhalation of high concentrations may cause central nervous system depression, narcosis and unconsciousness. May cause kidney, liver and lung damage.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

Aspiration during swallowing or vomiting can cause chemical pneumonia and lung damage. May cause kidney and liver damage.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

This product is not expected to be toxic to aquatic organisms.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Acetone (67-64-1)

Test & Species		Conditions
96 Hr LC50 Oncorhynchus mykiss	4.74 - 6.33 mL/L	
96 Hr LC50 Pimephales promelas	6210 - 8120 mg/L [static]	
96 Hr LC50 Lepomis macrochirus	8300 mg/L	
48 Hr EC50 Daphnia magna	10294 - 17704 mg/L [Static]	
48 Hr EC50 Daphnia magna	12600 - 12700 mg/L	

Methyl ethyl ketone (78-93-3)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	3130-3320 mg/L [flow-through]	
48 Hr EC50 Daphnia magna	>520 mg/L	
48 Hr EC50 Daphnia magna	5091 mg/L	
48 Hr EC50 Daphnia magna	4025 - 6440 mg/L [Static]	

Cyclohexanone (108-94-1)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	481-578 mg/L [flow-through]	
96 Hr LC50 Pimephales promelas	8.9 mg/L	
96 Hr EC50 Chlorella vulgaris	20 mg/L	
24 Hr EC50 Daphnia magna	800 mg/L	

Tetrahydrofuran (109-99-9)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	1970-2360 mg/L [flow-through]	
96 Hr LC50 Pimephales promelas	2700-3600 mg/L [static]	
24 Hr EC50 Daphnia magna	5930 mg/L	

Persistence/Degradability

No information available for the product.

Bioaccumulation

No information available for the product.

Mobility in Soil

No information available for the product.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

DOT Information

For Greater than 1 liter (0.3 gal):
Shipping Name: Flammable Liquid, n.o.s (Methyl Ethyl Ketone, Acetone)
UN #: 1993 **Hazard Class:** 3 **Packing Group:** II
Required Label(s): Flammable Liquid

For Less than 1 liter (0.3 gal):
Shipping Name: Consumer Commodity, ORM-D

IMDG Information

For Greater than 1 liter (0.3 gal):
Shipping Name: Flammable Liquid, n.o.s (Methyl Ethyl Ketone, Acetone)
UN #: 1993 **Hazard Class:** 3 **Packing Group:** II
Required Label(s): Flammable Liquid

For Less than 1 liter (0.3 gal):
Shipping Name: Flammable Liquid, n.o.s (Limited Quantity)
UN #: 1993 **Hazard Class:** 3 **Packing Group:** II

Required Label(s): None (Limited Quantities are expected from labeling)

* * * Section 15 - Regulatory Information * * *

Regulatory Information

US Federal Regulations

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Acetone (67-64-1)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

Methyl ethyl ketone (78-93-3)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

Cyclohexanone (108-94-1)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

Tetrahydrofuran (109-99-9)

CERCLA: 1000 lb final RQ; 454 kg final RQ

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Acetone	67-64-1	Yes	Yes	Yes	Yes	Yes	No
Methyl ethyl ketone	78-93-3	Yes	Yes	Yes	Yes	Yes	No
Cyclohexanone	108-94-1	Yes	Yes	Yes	Yes	Yes	No
Tetrahydrofuran	109-99-9	Yes	Yes	Yes	Yes	Yes	No

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Acetone	67-64-1	1 %
Methyl ethyl ketone	78-93-3	1 %
Cyclohexanone	108-94-1	0.1 %
Tetrahydrofuran	109-99-9	1 %

Additional Regulatory Information

A: General Product Information

This product contains trace amounts of chemicals known to the State of California to cause cancer. Under normal use conditions, exposure to these chemicals at levels above the State of California "No Significant Risk Level" (NSRL) are unlikely. The use of proper personal protective equipment (PPE) and ventilation guidelines noted in Section 8 will minimize exposure to these chemicals.

B: Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Acetone	67-64-1	Yes	DSL	EINECS
Methyl ethyl ketone	78-93-3	Yes	DSL	EINECS
Cyclohexanone	108-94-1	Yes	DSL	EINECS
Tetrahydrofuran	109-99-9	Yes	DSL	EINECS

* * * Section 16 - Other Information * * *

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Literature References

None

Other Information

NFPA and HMIS:
NFPA Hazard Signal: Health: 2 Flammability: 3 Reactivity: 1 Special: None
HMIS Hazard Signal: Health: 2* Flammability: 3 Reactivity: 1 PPE: G

Disclaimer:
The information herein has been compiled from sources believed to be reliable, up-to-date, and is accurate to the best of our knowledge. However, we cannot give any guarantees regarding information from other sources, and expressly do not make warranties, nor assume any liability for its use.

End of Sheet

Material Name: OATEY PVC HEAVY DUTY CLEAR or GRAY CEMENT - LO-VOC FORMULA

* * * Section 1 - Product and Company Identification * * *

MSDS #1102E

Part Numbers: Clear 30850, 30863, 30876(TV), 30882, 31008(TV), 31011, 31950, 31951, 31952, 31953
Gray 30349, 31093, 31094, 31095, 31105, 31118, 31978, 31979, 31980, 31981, 32050, 32051, 32052, 32210, 32211

Manufacturer Information

Oatey Co.
4700 West 160th Street
Cleveland, OH 44135

Phone: 216-267-7100

For Emergency First Aid call 1-877-740-5015. For chemical transportation emergencies ONLY, call Chemtrec at 1-800-424-9300. Outside the U.S. 1- 703-527-3887.

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Liquids - Category 2
Acute Toxicity Oral - Category 4
Acute Toxicity Dermal - Category 4
Acute Toxicity Inhalation - Category 4
Eye Damage/Irritation - Category 2A
Carcinogenicity - Category 2
Specific Target Organ Toxicity Single Exposure - Category 3

GHS LABEL ELEMENTS

Symbol(s)

Signal Word

Danger

Hazard Statements

Highly flammable liquid and vapor.
Harmful if swallowed.
Harmful in contact with skin.
Harmful if inhaled.
Causes serious eye irritation.
Contains a chemical classified by the US EPA as a suspected possible carcinogen.
May cause respiratory irritation.
May cause drowsiness or dizziness.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames and hot surfaces. - No smoking.
Keep container tightly closed.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/eye protection/face protection.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid breathing fume/gas/mist/vapors.
Use only outdoors or in a well-ventilated area.

Response

If on skin (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
If swallowed: Call a poison center or doctor/physician if you feel unwell. Rinse mouth. Do not induce vomiting.
If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.
If exposed or concerned: Get medical advice/attention.
In case of fire: Use dry chemical, CO2, or foam to extinguish fire.

Storage

Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
109-99-9	Tetrahydrofuran	40-60
108-94-1	Cyclohexanone	10-25
67-64-1	Acetone	10-25
9002-86-2	PVC (Chloroethylene, polymer)	12-20
78-93-3	Methyl ethyl ketone	5-15
112945-52-5	Silica, amorphous, fumed, crystalline-free	1-4

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

If material gets into eyes or if fumes cause irritation, immediately flush eyes with plenty of water until chemical is removed. If irritation persists, get medical attention immediately.

First Aid: Skin

Remove contaminated clothing immediately. Wash all exposed areas with soap and water. Get medical attention if irritation develops. Remove dried cement with hand cleaner or baby oil.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Rinse mouth with water. Never give anything by mouth to a person who is unconscious or drowsy. Get immediate medical attention by calling a Poison Control Center, or hospital emergency room. If medical advice cannot be obtained, then take the person and product to the nearest medical emergency treatment center or hospital.

First Aid: Inhalation

If symptoms of exposure develop, remove to fresh air. If breathing becomes difficult, administer oxygen. Administer artificial respiration if breathing has stopped. Seek immediate medical attention.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.

Highly flammable liquid and vapor. Keep away from heat and all sources of ignition including sparks, flames, lighted cigarettes and pilot lights. Containers may rupture or explode in the heat of a fire. Vapors are heavier than air and may travel to a remote ignition source and flash back. This product contains tetrahydrofuran that may form explosive organic peroxide when exposed to air or light or with age.

Hazardous Combustion Products

Combustion will produce toxic and irritating vapors including carbon monoxide, carbon dioxide and hydrogen chloride.

Extinguishing Media

Use dry chemical, CO2, or foam to extinguish fire. Cool fire exposed container with water. Water may be ineffective as an extinguishing agent.

Unsuitable Extinguishing Media

None.

Fire Fighting Equipment/Instructions

Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for fires in areas where chemicals are used or stored.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Stop leak if it can be done without risk.

Materials and Methods for Clean-Up

Remove all sources of ignition and ventilate area. Soak up spill with an inert absorbent such as sand, earth or other non-combusting material. Put absorbent material in covered, labeled metal containers.

Emergency Measures

Isolate area. Keep unnecessary personnel away.

Personal Precautions and Protective Equipment

Personnel cleaning up the spill should wear appropriate personal protective equipment, including respirators if vapor concentrations are high.

Environmental Precautions

Prevent liquid from entering watercourses, sewers and natural waterways.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Avoid contact with eyes, skin and clothing. Avoid breathing vapors or mists. Use with adequate ventilation (equivalent to outdoors). Wash thoroughly after handling. Do not eat, drink or smoke in the work area. Keep product away from heat, sparks, flames and all other sources of ignition. No smoking in storage or use areas. Keep containers closed when not in use. Other: "Empty" containers retain product residue and can be hazardous. Follow all SDS precautions in handling empty containers. Do not cut or weld on or near empty or full containers.

Storage Procedures

Store in a cool, dry, well-ventilated area away from incompatible materials. Keep containers closed when not in use.

Incompatibilities

Oxidizing agents, alkalis, amines, ammonia, acids, chlorine compounds, chlorinated inorganics (potassium, calcium and sodium hypochlorite) and hydrogen peroxides. May attack plastic, resins and rubber.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Tetrahydrofuran (109-99-9)

ACGIH: 50 ppm TWA
100 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 200 ppm TWA; 590 mg/m3 TWA
NIOSH: 200 ppm TWA; 590 mg/m3 TWA
250 ppm STEL; 735 mg/m3 STEL

Cyclohexanone (108-94-1)

ACGIH: 20 ppm TWA
50 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 50 ppm TWA; 200 mg/m3 TWA
NIOSH: 25 ppm TWA; 100 mg/m3 TWA
Potential for dermal absorption

Acetone (67-64-1)

ACGIH: 500 ppm TWA
750 ppm STEL
OSHA: 1000 ppm TWA; 2400 mg/m3 TWA
NIOSH: 250 ppm TWA; 590 mg/m3 TWA

PVC (Chloroethylene, polymer) (9002-86-2)

ACGIH: 1 mg/m3 TWA (respirable fraction)

Methyl ethyl ketone (78-93-3)

ACGIH: 200 ppm TWA
300 ppm STEL
OSHA: 200 ppm TWA; 590 mg/m3 TWA
NIOSH: 200 ppm TWA; 590 mg/m3 TWA
300 ppm STEL; 885 mg/m3 STEL

Material Name: OATEY PVC HEAVY DUTY CLEAR or GRAY CEMENT - LO-VOC FORMULA

Engineering Measures

Open doors & windows. Provide ventilation capable of maintaining emissions at the point of use below recommended exposure limits. If used in enclosed area, use exhaust fans. Exhaust fans should be explosion-proof or set up in a way that flammable concentrations of solvent vapors are not exposed to electrical fixtures or hot surfaces.

Personal Protective Equipment: Respiratory

For operations where the exposure limit may be exceeded, a NIOSH approved organic vapor respirator or supplied air respirator is recommended. Equipment selection depends on contaminant type and concentration, select in accordance with 29 CFR 1910.134 and good industrial hygiene practice. For firefighting, use self-contained breathing apparatus.

Personal Protective Equipment: Hands

Rubber gloves are suitable for normal use of the product. For long exposures chemical resistant gloves may be required such as 4H(tm) or Silver Shield(tm) to avoid prolonged skin contact.

Personal Protective Equipment: Eyes

Safety glasses with side shields or safety goggles.

Personal Protective Equipment: Skin and Body

No additional protective equipment needed.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Clear or Gray	**Odor:**	Ether-like
Physical State:	Liquid	**pH:**	NA
Vapor Pressure:	145 mmHg @ 20°C	**Vapor Density:**	2.5
Boiling Point:	151°F (66°C)	**Melting Point:**	NA
Solubility (H2O):	Negligible	**Specific Gravity:**	0.94 +/- 0.02 @ 20°C
Evaporation Rate:	(BUAC = 1) = 5.5 - 8.0	**VOC:**	80-84% Maximum 510 g/L per SCAQMD Test Method 316A.
Octanol/H2O Coeff.:	ND	**Flash Point:**	14-23°F (-10 to -5°C)
Flash Point Method:	CCCFP	**Upper Flammability Limit (UFL):**	11.8
Lower Flammability Limit (LFL):	1.8	**Burning Rate:**	ND
Auto Ignition:	ND		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid heat, sparks, flames and other sources of ignition.

Incompatible Products

Oxidizing agents, alkalis, amines, ammonia, acids, chlorine compounds, chlorinated inorganics.

Hazardous Decomposition Products

Combustion will produce toxic and irritating vapors including carbon monoxide, carbon dioxide and hydrogen chloride.

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

Component Analysis - LD50/LC50

Tetrahydrofuran (109-99-9)
Inhalation LC50 Rat 53.9 mg/L 4 h; Inhalation LC50 Rat 180 mg/L 1 h; Oral LD50 Rat 1650 mg/kg

Cyclohexanone (108-94-1)
Inhalation LC50 Rat 10.7 mg/L 4 h; Inhalation LC50 Rat 8000 ppm 4 h; Oral LD50 Rat 800 mg/kg; Dermal LD50 Rabbit 948 mg/kg

Acetone (67-64-1)
Oral LD50 Rat 5800 mg/kg

Methyl ethyl ketone (78-93-3)
Inhalation LC50 Mouse 32 g/m3 4 h; Oral LD50 Rat 2737 mg/kg; Dermal LD50 Rabbit 6480 mg/kg

Silica, amorphous, fumed, crystalline-free (112945-52-5)
Oral LD50 Rat 3160 mg/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

May cause irritation with redness, itching and pain. Methyl ethyl ketone and cyclohexanone may be absorbed through the skin causing effects similar to those listed under inhalation.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Vapors may cause irritation. Direct contact may cause irritation with redness, stinging and tearing of the eyes. May cause eye damage.

Potential Health Effects: Ingestion

Swallowing may cause abdominal pain, nausea, vomiting and diarrhea. Aspiration during swallowing or vomiting can cause chemical pneumonia and lung damage. May cause kidney and liver damage.

Potential Health Effects: Inhalation

Vapors or mists may cause mucous membrane and respiratory irritation, coughing, headache, dizziness, dullness, nausea, shortness of breath and vomiting. High concentrations may cause central nervous system depression, narcosis and unconsciousness. May cause kidney, liver and lung damage.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

Cyclohexanone has been positive in bacterial and mammalian assays. Acetone, methyl ethyl ketone and tetrahydrofuran are generally thought not to be mutagenic.

Carcinogenicity

A: General Product Information

In 2012 USEPA Integrated Risk Information System (IRIS) reviewed a two species inhalation lifetime study on THF conducted by NTP (1998). Male rats developed renal tumors and female mice developed liver tumors while neither the female rats nor the male mice showed similar results. Because the carcinogenic mechanisms could not be identified clearly in either species for either tumor, the EPA determined that the male rat and female mouse findings are relevant to the assessment of carcinogenic potential in humans. Therefore, the IRIS review concludes that these data in aggregate indicate that there is "suggestive evidence of carcinogenic potential" following exposure to THF by all routes of exposure.

B: Component Carcinogenicity

Tetrahydrofuran (109-99-9)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

Cyclohexanone (108-94-1)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
IARC: Monograph 71 [1999]; Monograph 47 [1989] (Group 3 (not classifiable))

Acetone (67-64-1)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

PVC (Chloroethylene, polymer) (9002-86-2)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Supplement 7 [1987]; Monograph 19 [1979] (Group 3 (not classifiable))

Silica, amorphous, fumed, crystalline-free (112945-52-5)

IARC: Monograph 68 [1997] (listed under Amorphous silica) (Group 3 (not classifiable))

Reproductive Toxicity

Methyl ethyl ketone and cyclohexanone have been shown to cause embryofetal toxicity and birth defects in laboratory animals. Acetone and tetrahydrofuran has been found to cause adverse developmental effects only when exposure levels cause other toxic effects to the mother.

Specified Target Organ General Toxicity: Single Exposure

May cause respiratory irritation. Inhalation of high concentrations may cause central nervous system depression, narcosis and unconsciousness. May cause kidney, liver and lung damage.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

Aspiration during swallowing or vomiting can cause chemical pneumonia and lung damage. May cause kidney and liver damage.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

This product is not expected to be toxic to aquatic organisms.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Tetrahydrofuran (109-99-9)

Test & Species	Conditions

96 Hr LC50 Pimephales promelas	1970-2360 mg/L [flow-through]
96 Hr LC50 Pimephales promelas	2700-3600 mg/L [static]
24 Hr EC50 Daphnia magna	5930 mg/L

Cyclohexanone (108-94-1)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	481-578 mg/L [flow-through]
96 Hr LC50 Pimephales promelas	8.9 mg/L
96 Hr EC50 Chlorella vulgaris	20 mg/L
24 Hr EC50 Daphnia magna	800 mg/L

Acetone (67-64-1)

Test & Species	Conditions
96 Hr LC50 Oncorhynchus mykiss	4.74 - 6.33 mL/L
96 Hr LC50 Pimephales promelas	6210 - 8120 mg/L [static]
96 Hr LC50 Lepomis macrochirus	8300 mg/L
48 Hr EC50 Daphnia magna	10294 - 17704 mg/L [Static]
48 Hr EC50 Daphnia magna	12600 - 12700 mg/L

Methyl ethyl ketone (78-93-3)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	3130-3320 mg/L [flow-through]
48 Hr EC50 Daphnia magna	>520 mg/L
48 Hr EC50 Daphnia magna	5091 mg/L
48 Hr EC50 Daphnia magna	4025 - 6440 mg/L [Static]

Persistence/Degradability

No information available for the product.

Bioaccumulation

No information available for the product.

Mobility in Soil

No information available for the product.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

US EPA Waste Number & Descriptions

Component Waste Numbers

Tetrahydrofuran (109-99-9)
RCRA: waste number U213 (Ignitable waste)

Cyclohexanone (108-94-1)
RCRA: waste number U057 (Ignitable waste)

Acetone (67-64-1)
RCRA: waste number U002 (Ignitable waste)

Methyl ethyl ketone (78-93-3)
RCRA: waste number U159 (Ignitable waste, Toxic waste)
200.0 mg/L regulatory level

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

DOT Information

For Greater than 1 liter (0.3 gal):
Shipping Name: Adhesives
UN #: 1133 **Hazard Class:** 3 **Packing Group:** II
Required Label(s): Flammable Liquid

For Less than 1 liter (0.3 gal):
Shipping Name: Consumer Commodity, ORM-D

IMDG Information

For Greater than 1 liter (0.3 gal):
Shipping Name: Adhesives
UN #: 1133 **Hazard Class:** 3 **Packing Group:** II
Required Label(s): Flammable Liquid

For Less than 1 liter (0.3 gal):
Shipping Name: Adhesives
UN #: 1133 **Hazard Class:** 3 **Packing Group:** II
Required Label(s): None (Limited Quantites are expected from labeling)

* * * Section 15 - Regulatory Information * * *

Regulatory Information

US Federal Regulations

Material Name: OATEY PVC HEAVY DUTY CLEAR or GRAY CEMENT - LO-VOC FORMULA

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Tetrahydrofuran (109-99-9)

CERCLA: 1000 lb final RQ; 454 kg final RQ

Cyclohexanone (108-94-1)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

Acetone (67-64-1)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

Methyl ethyl ketone (78-93-3)

CERCLA: 5000 lb final RQ; 2270 kg final RQ

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Tetrahydrofuran	109-99-9	Yes	Yes	Yes	Yes	Yes	No
Cyclohexanone	108-94-1	Yes	Yes	Yes	Yes	Yes	No
Acetone	67-64-1	Yes	Yes	Yes	Yes	Yes	No
PVC (Chloroethylene, polymer)	9002-86-2	No	No	No	Yes	No	No
Methyl ethyl ketone	78-93-3	Yes	Yes	Yes	Yes	Yes	No

This product contains trace amounts of chemicals known to the State of California to cause cancer. Under normal use conditions, exposure to these chemicals at levels above the State of California "No Significant Risk Level" (NSRL) are unlikely. The use of proper personal protective equipment (PPE) and ventilation guidelines noted in Section 8 will minimize exposure to these chemicals.

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Tetrahydrofuran	109-99-9	1 %
Cyclohexanone	108-94-1	0.1 %
Acetone	67-64-1	1 %
Methyl ethyl ketone	78-93-3	1 %

Additional Regulatory Information

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Tetrahydrofuran	109-99-9	Yes	DSL	EINECS
Cyclohexanone	108-94-1	Yes	DSL	EINECS
Acetone	67-64-1	Yes	DSL	EINECS
PVC (Chloroethylene, polymer)	9002-86-2	Yes	DSL	ELINCS
Methyl ethyl ketone	78-93-3	Yes	DSL	EINECS
Silica, amorphous, fumed, crystalline-free	112945-52-5	No	DSL	No

* * * Section 16 - Other Information * * *

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Literature References

None

Other Information

NFPA and HMIS:
NFPA Hazard Signal: Health: 2 Flammability: 3 Reactivity: 1 Special: None
HMIS Hazard Signal: Health: 2* Flammability: 3 Reactivity: 1 PPE: G

Disclaimer:
The information herein has been compiled from sources believed to be reliable, up-to-date, and is accurate to the best of our knowledge. However, we cannot give any guarantees regarding information from other sources, and expressly do not make warranties, nor assume any liability for its use.

End of Sheet

Attachment 7 (cont'd)
S S Sheet

MATERIAL SAFETY DATA SHEET

Geocel

Date Issued: 08/03/2007
MSDS No: 68101
Date Revised: 03/07/2008
Revision No: 2

3300 Colors

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3300 Colors

MANUFACTURER

Geocel Corporation
P.O. Box 398
Elkhart IN 46515-0398
Product Stewardship: 574-264-0645

24 HR. EMERGENCY TELEPHONE NUMBERS

ChemTel - 800-255-3924

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE CONCERNS: This product is irritating to the eyes and skin. Thermal decomposition/burning may produce toxic gases and fume. Closed containers may rupture when exposed to high temperatures, or when the product has been contaminated with water.

Avoid breathing hot mists and vapors. This product contains a respiratory and skin sensitizer. Causes respiratory tract irritation and may cause allergic respiratory reaction. May cause permanent respiratory damage. Product vapors are potentially irritating to skin. May cause allergic skin reaction and dermatitis.

POTENTIAL HEALTH EFFECTS

EYES: This product may cause irritation to the eyes. May cause temporary corneal injury.

SKIN: Skin contact may cause irritation. Isocyanates may react with skin protein and moisture to cause itching, reddening, swelling, scaling or blistering. Individuals previously sensitized to this material may experience these sysptoms from exposure to very small amounts of liquid or vapor.

INGESTION: May cause irritation and corrosive action in the mouth, throat and digestive tract.

INHALATION: Single large does, and/or repeated exposures, may lead to sensitization to diisocyanates or polyisocyanates (asthma or asthma-like symptoms), causing an individual to experience adverse effects at exposure levels well below exposure limits or guidelines. Symptoms may include chest tightness, wheezing, shortness of breath, coughing or asthmatic attack, and may be delayed up to several hours. Extreme asthmatic reactions can be life threatening. Once sensitized, an individual may experience adverse symptoms upon exposure to dust, cold air or other irritants. Sensitization can last several months, years or be permanent in some cases.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Visual effects may include eye irritation, blurred vision, diplopia, changes in color perception, restricition of visual fields, and complete blindness.

SKIN: Irritation of the skin.

INGESTION: Diarrhea.

INHALATION: Irritation of upper respiratory tract, asthmatic symptoms, chest tightness, breathing difficulty, coughing, short throat.

TARGET ORGAN STATEMENT: The lungs and skin may be targeted and damaged by components of the product. Eyes.

HEALTH HAZARDS: This product contains Methylene Diphenyl Isocyanate (MDI) which is a potential skin sensitizer and has been shown to alter cells in certain experiments. Although inconclusive, these cellular changes are thought to indicate potential carcinogenicity. Risk to your health depends on duration and concentration of exposure.

COMMENTS: Signs and symptoms of overexposure to this product include headache, irritation of upper respiratory tract, asthmatic symptoms, chest tightness, breathing difficulty, coughing, dizziness, weakness, fatigue, eye irritation, skin irritation, diarrhea.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Attachment 7 (cont'd)
S S Sheet

Chemical Name	Wt.%	CAS	EINECS
Xylenes (o-,m-,p- Isomers)	1 - 5	001330-20-7	215-535-7
Ethyl Benzene	0.5 - 1.5	000100-41-4	- -
Methylene Disphenyl Isocyanate	0.1 - 1	000101-68-8	202-966-0

4. FIRST AID MEASURES

EYES: Immediately flush with plenty of water for at least 15 minutes. Get medical attention or advice.

SKIN: Remove contaminated clothing to prevent further skin exposure and dispose of properly. In situations involving considerable skin contact, place the contaminated person in a deluge shower for at least 15 minutes. For minor exposures, wash thoroughly with soap and clean water. Get medical attention if irritation persists.

INGESTION: If ingested, get immediate medical attention. Do not induce vomiting unless instructed to do so by medical personnel. Never give anything by mouth to a victim who is unconscious or is having convulsions.

INHALATION: Remove to fresh air. Get medical attention immediately for a large dose exposure or if cough or other symptoms develop. Administer oxygen or artifical respiration as needed.

NOTES TO PHYSICIAN: Treat symptomatically and supportively.
Eyes: Stain for evidence of corneal injury. If cornea is burned, apply antibiotic/steroid preparation as needed.
Skin: This product contains a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn.
Ingestion: Treat symptomatically.
Inhalation: This material contains a known pulmonary sensitizer.
Any individual experiencing dermal or pulmonary sensitization should be removed from exposure to any diisocyanate. May aggravate existing heart conditions, particularly those with abnormal heart rhythms. If overexposure to the solvents in this product is suspected, testing should include nervous system and brain effects including recent memory, mood, concentration, headaches and altered sleep patterns. Liver and kidney function should be evaluated. This material, if aspirated into the lungs, may cause chemical pneumonitis; treat the affected person appropriately.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: 74.4°C (166°F)

EXTINGUISHING MEDIA: Use dry chemical, carbon dioxide, or foam. Water spray (fog).

HAZARDOUS COMBUSTION PRODUCTS: Additional decomposition products include oxides of nitrogen, amines, hydrogen cyanide and isocyanate-containing compounds.

EXPLOSION HAZARDS: None known.

FIRE FIGHTING EQUIPMENT: Firefighters should wear full protective clothing including self contained breathing apparatus.

SENSITIVE TO STATIC DISCHARGE: Not known.

SENSITIVITY TO IMPACT: Not known.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Wearing the personal protective equipment designated in Section 8, carefully contain the spill and transfer to the appropriate container for disposal. Do not discharge to lakes, streams, ponds, or sewers. Dispose of in compliance with local, state, and federal regulations.

LARGE SPILL: Wearing the personal protective equipment designated in Section 8, carefully contain the spill and transfer to the appropriate container for disposal. Do not discharge to lakes, streams, ponds, or sewers. Dispose of in compliance with local, state, and federal regulations. Ventilate well while cleanup is in process and until fumes dissipate.

ENVIRONMENTAL PRECAUTIONS

WATER SPILL: Isolate spill area. Stop discharge if safe to do so. Stop material from entering sewers or water streams. Scrape up polyurethane and deposit into appropriate containers.

LAND SPILL: Isolate spill area. Stop discharge if safe to do so. Stop material from contaminating soil. Scrape up polyurethane and deposit into appropriate containers.

7. HANDLING AND STORAGE

Attachment 7 (cont'd)
S S Sheet

HANDLING: Wash hands thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities. Wash contaminated goggles, face shields, and gloves. Professionally launder contaminated clothing before re-use. Do not breathe vapors, mists or dusts. Do not breathe fumes generated when the material is overheated or burned. Use adequate ventilation. Wear respiratory protection if the material is heated, sprayed, used in a confined space or if exposure limit is exceeded. This product can produce asthmatic sensitization. Individuals with lung or breathing problems or prior allergic reactions to isocyanate must avoid fumes from this product. Wear appropriate protective equipment to avoid contact with skin and eyes.

STORAGE: Store in a cool, dry, well-ventilated area away from heat, ignition sources and direct sunlight. Water contamination should be avoided. Cool location should be 60-80 degrees F or 15-30 degrees C.

COMMENTS: Attention! Follow label warnings even after container is emptied since empty containers may retain product residues. Do not reuse empty container for food, clothing, or products for human or animal consumption, or where skin contact can occur.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)					
		EXPOSURE LIMITS			
		OSHA PEL		ACGIH TLV	
Chemical Name		**ppm**	**mg/m³**	**ppm**	**mg/m³**
Xylenes (o-,m-,p- Isomers)	**TWA**	100	435	100	434
	STEL			150	651
Ethyl Benzene	**TWA**	100	435	100	434
	STEL			125	543
Methylene Disphenyl Isocyanate	**TWA**			0.005	0.051

ENGINEERING CONTROLS: Use local exhaust or general ventilation where the potential exists to exceed the PEL or TLV exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Wear safety glasses with side shields or goggles when handling this material.

SKIN: Wear appropriate clothing to minimize skin contact with this product.

RESPIRATORY: Avoid breathing vapor and/or mists. If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection. High airborne concentrations may necessitate the use of self-contained breathing apparatus (SCBA) or a supplied air respirator.

OTHER USE PRECAUTIONS: Eyewash fountains and emergency showers should be readily available.

COMMENTS: Wash hands thoroughly after each use, especially before eating or smoking. Good personal hygiene practices should always be followed.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Paste

ODOR: Solvent

COLOR: Various

pH: Not Applicable

PERCENT VOLATILE: 4

FREEZING POINT: NA = Not Applicable

FLASHPOINT AND METHOD: 74.4°C (166°F)

DENSITY: 11.22

(VOC): 3.900 %

Attachment 7 (cont'd)
S S Sheet

10. STABILITY AND REACTIVITY

STABLE: Yes

HAZARDOUS POLYMERIZATION: Yes

STABILITY: This product is stable under normal conditions but will react slightly with water to release some heat and carbon dioxide. The reaction is not violent. Carbon dioxide, carbon monoxide and in high temperature (800°F) low oxygen atmospheres such as in fire situations, hydrogen cyanide may be released.

POLYMERIZATION: Hazardous polymerization can occur with elevated temperatures or contact with water.

CONDITIONS TO AVOID: Avoid strong acids. Avoid amines, strong bases, alcohols and metallic hydrides.

HAZARDOUS DECOMPOSITION PRODUCTS: Unknown due to the complex nature of this material. Fumes from complete or incomplete combustion may include carbon dioxide, carbon monoxide, water vapor, oxides of nitrogen and a wide variety of innocuous or toxic fumes. Additional decomposition products include oxides of nitrogen, amines, hydrogen cyanide and isocyanate-containing compounds.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: Irritating to the eyes.

SKIN EFFECTS: Irritating to the skin.

CARCINOGENICITY

Chemical Name	IARC Status
Ethyl Benzene	2B

Notes: This product contains Methylene Diphenyl Isocyanate (MDI). MDI is not listed by the NTP, IARC or regulated by OSHA as a carcinogen. However, it has been shown to alter cells in certain experiments. Although inconclusive, these cellular changes are thought to indicate potential carcinogenicity.

REPEATED DOSE EFFECTS: Single large does, and/or repeated exposures, may lead to sensitization to diisocyanates or polyisocyanates (asthma or asthma-like symptoms), causing an individual to experience adverse effects at exposure levels well below exposure limits or guidelines. Symptoms may include chest tightness, wheezing, shortness of breath, coughing or asthmatic attack, and may be delayed up to several hours. Extreme asthmatic reactions can be life threatening. Once sensitized, an individual may experience adverse symptoms upon exposure to dust, cold air or other irritants. Sensitization can last several months, years or be permanent in some cases. Chronic exposure may cause lung damage, including fibrosis and decreased lung function, which may be permanent.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Organic solvents produce slight to moderate toxicity to aquatic life. Insufficient data exists to evaluate the effect on plants, birds or land animals.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Part 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

OTHER SHIPPING INFORMATION: Generators must consult DOT laws and regulations to ensure the product is being transported appropriately.

COMMENTS: Not regulated as dangerous goods.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

Attachment 7 (cont'd)
S S Sheet

CFR Part 370 and is subject to the requirements of sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act of 1986:

FIRE: Yes **PRESSURE GENERATING:** No **REACTIVITY:** No **ACUTE:** Yes **CHRONIC:** Yes

313 REPORTABLE INGREDIENTS: This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and 40 CFR372. CAS #: 101-68-8 MDI, CAS #: 1330-20-7 Xylene and CAS #100-41-4 Ethyl Benzene.

EPCRA SECTION 313 SUPPLIER NOTIFICATION

Chemical Name	Wt.%	CAS
Xylenes (o-,m-,p- Isomers)	1 - 5	001330-20-7
Ethyl Benzene	0.5 - 1.5	000100-41-4

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

Chemical Name	Wt.%	CERCLA RQ
Xylenes (o-,m-,p- Isomers)	1 - 5	100
Ethyl Benzene	0.5 - 1.5	1,000
Methylene Disphenyl Isocyanate	0.1 - 1	5,000

TSCA (TOXIC SUBSTANCE CONTROL ACT)

Chemical Name	CAS
Xylenes (o-,m-,p- Isomers)	001330-20-7
Ethyl Benzene	000100-41-4
Methylene Disphenyl Isocyanate	000101-68-8

CALIFORNIA PROPOSITION 65: This product contains the following product on California's Proposition 65 List: CAS# 100-41-4 Ethyl Benzene.

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16. OTHER INFORMATION

PREPARED BY: Technical Staff

REVISION SUMMARY: Revision #: 2 This MSDS replaces the November 12, 2007 MSDS. Any changes in information are as follows: In Section 1 Approval Date

NFPA STORAGE CLASSIFICATION: Health 2, Flammability 2, Physical Hazard 0

HMIS RATINGS NOTES: Health 2, Flammability 2, Physical Hazard 0, PPE X

QUIKRETE

CEMENT & CONCRETE PRODUCTS™

MATERIAL SAFETY DATA SHEET

RAPID SETTING REPAIR MATERIALS

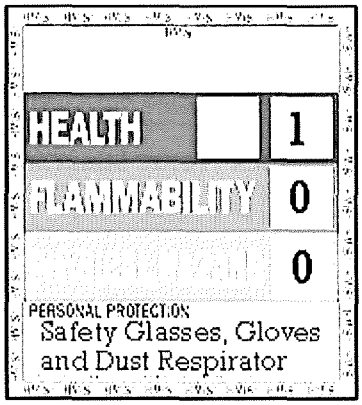
MATERIAL SAFETY DATA SHEET
(Complies with OSHA 29 CFR 1910.1200)

SECTION I: PRODUCT IDENTIFICATION

The QUIKRETE® Companies
One Securities Centre
3490 Piedmont Road, Suite 1300
Atlanta, GA 30329

Emergency Telephone Number
(770) 216-9580

Information Telephone Number
(770) 216-9580



MSDS D4
Revision: May-12

QUIKRETE® Product Name	Product #
RAPID ROAD REPAIR	FIBERED 1242-50, UN-FIBERED 1242-52 EXTENDED 1242-80
RAPID HARDENING SAND MIX	1243-50
HYDRAULIC WATER STOP	1126-00
QUICK SETTING CEMENT	1240-00
EXTERIOR USE ANCHORING CEMENT	1245-80, -81
FASTSET™ WATER-STOP CEMENT	1126-00

PRODUCT USE: HYDRAULIC CEMENT-BASED RAPID-SETTING REPAIR MATERIALS

SECTION II - HAZARD IDENTIFICATION

Route(s) of Entry: Inhalation, Skin, Ingestion
Acute Exposure: Product becomes alkaline when exposed to moisture. Exposure can dry the skin, cause alkali burns and affect the mucous membranes. Dust can irritate the eyes and upper respiratory system. Toxic effects noted in animals include, for acute exposures, alveolar damage with pulmonary edema.
Chronic Exposure: Dust can cause inflammation of the lining tissue of the interior of the nose and inflammation of the cornea. Hypersensitive individuals may develop an allergic dermatitis.
Carcinogenicity: Since Portland cement and blended cements are manufactured from raw materials mined from the earth (limestone, marl, sand, shale, etc.) and process heat is provided by burning fossil fuels, trace, but detectable, amounts of naturally occurring, and possibly harmful, elements may be found during chemical analysis. Under ASTM standards, Portland cement may contain 0.75 % insoluble residue. A fraction of these residues may be free crystalline silica. Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs and

possibly cancer. There is evidence that exposure to respirable silica or the disease silicosis is associated with an increased incidence of Scleroderma, tuberculosis and kidney disorders.

Carcinogenicity Listings:		
	NTP:	Known carcinogen
	OSHA:	Not listed as a carcinogen
	IARC Monographs:	Group 1 Carcinogen
	California Proposition 65:	Known carcinogen

NTP: The National Toxicology Program, in its "Ninth Report on Carcinogens" (released May 15, 2000) concluded that "Respirable crystalline silica (RCS), primarily quartz dusts occurring in industrial and occupational settings, is *known to be a human carcinogen*, based on sufficient evidence of carcinogenicity from studies in humans indicating a causal relationship between exposure to RCS and increased lung cancer rates in workers exposed to crystalline silica dust (reviewed in IAC, 1997; Brown *et al.*, 1997; Hind *et al.*, 1997)

IARC: The International Agency for Research on Cancer ("IARC") concluded that there was "*sufficient evidence* in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sources", and that there is "*sufficient evidence* in experimental animals for the carcinogenicity of quartz or cristobalite." The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is *carcinogenic to humans* (Group 1)." The IARC evaluation noted that "carcinogenicity was not detected in all industrial circumstances or studies. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." For further information on the IARC evaluation, see IARC Monographs on the Evaluation of carcinogenic Risks to Humans, Volume 68, "Silica, Some Silicates." (1997)

Signs and Symptoms of Exposure: Symptoms of excessive exposure to the dust include shortness of breath and reduced pulmonary function. Excessive exposure to skin and eyes especially when mixed with water can cause caustic burns as severe as third degree.

Medical Conditions Generally Aggravated by Exposure: Individuals with sensitive skin and with pulmonary and/or respiratory disease, including, but not limited to, asthma and bronchitis, or subject to eye irritation, should be precluded from exposure. Exposure to crystalline silica or the disease silicosis is associated with increased incidence of scleroderma, Tuberculosis and possibly increased incidence of kidney lesions.

Chronic Exposure: Dust can cause inflammation of the lining tissue of the interior of the nose and inflammation of the cornea. Hypersensitive individuals may develop an allergic dermatitis. (May contain trace (<0.05 %) amounts of chromium salts or compounds including hexavalent chromium, or other metals found to be hazardous or toxic in some chemical forms. These metals are mostly present as trace substitutions within the principal minerals)

Medical Conditions Generally Aggravated by Exposure: Individuals with sensitive skin and with pulmonary and/or respiratory disease, including, but not limited to, asthma and bronchitis, or subject to eye irritation, should be precluded from exposure.

QUIKRETE®

MATERIAL SAFETY DATA SHEET

CEMENT & CONCRETE PRODUCTS™

SECTION III - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components	CAS No.	PEL (OSHA) mg/M^3	TLV (ACGIH) mg/M^3
Silica Sand, crystalline	14808-60-7	$\frac{10}{\%SiO_2+2}$	0.05 (respirable)
Portland Cement	65997-15-1	5	5
May Contain one or more of the following ingredients:			
Amorphous Silica	07631-86-9	$\frac{80\ mg/M^3}{\%\ SiO_2}$	10
Calcium Sulfate	10101-41-4 or 13397-24-5	5	5
Lime	01305-62-0	5	5
Fly Ash	68131-74-8	5	5
Calcium Aluminate Cement	65997-16-2	5	5
Clay	01332-58-7	5	5
Pulverized Limestone	01317-65-3	5	5

Other Limits: National Institute for Occupational Safety and Health (NIOSH). Recommended standard maximum permissible concentration=0.05 mg/M^3 (respirable free silica) as determined by a full-shift sample up to 10-hour working day, 40-hour work week. See NIOSH Criteria for a Recommended Standard Occupational Exposure to Crystalline Silica

SECTION IV – First Aid Measures

Eyes: Immediately flush eye thoroughly with water. Continue flushing eye for at least 15 minutes, including under lids, to remove all particles. Call physician immediately.
Skin: Wash skin with cool water and pH-neutral soap or a mild detergent. Seek medical treatment if irritation or inflammation develops or persists. Seek immediate medical treatment in the event of burns.
Inhalation: Remove person to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration. Seek medical help if coughing and other symptoms do not subside. Inhalations of large amounts of Portland cement require immediate medical attention.
Ingestion: Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately.

SECTION V - FIRE AND EXPLOSION HAZARD DATA

Flammability: Noncombustible and not explosive.
Auto-ignition Temperature: Not Applicable
Flash Points: Not Applicable

QUIKRETE®

CEMENT & CONCRETE PRODUCTS™

MATERIAL SAFETY DATA SHEET

SECTION VI – ACCIDENTAL RELEASE MEASURES

If spilled, use dustless methods (vacuum) and place into covered container for disposal (if not contaminated or wet). Use adequate ventilation to keep exposure to airborne contaminants below the exposure limit.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND STORAGE

Do not allow water to contact the product until time of use. DO NOT BREATHE DUST. In dusty environments, the use of an OSHA, MSHA or NIOSH approved respirator and tight fitting goggles is recommended.

SECTION VIII – EXPOSURE CONTROL MEASURES

Engineering Controls: Local exhaust can be used, if necessary, to control airborne dust levels.

Personal Protection: The use of barrier creams or impervious gloves, boots and clothing to protect the skin from contact is recommended. Following work, workers should shower with soap and water. Precautions must be observed because burns occur with little warning -- little heat is sensed.

WARN EMPLOYEES AND/OR CUSTOMERS OF THE HAZARDS AND REQUIRED OSHA PRECAUTIONS ASSOCIATED WITH THE USE OF THIS PRODUCT.

Exposure Limits: Consult local authorities for acceptable exposure limits

SECTION IX - PHYSICAL/CHEMICAL CHARACTERISTICS

Appearance: Gray to gray-brown colored powder. Some products contain coarse aggregate.

Specific Gravity:	2.6 to 3.15	**Melting Point:**	>2700°F
Boiling Point:	>2700°F	**Vapor Pressure:**	Not Applicable
Vapor Density:	Not Applicable	**Evaporation Rate:**	Not Applicable
Solubility in Water:	Slight	**Odor:**	Not Applicable

SECTION X - REACTIVITY DATA

Stability: Stable.
Incompatibility (Materials to Avoid): Material when mixed with water will react with Aluminum and other alkali and alkaline earth elements liberating hydrogen gas.
Hazardous Decomposition or By-products: None
Hazardous Polymerization: Will Not Occur.
Condition to Avoid: Keep dry until used to preserve product utility.

QUIKRETE

MATERIAL SAFETY DATA SHEET

CEMENT & CONCRETE PRODUCTS™

SECTION XI – TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, Ingestion
Toxicity to Animals:
LD50: Not Available
LC50: Not Available
Chronic Effects on Humans: Conditions aggravated by exposure include eye disease, skin disorders and Chronic Respiratory conditions.
Special Remarks on Toxicity: Not Available

SECTION XII – ECOLOGICAL INFORMATION

Ecotoxicity: Not Available
BOD5 and COD: Not Available
Products of Biodegradation: Not available
Toxicity of the Products of Biodegradation: Not available
Special Remarks on the Products of Biodegradation: Not available

SECTION XIII – DISPOSAL CONSIDERATIONS

Waste Disposal Method: The packaging and material may be land filled; however, material should be covered to minimize generation of airborne dust. This product is not classified as a hazardous waste under the authority of the RCRA (40CFR 261) or CERCLA (40CFR 117&302).

SECTION XIV – TRANSPORT INFORMATION

DOT/UN Shipping Name: Non-regulated
DOT Hazard Class: Non-regulated
Shipping Name: Non-regulated
Non-Hazardous under U.S. DOT and TDG Regulations

SECTION XV – OTHER REGULATORY INFORMATION

US OSHA 29CFR 1910.1200: Considered hazardous under this regulation and should be included in the employers hazard communication program
SARA (Title III) Sections 311 & 312: Qualifies as a hazardous substance with delayed health effects
SARA (Title III) Section 313: Not subject to reporting requirements
TSCA (May 1997): All components are on the TSCA inventory list
Federal Hazardous Substances Act: Is a hazardous substance subject to statues promulgated under the subject act
California Regulation: WARNING: This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Canadian Environmental Protection Act: Not listed
WHMIS Classification: Considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class D2A, E- Corrosive Material) and subject to the requirements of Health Canada's Workplace Hazardous Material Information (WHMIS). This product has been classified according to the hazard criteria of the Controlled Products Regulation (CPR). This document complies with the WHMIS requirements of the Hazardous Products Act (HPA) and the CPR.

SECTION XVI – OTHER INFORMATION

HMIS-III:

Health –
0 = No significant health risk
1 = Irritation or minor reversible injury possible
2 = Temporary or minor injury possible
3 = Major injury possible unless prompt action is taken
4 = Life threatening, major or permanent damage possible

Flammability-
0 = Material will not burn
1 = Material must be preheated before ignition will occur
2 = Material must be exposed to high temperatures before ignition
3 = Material capable of ignition under normal temperatures
4 = Flammable gases or very volatile liquids; may ignite spontaneously

Physical Hazard-
0 = Material is normally stable, even under fire conditions
1 = Material normally stable but may become unstable at high temps
2 = Materials that are unstable and may undergo react at room temp
3 = Materials that may form explosive mixtures with water
4 = Materials that are readily capable of explosive water reaction

Abbreviations:

ACGIH	American Conference of Government Industrial Hygienists
CAS	Chemical Abstract Service
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act
CFR	Code of Federal Regulations
CPR	Controlled Products Regulations (Canada)
DOT	Department of Transportation
IARC	International Agency for Research
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicity Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
TLV	Threshold Limit Value
TWA	Time-weighted Average
WHMIS	Workplace Hazardous Material Information System

Revision #07-01, supersedes all previous revisions.

QUIKRETE®

MATERIAL SAFETY DATA SHEET

CEMENT & CONCRETE PRODUCTS™

Created: 10/25/2006
Last Updated: May 8, 2012

NOTE: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to silica contained in our products.

ATTACHMENT 2

LABORATORY ANALYTICAL REPORTS

Synergy Environmental Lab, INC.

1990 Prospect Ct., Appleton, WI 54914 *P 920-830-2455 * F 920-733-0631

WAYNE FASSBENDER
ENVIROFORENSICS
N16 W23390 STONE RIDGE DRIVE
WAUKESHA, WI 53188

Report Date *18-Sep-15*

Project Name WEST ALLIS OHM
Project # 6406.1D

Invoice # E29659

Lab Code 5029659A
Sample ID 6406-10710-SUMP
Sample Matrix Water
Sample Date 9/8/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
Benzene	< 0.44	ug/l	0.44	1.4	1	8260B		9/16/2015	CJR	1
Bromobenzene	< 0.48	ug/l	0.48	1.5	1	8260B		9/16/2015	CJR	1
Bromodichloromethane	< 0.46	ug/l	0.46	1.5	1	8260B		9/16/2015	CJR	1
Bromoform	< 0.46	ug/l	0.46	1.5	1	8260B		9/16/2015	CJR	1
tert-Butylbenzene	< 1.1	ug/l	1.1	3.4	1	8260B		9/16/2015	CJR	1
sec-Butylbenzene	< 1.2	ug/l	1.2	3.8	1	8260B		9/16/2015	CJR	1
n-Butylbenzene	< 1	ug/l	1	3.3	1	8260B		9/16/2015	CJR	1
Carbon Tetrachloride	< 0.51	ug/l	0.51	1.6	1	8260B		9/16/2015	CJR	1
Chlorobenzene	< 0.46	ug/l	0.46	1.4	1	8260B		9/16/2015	CJR	1
Chloroethane	< 0.65	ug/l	0.65	2.1	1	8260B		9/16/2015	CJR	1
Chloroform	< 0.43	ug/l	0.43	1.4	1	8260B		9/16/2015	CJR	1
Chloromethane	< 1.9	ug/l	1.9	6	1	8260B		9/16/2015	CJR	1
2-Chlorotoluene	< 0.4	ug/l	0.4	1.3	1	8260B		9/16/2015	CJR	1
4-Chlorotoluene	< 0.63	ug/l	0.63	2	1	8260B		9/16/2015	CJR	1
1,2-Dibromo-3-chloropropane	< 1.4	ug/l	1.4	4.5	1	8260B		9/16/2015	CJR	1
Dibromochloromethane	< 0.45	ug/l	0.45	1.4	1	8260B		9/16/2015	CJR	1
1,4-Dichlorobenzene	< 0.49	ug/l	0.49	1.6	1	8260B		9/16/2015	CJR	1
1,3-Dichlorobenzene	< 0.52	ug/l	0.52	1.6	1	8260B		9/16/2015	CJR	1
1,2-Dichlorobenzene	< 0.46	ug/l	0.46	1.5	1	8260B		9/16/2015	CJR	1
Dichlorodifluoromethane	< 0.87	ug/l	0.87	2.8	1	8260B		9/16/2015	CJR	1
1,2-Dichloroethane	< 0.48	ug/l	0.48	1.5	1	8260B		9/16/2015	CJR	1
1,1-Dichloroethane	< 1.1	ug/l	1.1	3.6	1	8260B		9/16/2015	CJR	1
1,1-Dichloroethene	< 0.65	ug/l	0.65	2.1	1	8260B		9/16/2015	CJR	1
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		9/16/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		9/16/2015	CJR	1
1,2-Dichloropropane	< 0.43	ug/l	0.43	1.37	1	8260B		9/16/2015	CJR	1
2,2-Dichloropropane	< 3.1	ug/l	3.1	9.8	1	8260B		9/16/2015	CJR	1
1,3-Dichloropropane	< 0.42	ug/l	0.42	1.3	1	8260B		9/16/2015	CJR	1
Di-isopropyl ether	< 0.44	ug/l	0.44	1.4	1	8260B		9/16/2015	CJR	1
EDB (1,2-Dibromoethane)	< 0.63	ug/l	0.63	2	1	8260B		9/16/2015	CJR	1
Ethylbenzene	< 0.71	ug/l	0.71	2.3	1	8260B		9/16/2015	CJR	1
Hexachlorobutadiene	< 2.2	ug/l	2.2	7.1	1	8260B		9/16/2015	CJR	1
Isopropylbenzene	< 0.82	ug/l	0.82	2.6	1	8260B		9/16/2015	CJR	1

Project Name WEST ALLIS OHM
Project # 6406.1D

Invoice # E29659

Lab Code 5029659A
Sample ID 6406-10710-SUMP
Sample Matrix Water
Sample Date 9/8/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
p-Isopropyltoluene	< 1.1	ug/l	1.1	3.5	1	8260B		9/16/2015	CJR	1
Methylene chloride	< 1.3	ug/l	1.3	4.2	1	8260B		9/16/2015	CJR	1
Methyl tert-butyl ether (MTBE)	< 1.1	ug/l	1.1	3.7	1	8260B		9/16/2015	CJR	1
Naphthalene	< 1.6	ug/l	1.6	5.2	1	8260B		9/16/2015	CJR	1
n-Propylbenzene	< 0.77	ug/l	0.77	2.4	1	8260B		9/16/2015	CJR	1
1,1,2,2-Tetrachloroethane	< 0.52	ug/l	0.52	1.7	1	8260B		9/16/2015	CJR	1
1,1,1,2-Tetrachloroethane	< 0.48	ug/l	0.48	1.5	1	8260B		9/16/2015	CJR	1
Tetrachloroethene	< 0.49	ug/l	0.49	1.5	1	8260B		9/16/2015	CJR	1
Toluene	< 0.44	ug/l	0.44	1.4	1	8260B		9/16/2015	CJR	1
1,2,4-Trichlorobenzene	< 1.7	ug/l	1.7	5.6	1	8260B		9/16/2015	CJR	1
1,2,3-Trichlorobenzene	< 2.7	ug/l	2.7	8.6	1	8260B		9/16/2015	CJR	1
1,1,1-Trichloroethane	< 0.84	ug/l	0.84	2.7	1	8260B		9/16/2015	CJR	1
1,1,2-Trichloroethane	< 0.48	ug/l	0.48	1.52	1	8260B		9/16/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		9/16/2015	CJR	1
Trichlorofluoromethane	< 0.87	ug/l	0.87	2.8	1	8260B		9/16/2015	CJR	1
1,2,4-Trimethylbenzene	< 1.6	ug/l	1.6	5	1	8260B		9/16/2015	CJR	1
1,3,5-Trimethylbenzene	< 1.5	ug/l	1.5	4.8	1	8260B		9/16/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		9/16/2015	CJR	1
m&p-Xylene	< 2.2	ug/l	2.2	6.9	1	8260B		9/16/2015	CJR	1
o-Xylene	< 0.9	ug/l	0.9	2.9	1	8260B		9/16/2015	CJR	1
SUR - 4-Bromofluorobenzene	96	REC %			1	8260B		9/16/2015	CJR	1
SUR - Dibromofluoromethane	97	REC %			1	8260B		9/16/2015	CJR	1
SUR - Toluene-d8	103	REC %			1	8260B		9/16/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	104	REC %			1	8260B		9/16/2015	CJR	1

Project Name WEST ALLIS OHM
Project # 6406.1D

Invoice # E29659

Lab Code 5029659B
Sample ID 6406-2248-SUMP
Sample Matrix Water
Sample Date 9/8/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
Benzene	< 4.4	ug/l	4.4	14	10	8260B		9/16/2015	CJR	1
Bromobenzene	< 4.8	ug/l	4.8	15	10	8260B		9/16/2015	CJR	1
Bromodichloromethane	< 4.6	ug/l	4.6	15	10	8260B		9/16/2015	CJR	1
Bromoform	< 4.6	ug/l	4.6	15	10	8260B		9/16/2015	CJR	1
tert-Butylbenzene	< 11	ug/l	11	34	10	8260B		9/16/2015	CJR	1
sec-Butylbenzene	< 12	ug/l	12	38	10	8260B		9/16/2015	CJR	1
n-Butylbenzene	< 10	ug/l	10	33	10	8260B		9/16/2015	CJR	1
Carbon Tetrachloride	< 5.1	ug/l	5.1	16	10	8260B		9/16/2015	CJR	1
Chlorobenzene	< 4.6	ug/l	4.6	14	10	8260B		9/16/2015	CJR	1
Chloroethane	< 6.5	ug/l	6.5	21	10	8260B		9/16/2015	CJR	1
Chloroform	< 4.3	ug/l	4.3	14	10	8260B		9/16/2015	CJR	1
Chloromethane	< 19	ug/l	19	60	10	8260B		9/16/2015	CJR	1
2-Chlorotoluene	< 4	ug/l	4	13	10	8260B		9/16/2015	CJR	1
4-Chlorotoluene	< 6.3	ug/l	6.3	20	10	8260B		9/16/2015	CJR	1
1,2-Dibromo-3-chloropropane	< 14	ug/l	14	45	10	8260B		9/16/2015	CJR	1
Dibromochloromethane	< 4.5	ug/l	4.5	14	10	8260B		9/16/2015	CJR	1
1,4-Dichlorobenzene	< 4.9	ug/l	4.9	16	10	8260B		9/16/2015	CJR	1
1,3-Dichlorobenzene	< 5.2	ug/l	5.2	16	10	8260B		9/16/2015	CJR	1
1,2-Dichlorobenzene	< 4.6	ug/l	4.6	15	10	8260B		9/16/2015	CJR	1
Dichlorodifluoromethane	< 8.7	ug/l	8.7	28	10	8260B		9/16/2015	CJR	1
1,2-Dichloroethane	< 4.8	ug/l	4.8	15	10	8260B		9/16/2015	CJR	1
1,1-Dichloroethane	< 11	ug/l	11	36	10	8260B		9/16/2015	CJR	1
1,1-Dichloroethene	< 6.5	ug/l	6.5	21	10	8260B		9/16/2015	CJR	1
cis-1,2-Dichloroethene	33	ug/l	4.5	14	10	8260B		9/16/2015	CJR	1
trans-1,2-Dichloroethene	< 5.4	ug/l	5.4	17	10	8260B		9/16/2015	CJR	1
1,2-Dichloropropane	< 4.3	ug/l	4.3	13.7	10	8260B		9/16/2015	CJR	1
2,2-Dichloropropane	< 31	ug/l	31	98	10	8260B		9/16/2015	CJR	1
1,3-Dichloropropane	< 4.2	ug/l	4.2	13	10	8260B		9/16/2015	CJR	1
Di-isopropyl ether	< 4.4	ug/l	4.4	14	10	8260B		9/16/2015	CJR	1
EDB (1,2-Dibromoethane)	< 6.3	ug/l	6.3	20	10	8260B		9/16/2015	CJR	1
Ethylbenzene	< 7.1	ug/l	7.1	23	10	8260B		9/16/2015	CJR	1
Hexachlorobutadiene	< 22	ug/l	22	71	10	8260B		9/16/2015	CJR	1
Isopropylbenzene	< 8.2	ug/l	8.2	26	10	8260B		9/16/2015	CJR	1
p-Isopropyltoluene	< 11	ug/l	11	35	10	8260B		9/16/2015	CJR	1
Methylene chloride	< 13	ug/l	13	42	10	8260B		9/16/2015	CJR	1
Methyl tert-butyl ether (MTBE)	< 11	ug/l	11	37	10	8260B		9/16/2015	CJR	1
Naphthalene	< 16	ug/l	16	52	10	8260B		9/16/2015	CJR	1
n-Propylbenzene	< 7.7	ug/l	7.7	24	10	8260B		9/16/2015	CJR	1
1,1,2,2-Tetrachloroethane	< 5.2	ug/l	5.2	17	10	8260B		9/16/2015	CJR	1
1,1,1,2-Tetrachloroethane	< 4.8	ug/l	4.8	15	10	8260B		9/16/2015	CJR	1
Tetrachloroethene	81	ug/l	4.9	15	10	8260B		9/16/2015	CJR	1
Toluene	< 4.4	ug/l	4.4	14	10	8260B		9/16/2015	CJR	1
1,2,4-Trichlorobenzene	< 17	ug/l	17	56	10	8260B		9/16/2015	CJR	1
1,2,3-Trichlorobenzene	< 27	ug/l	27	86	10	8260B		9/16/2015	CJR	1
1,1,1-Trichloroethane	< 8.4	ug/l	8.4	27	10	8260B		9/16/2015	CJR	1
1,1,2-Trichloroethane	< 4.8	ug/l	4.8	15.2	10	8260B		9/16/2015	CJR	1
Trichloroethene (TCE)	< 4.7	ug/l	4.7	15	10	8260B		9/16/2015	CJR	1
Trichlorofluoromethane	< 8.7	ug/l	8.7	28	10	8260B		9/16/2015	CJR	1
1,2,4-Trimethylbenzene	< 16	ug/l	16	50	10	8260B		9/16/2015	CJR	1
1,3,5-Trimethylbenzene	< 15	ug/l	15	48	10	8260B		9/16/2015	CJR	1
Vinyl Chloride	3.6 "J"	ug/l	1.7	5.4	10	8260B		9/16/2015	CJR	1
m&p-Xylene	< 22	ug/l	22	69	10	8260B		9/16/2015	CJR	1
o-Xylene	< 9	ug/l	9	29	10	8260B		9/16/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	104	REC %			10	8260B		9/16/2015	CJR	1
SUR - 4-Bromofluorobenzene	116	REC %			10	8260B		9/16/2015	CJR	1
SUR - Dibromofluoromethane	98	REC %			10	8260B		9/16/2015	CJR	1
SUR - Toluene-d8	101	REC %			10	8260B		9/16/2015	CJR	1

Project Name WEST ALLIS OHM
Project # 6406.1D

Invoice # E29659

Lab Code 5029659C
Sample ID 6406-TB-1
Sample Matrix Water
Sample Date 9/8/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
Benzene	< 0.44	ug/l	0.44	1.4	1	8260B		9/15/2015	CJR	1
Bromobenzene	< 0.48	ug/l	0.48	1.5	1	8260B		9/15/2015	CJR	1
Bromodichloromethane	< 0.46	ug/l	0.46	1.5	1	8260B		9/15/2015	CJR	1
Bromoform	< 0.46	ug/l	0.46	1.5	1	8260B		9/15/2015	CJR	1
tert-Butylbenzene	< 1.1	ug/l	1.1	3.4	1	8260B		9/15/2015	CJR	1
sec-Butylbenzene	< 1.2	ug/l	1.2	3.8	1	8260B		9/15/2015	CJR	1
n-Butylbenzene	< 1	ug/l	1	3.3	1	8260B		9/15/2015	CJR	1
Carbon Tetrachloride	< 0.51	ug/l	0.51	1.6	1	8260B		9/15/2015	CJR	1
Chlorobenzene	< 0.46	ug/l	0.46	1.4	1	8260B		9/15/2015	CJR	1
Chloroethane	< 0.65	ug/l	0.65	2.1	1	8260B		9/15/2015	CJR	1
Chloroform	< 0.43	ug/l	0.43	1.4	1	8260B		9/15/2015	CJR	1
Chloromethane	< 1.9	ug/l	1.9	6	1	8260B		9/15/2015	CJR	1
2-Chlorotoluene	< 0.4	ug/l	0.4	1.3	1	8260B		9/15/2015	CJR	1
4-Chlorotoluene	< 0.63	ug/l	0.63	2	1	8260B		9/15/2015	CJR	1
1,2-Dibromo-3-chloropropane	< 1.4	ug/l	1.4	4.5	1	8260B		9/15/2015	CJR	1
Dibromochloromethane	< 0.45	ug/l	0.45	1.4	1	8260B		9/15/2015	CJR	1
1,4-Dichlorobenzene	< 0.49	ug/l	0.49	1.6	1	8260B		9/15/2015	CJR	1
1,3-Dichlorobenzene	< 0.52	ug/l	0.52	1.6	1	8260B		9/15/2015	CJR	1
1,2-Dichlorobenzene	< 0.46	ug/l	0.46	1.5	1	8260B		9/15/2015	CJR	1
Dichlorodifluoromethane	< 0.87	ug/l	0.87	2.8	1	8260B		9/15/2015	CJR	1
1,2-Dichloroethane	< 0.48	ug/l	0.48	1.5	1	8260B		9/15/2015	CJR	1
1,1-Dichloroethane	< 1.1	ug/l	1.1	3.6	1	8260B		9/15/2015	CJR	1
1,1-Dichloroethene	< 0.65	ug/l	0.65	2.1	1	8260B		9/15/2015	CJR	1
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		9/15/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		9/15/2015	CJR	1
1,2-Dichloropropane	< 0.43	ug/l	0.43	1.37	1	8260B		9/15/2015	CJR	1
2,2-Dichloropropane	< 3.1	ug/l	3.1	9.8	1	8260B		9/15/2015	CJR	1
1,3-Dichloropropane	< 0.42	ug/l	0.42	1.3	1	8260B		9/15/2015	CJR	1
Di-isopropyl ether	< 0.44	ug/l	0.44	1.4	1	8260B		9/15/2015	CJR	1
EDB (1,2-Dibromoethane)	< 0.63	ug/l	0.63	2	1	8260B		9/15/2015	CJR	1
Ethylbenzene	< 0.71	ug/l	0.71	2.3	1	8260B		9/15/2015	CJR	1
Hexachlorobutadiene	< 2.2	ug/l	2.2	7.1	1	8260B		9/15/2015	CJR	1
Isopropylbenzene	< 0.82	ug/l	0.82	2.6	1	8260B		9/15/2015	CJR	1
p-Isopropyltoluene	< 1.1	ug/l	1.1	3.5	1	8260B		9/15/2015	CJR	1
Methylene chloride	< 1.3	ug/l	1.3	4.2	1	8260B		9/15/2015	CJR	1
Methyl tert-butyl ether (MTBE)	< 1.1	ug/l	1.1	3.7	1	8260B		9/15/2015	CJR	1
Naphthalene	< 1.6	ug/l	1.6	5.2	1	8260B		9/15/2015	CJR	1
n-Propylbenzene	< 0.77	ug/l	0.77	2.4	1	8260B		9/15/2015	CJR	1
1,1,2,2-Tetrachloroethane	< 0.52	ug/l	0.52	1.7	1	8260B		9/15/2015	CJR	1
1,1,1,2-Tetrachloroethane	< 0.48	ug/l	0.48	1.5	1	8260B		9/15/2015	CJR	1
Tetrachloroethene	< 0.49	ug/l	0.49	1.5	1	8260B		9/15/2015	CJR	1
Toluene	< 0.44	ug/l	0.44	1.4	1	8260B		9/15/2015	CJR	1
1,2,4-Trichlorobenzene	< 1.7	ug/l	1.7	5.6	1	8260B		9/15/2015	CJR	1
1,2,3-Trichlorobenzene	< 2.7	ug/l	2.7	8.6	1	8260B		9/15/2015	CJR	1
1,1,1-Trichloroethane	< 0.84	ug/l	0.84	2.7	1	8260B		9/15/2015	CJR	1
1,1,2-Trichloroethane	< 0.48	ug/l	0.48	1.52	1	8260B		9/15/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		9/15/2015	CJR	1
Trichlorofluoromethane	< 0.87	ug/l	0.87	2.8	1	8260B		9/15/2015	CJR	1
1,2,4-Trimethylbenzene	< 1.6	ug/l	1.6	5	1	8260B		9/15/2015	CJR	1
1,3,5-Trimethylbenzene	< 1.5	ug/l	1.5	4.8	1	8260B		9/15/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		9/15/2015	CJR	1
m&p-Xylene	< 2.2	ug/l	2.2	6.9	1	8260B		9/15/2015	CJR	1
o-Xylene	< 0.9	ug/l	0.9	2.9	1	8260B		9/15/2015	CJR	1
SUR - Toluene-d8	106	REC %			1	8260B		9/15/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	91	REC %			1	8260B		9/15/2015	CJR	1
SUR - 4-Bromofluorobenzene	105	REC %			1	8260B		9/15/2015	CJR	1
SUR - Dibromofluoromethane	96	REC %			1	8260B		9/15/2015	CJR	1

"J" Flag: Analyte detected between LOD and LOQ LOD Limit of Detection LOQ Limit of Quantitation

Code	*Comment*
1	Laboratory QC within limits.

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight. Subcontracted results are denoted by SUB in the analyst field.

Authorized Signature

CHAIN OF [illegible]STODY RECORD 40#20:5385

Synergy

Chain # [illegible]
Page 1 of 1

Lab I.D. #

Account No.: | Quote No.:

Project #: [illegible] ID

Sampler: (signature) [illegible]

Project (Name / Location): [illegible] West Allis [illegible]

Reports To: [illegible]

Company: [illegible]

Address: [illegible]

City State Zip: [illegible]

Phone: [illegible]

FAX

Invoice To:

Company

Address

City State Zip

Phone

FAX

1990 Prospect Ct. • Appleton, WI 54914
920-830-2455 • FAX 920-733-0631

Sample Handling Request
____ Rush Analysis Date Required
(Rushes accepted only with prior authorization)
X Normal Turn Around

Analysis Requested / **Other Analysis**

Lab I.D.	Sample I.D.	Collection Date	Collection Time	Comp	Grab	Filtered Y/N	No. of Containers	Sample Type (Matrix)*	Preservation	DRO (Mod DRO Sep 95)	GRO (Mod GRO Sep 95)	LEAD	NITRATE/NITRITE	OIL & GREASE	PAH (EPA 8270)	PCB	PVOC (EPA 8021)	PVOC + NAPHTHALENE	SULFATE	TOTAL SUSPENDED SOLIDS	VOC DW (EPA 524.2)	VOC (EPA 8260) [illegible]	8-RCRA METALS					PID/FID
S025697 A	[illegible]	9/8	330		X	N	3	GW	HCL													X						
B	[illegible]	9/8	330		X	N	3	GW	HCL													X						
C	TB-1	9/8			X	N	1	GW	HCL													X						

Comments/Special Instructions (*Specify groundwater "GW", Drinking Water "DW", Waste Water "WW", Soil "S", Air "A", Oil, Sludge etc.)

— [illegible] —

Sample Integrity - To be completed by receiving lab.
Method of Shipment: [illegible]
Temp. of Temp. Blank ____ °C On Ice: X
Cooler seal intact upon receipt: X Yes ____ No

Relinquished By: (sign)	Time	Date	Received By: (sign)	Time	Date
[illegible]	[illegible]	[illegible]	[illegible]	1247	[illegible]
[illegible]	1345	[illegible]	[illegible]	[illegible]	[illegible]

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Mr. Wayne Fassbender
Enviroforensics
N16 W. 23390 Stone Ridge Dr
Suite G
Waukesha, WI 53188

September 28, 2015

ENVision Project Number: 2015-529
Client Project Name: 6406 – OHM Lincoln

Dear Mr. Fassbender,

Please find the attached analytical report for the samples received September 15, 2015. All test methods performed were fully compliant with local, state, and federal EPA methods unless otherwise noted. The project was analyzed as requested on the enclosed chain of custody record. Please review the comments section for additional information about your results or Quality Control data.

Feel free to contact me if you have any questions or comments regarding your analytical report or service.

Thank you for your business. EnvisionAir looks forward to working with you on your next project.

Yours Sincerely,

David Norris

Client Services Manager
EnvisionAir

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Client Name: ENVIROFORENSICS

Project ID: 6406 / OHM LINCOLN

Client Project Manager: W. FASSBENDER

EnvisionAir Project Number: 2015-529

Sample Summary

Canister Pressure / Vacuum

Laboratory Sample Number:	Sample Description:	Matrix:	START Date Collected:	START Time Collected:	End Date Collected:	End Time Collected:	Date Received:	Time Received	Initial Field (in. Hg)	Final Field (in. Hg)	Lab Received (in. Hg)
15-1945	6406-10710-IA-B	A	9/9/15	10:30	9/10/15	10:30	9/15/15	9:30	-27	-2.5	-2.5
15-1946	6406-10710-IA-1	A	9/9/15	10:25	9/10/15	10:25	9/15/15	9:30	-29	-2.5	-2.5
15-1947	6406-10710-IA-2	A	9/9/15	10:20	9/10/15	10:20	9/15/15	9:30	-27	-3	-3
15-1948	6406-10710-OA	A	9/9/15	10:15	9/10/15	10:15	9/15/15	9:30	-30	-4	-4

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Client Name: ENVIROFORENSICS

Project ID: 6406 / OHM LINCOLN

Client Project Manager: W. FASSBENDER

EnvisionAir Project Number: 2015-529

Analytical Method: TO-15
Analytical Batch: 091515AIR

Client Sample ID: 6406-10710-IA-B

Envision Sample Number: 15-1945
Sample Matrix: AIR

Sample Collection START Date/Time: 09/09/15 10:30
Sample Collection END Date/Time: 09/10/15 10:30
Sample Received Date/Time: 09/15/15 9:30

Compounds	Sample Results ug/m³	Reporting Limit ug/m³	Flag
4-Ethyltoluene	< 492	492	
4-Methyl-2-pentanone (MIBK)	< 2050	2050	
1,1,1-Trichloroethane	< 546	546	
1,1,2,2-Tetrachloroethane	< 0.34	0.34	1
1,1,2-Trichloroethane	< 0.21	0.21	1
1,1-Dichloroethane	< 4.05	4.05	
1,1-Dichloroethene	< 198	198	
1,2,4-Trichlorobenzene	< 0.74	0.74	
1,2,4-Trimethylbenzene	< 4.92	4.92	
1,2-dibromoethane (EDB)	< 0.03	0.03	1
1,2-Dichlorobenzene	< 60.1	60.1	
1,2-Dichloroethane	< 0.40	0.40	
1,2-Dichloropropane	< 0.46	0.46	
1,3,5-Trimethylbenzene	< 4.92	4.92	
1,3-Butadiene	< 0.22	0.22	
1,3-Dichlorobenzene	< 60.1	60.1	
1,4-Dichlorobenzene	< 0.60	0.60	
1,4-Dioxane	< 1.80	1.80	
2-Butanone (MEK)	< 2950	2950	
2-Hexanone	< 20.5	20.5	
Acetone	< 2380	2380	
Benzene	< 1.60	1.60	
Benzyl Chloride	< 0.41	0.41	1
Bromodichloromethane	< 0.54	0.54	1
Bromoform	< 10.3	10.3	
Bromomethane	< 3.88	3.88	
Carbon Disulfide	< 311	311	
Carbon Tetrachloride	< 0.63	0.63	
Chlorobenzene	< 23.0	23.0	
Chloroethane	< 13.2	13.2	

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Compounds	Sample Results ug/m³	Reporting Limit ug/m³	Flag
Chloroform	< 0.83	0.83	
Chloromethane	< 20.6	20.6	
cis-1,2-Dichloroethene	< 19.8	19.8	
cis-1,3-Dichloropropene	< 4.54	4.54	
Cyclohexane	< 5510	5510	
Dibromochloromethane	< 0.85	0.85	
Dichlorodifluoromethane	< 49.5	49.5	
Ethyl Acetate	< 1800	1800	
Ethylbenzene	< 8.68	8.68	
Hexachloro-1,3-butadiene	< 1.07	1.07	
Isooctane	< 467	467	
m,p-Xylene	< 43.4	43.4	
Methylene Chloride	< 41.7	41.7	
Methyl-tert-butyl ether	< 36.1	36.1	
N-Heptane	< 410	410	
N-Hexane	< 176	176	
o-Xylene	< 43.4	43.4	
Propylene	< 172	172	
Styrene	< 426	426	
Tetrachloroethene	< 3.19	3.19	
Tetrahydrofuran	< 295	295	
Toluene	< 3770	3770	
trans-1,2-Dichloroethene	< 39.6	39.6	
trans-1,3-Dichloropropene	< 4.54	4.54	
Trichlorethene	< 1.07	1.07	
Trichlorofluoromethane	< 562	562	
Vinyl Acetate	< 176	176	
Vinyl Bromide	< 0.44	0.44	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	107%		
Analysis Date/Time:	9-17-15/18:29		
Analyst Initials	tjg		

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Client Name: ENVIROFORENSICS

Project ID: 6406 / OHM LINCOLN

Client Project Manager: W. FASSBENDER

EnvisionAir Project Number: 2015-529

Analytical Method: TO-15
Analytical Batch: 091515AIR

Client Sample ID: 6406-10710-IA-1

Envision Sample Number: 15-1946
Sample Matrix: AIR

Sample Collection START Date/Time: 09/09/15 10:25
Sample Collection END Date/Time: 09/10/15 10:25
Sample Received Date/Time: 09/15/15 9:30

Compounds	Sample Results ug/m³	Reporting Limit ug/m³	Flag
4-Ethyltoluene	< 492	492	
4-Methyl-2-pentanone (MIBK)	< 2050	2050	
1,1,1-Trichloroethane	< 546	546	
1,1,2,2-Tetrachloroethane	< 0.34	0.34	1
1,1,2-Trichloroethane	< 0.21	0.21	1
1,1-Dichloroethane	< 4.05	4.05	
1,1-Dichloroethene	< 198	198	
1,2,4-Trichlorobenzene	< 0.74	0.74	
1,2,4-Trimethylbenzene	< 4.92	4.92	
1,2-dibromoethane (EDB)	< 0.03	0.03	1
1,2-Dichlorobenzene	< 60.1	60.1	
1,2-Dichloroethane	< 0.40	0.40	
1,2-Dichloropropane	< 0.46	0.46	
1,3,5-Trimethylbenzene	< 4.92	4.92	
1,3-Butadiene	< 0.22	0.22	
1,3-Dichlorobenzene	< 60.1	60.1	
1,4-Dichlorobenzene	< 0.60	0.60	
1,4-Dioxane	< 1.80	1.80	
2-Butanone (MEK)	< 2950	2950	
2-Hexanone	< 20.5	20.5	
Acetone	< 2380	2380	
Benzene	< 1.60	1.60	
Benzyl Chloride	< 0.41	0.41	1
Bromodichloromethane	< 0.54	0.54	1
Bromoform	< 10.3	10.3	
Bromomethane	< 3.88	3.88	
Carbon Disulfide	< 311	311	
Carbon Tetrachloride	< 0.63	0.63	
Chlorobenzene	< 23.0	23.0	
Chloroethane	< 13.2	13.2	

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Compounds	Sample Results ug/m³	Reporting Limit ug/m³	Flag
Chloroform	< 0.83	0.83	
Chloromethane	< 20.6	20.6	
cis-1,2-Dichloroethene	< 19.8	19.8	
cis-1,3-Dichloropropene	< 4.54	4.54	
Cyclohexane	< 5510	5510	
Dibromochloromethane	< 0.85	0.85	
Dichlorodifluoromethane	< 49.5	49.5	
Ethyl Acetate	< 1800	1800	
Ethylbenzene	< 8.68	8.68	
Hexachloro-1,3-butadiene	< 1.07	1.07	
Isooctane	< 467	467	
m,p-Xylene	< 43.4	43.4	
Methylene Chloride	< 41.7	41.7	
Methyl-tert-butyl ether	< 36.1	36.1	
N-Heptane	< 410	410	
N-Hexane	< 176	176	
o-Xylene	< 43.4	43.4	
Propylene	< 172	172	
Styrene	< 426	426	
Tetrachloroethene	< 3.19	3.19	
Tetrahydrofuran	< 295	295	
Toluene	< 3770	3770	
trans-1,2-Dichloroethene	< 39.6	39.6	
trans-1,3-Dichloropropene	< 4.54	4.54	
Trichlorethene	< 1.07	1.07	
Trichlorofluoromethane	< 562	562	
Vinyl Acetate	< 176	176	
Vinyl Bromide	< 0.44	0.44	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	107%		
Analysis Date/Time:	9-17-15/19:09		
Analyst Initials	tjg		

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Client Name: ENVIROFORENSICS

Project ID: 6406 / OHM LINCOLN

Client Project Manager: W. FASSBENDER

EnvisionAir Project Number: 2015-529

Analytical Method: TO-15
Analytical Batch: 091515AIR

Client Sample ID: 6406-10710-IA-2

Envision Sample Number: 15-1947
Sample Matrix: AIR

Sample Collection START Date/Time: 09/09/15 10:20
Sample Collection END Date/Time: 09/10/15 10:20
Sample Received Date/Time: 09/15/15 9:30

Compounds	Sample Results ug/m³	Reporting Limit ug/m³	Flag
4-Ethyltoluene	< 492	492	
4-Methyl-2-pentanone (MIBK)	< 2050	2050	
1,1,1-Trichloroethane	< 546	546	
1,1,2,2-Tetrachloroethane	< 0.34	0.34	1
1,1,2-Trichloroethane	< 0.21	0.21	1
1,1-Dichloroethane	< 4.05	4.05	
1,1-Dichloroethene	< 198	198	
1,2,4-Trichlorobenzene	< 0.74	0.74	
1,2,4-Trimethylbenzene	< 4.92	4.92	
1,2-dibromoethane (EDB)	< 0.03	0.03	1
1,2-Dichlorobenzene	< 60.1	60.1	
1,2-Dichloroethane	< 0.40	0.40	
1,2-Dichloropropane	< 0.46	0.46	
1,3,5-Trimethylbenzene	< 4.92	4.92	
1,3-Butadiene	< 0.22	0.22	
1,3-Dichlorobenzene	< 60.1	60.1	
1,4-Dichlorobenzene	< 0.60	0.60	
1,4-Dioxane	< 1.80	1.80	
2-Butanone (MEK)	< 2950	2950	
2-Hexanone	< 20.5	20.5	
Acetone	< 2380	2380	
Benzene	< 1.60	1.60	
Benzyl Chloride	< 0.41	0.41	1
Bromodichloromethane	< 0.54	0.54	1
Bromoform	< 10.3	10.3	
Bromomethane	< 3.88	3.88	
Carbon Disulfide	< 311	311	
Carbon Tetrachloride	< 0.63	0.63	
Chlorobenzene	< 23.0	23.0	
Chloroethane	< 13.2	13.2	

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Compounds	Sample Results ug/m³	Reporting Limit ug/m³	Flag
Chloroform	< 0.83	0.83	
Chloromethane	< 20.6	20.6	
cis-1,2-Dichloroethene	< 19.8	19.8	
cis-1,3-Dichloropropene	< 4.54	4.54	
Cyclohexane	< 5510	5510	
Dibromochloromethane	< 0.85	0.85	
Dichlorodifluoromethane	< 49.5	49.5	
Ethyl Acetate	< 1800	1800	
Ethylbenzene	< 8.68	8.68	
Hexachloro-1,3-butadiene	< 1.07	1.07	
Isooctane	< 467	467	
m,p-Xylene	< 43.4	43.4	
Methylene Chloride	< 41.7	41.7	
Methyl-tert-butyl ether	< 36.1	36.1	
N-Heptane	< 410	410	
N-Hexane	< 176	176	
o-Xylene	< 43.4	43.4	
Propylene	< 172	172	
Styrene	< 426	426	
Tetrachloroethene	< 3.19	3.19	
Tetrahydrofuran	< 295	295	
Toluene	< 3770	3770	
trans-1,2-Dichloroethene	< 39.6	39.6	
trans-1,3-Dichloropropene	< 4.54	4.54	
Trichlorethene	< 1.07	1.07	
Trichlorofluoromethane	< 562	562	
Vinyl Acetate	< 176	176	
Vinyl Bromide	< 0.44	0.44	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	103%		
Analysis Date/Time:	9-17-15/19:49		
Analyst Initials	tjg		

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Client Name: ENVIROFORENSICS

Project ID: 6406 / OHM LINCOLN

Client Project Manager: W. FASSBENDER

EnvisionAir Project Number: 2015-529

Analytical Method: TO-15
Analytical Batch: 091515AIR

Client Sample ID: 6406-10710-OA

Envision Sample Number: 15-1948
Sample Matrix: AIR

Sample Collection START Date/Time: 09/09/15 10:15
Sample Collection END Date/Time: 09/10/15 10:15
Sample Received Date/Time: 09/15/15 9:30

Compounds	Sample Results ug/m³	Reporting Limit ug/m³	Flag
4-Ethyltoluene	< 492	492	
4-Methyl-2-pentanone (MIBK)	< 2050	2050	
1,1,1-Trichloroethane	< 546	546	
1,1,2,2-Tetrachloroethane	< 0.34	0.34	1
1,1,2-Trichloroethane	< 0.21	0.21	1
1,1-Dichloroethane	< 4.05	4.05	
1,1-Dichloroethene	< 198	198	
1,2,4-Trichlorobenzene	< 0.74	0.74	
1,2,4-Trimethylbenzene	< 4.92	4.92	
1,2-dibromoethane (EDB)	< 0.03	0.03	1
1,2-Dichlorobenzene	< 60.1	60.1	
1,2-Dichloroethane	< 0.40	0.40	
1,2-Dichloropropane	< 0.46	0.46	
1,3,5-Trimethylbenzene	< 4.92	4.92	
1,3-Butadiene	< 0.22	0.22	
1,3-Dichlorobenzene	< 60.1	60.1	
1,4-Dichlorobenzene	< 0.60	0.60	
1,4-Dioxane	< 1.80	1.80	
2-Butanone (MEK)	< 2950	2950	
2-Hexanone	< 20.5	20.5	
Acetone	< 2380	2380	
Benzene	< 1.60	1.60	
Benzyl Chloride	< 0.41	0.41	1
Bromodichloromethane	< 0.54	0.54	1
Bromoform	< 10.3	10.3	
Bromomethane	< 3.88	3.88	
Carbon Disulfide	< 311	311	
Carbon Tetrachloride	< 0.63	0.63	
Chlorobenzene	< 23.0	23.0	
Chloroethane	< 13.2	13.2	

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Compounds	Sample Results ug/m³	Reporting Limit ug/m³	Flag
Chloroform	< 0.83	0.83	
Chloromethane	< 20.6	20.6	
cis-1,2-Dichloroethene	< 19.8	19.8	
cis-1,3-Dichloropropene	< 4.54	4.54	
Cyclohexane	< 5510	5510	
Dibromochloromethane	< 0.85	0.85	
Dichlorodifluoromethane	< 49.5	49.5	
Ethyl Acetate	< 1800	1800	
Ethylbenzene	< 8.68	8.68	
Hexachloro-1,3-butadiene	< 1.07	1.07	
Isooctane	< 467	467	
m,p-Xylene	< 43.4	43.4	
Methylene Chloride	< 41.7	41.7	
Methyl-tert-butyl ether	< 36.1	36.1	
N-Heptane	< 410	410	
N-Hexane	< 176	176	
o-Xylene	< 43.4	43.4	
Propylene	< 172	172	
Styrene	< 426	426	
Tetrachloroethene	< 3.19	3.19	
Tetrahydrofuran	< 295	295	
Toluene	< 3770	3770	
trans-1,2-Dichloroethene	< 39.6	39.6	
trans-1,3-Dichloropropene	< 4.54	4.54	
Trichlorethene	< 1.07	1.07	
Trichlorofluoromethane	< 562	562	
Vinyl Acetate	< 176	176	
Vinyl Bromide	< 0.44	0.44	
Vinyl Chloride	< 1.28	1.28	
4-bromofluorobenzene (surrogate)	101%		
Analysis Date/Time:	9-17-15/17:13		
Analyst Initials	tjg		

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Analytical Report

TO-15 Quality Control Data

EnvisionAir Batch Number: 091515VW

Method Blank (MB):	MB Results (ppbv)	Reporting Limit (ppbv)	Flags
4-Ethyltoluene	< 100	100	
4-Methyl-2-pentanone (MIBK)	< 500	500	
1,1,1-Trichloroethane	< 100	100	
1,1,2,2-Tetrachloroethane	< 0.049	0.049	1
1,1,2-Trichloroethane	< 0.038	0.038	1
1,1-Dichloroethane	< 1	1	
1,1-Dichloroethene	< 50	50	
1,2,4-Trichlorobenzene	< 0.1	0.1	
1,2,4-Trimethylbenzene	< 1	1	
1,2-dibromoethane (EDB)	< 0.0041	0.0041	1
1,2-Dichlorobenzene	< 10	10	
1,2-Dichloroethane	< 0.1	0.1	
1,2-Dichloropropane	< 0.1	0.1	
1,3,5-Trimethylbenzene	< 1	1	
1,3-Butadiene	< 0.1	0.1	
1,3-Dichlorobenzene	< 10	10	
1,4-Dichlorobenzene	< 0.1	0.1	
1,4-Dioxane	< 0.5	0.5	
2-Butanone (MEK)	< 1000	1000	
2-Hexanone	< 5	5	
Acetone	< 1000	1000	
Benzene	< 0.5	0.5	
Benzyl Chloride	< 0.08	0.08	1
Bromodichloromethane	< 0.08	0.08	1
Bromoform	< 1	1	
Bromomethane	< 1	1	
Carbon Disulfide	< 100	100	
Carbon Tetrachloride	< 0.1	0.1	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
Chloroform	< 0.17	0.17	
Chloromethane	< 10	10	
cis-1,2-Dichloroethene	< 5	5	
cis-1,3-Dichloropropene	< 1	1	
Cyclohexane	< 1600	1600	
Dibromochloromethane	< 0.1	0.1	
Dichlorodifluoromethane	< 10	10	
Ethyl Acetate	< 500	500	
Ethylbenzene	< 2	2	
Hexachloro-1,3-butadiene	< 0.1	0.1	
Isooctane	< 100	100	
m,p-Xylene	< 10	10	
Methylene Chloride	< 12	12	
Methyl-tert-butyl ether	< 10	10	
N-Heptane	< 100	100	
N-Hexane	< 50	50	
o-Xylene	< 10	10	
Propylene	< 100	100	
Styrene	< 100	100	
Tetrachloroethene	< 0.47	0.47	
Tetrahydrofuran	< 100	100	

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Analytical Report

Method Blank (MB):	MB Results (ppbv)	Reporting Limit (ppbv)	Flags
Toluene	< 1000	1000	
trans-1,2-Dichloroethene	< 10	10	
trans-1,3-Dichloropropene	< 1	1	
Trichlorethene	< 0.2	0.2	
Trichlorofluoromethane	< 100	100	
Vinyl Acetate	< 50	50	
Vinyl Bromide	< 0.1	0.1	
Vinyl Chloride	< 0.5	0.5	
4-bromofluorobenzene (surrogate)	100%		
Analysis Date/Time:	9-17-15/15:59		
Analyst Initials	tjg		

LCS/LCSD	LCS Results (ppbv)	LCSD Results (ppbv)	LCS/D Conc(ppbv)	LCS Rec.	LCSD Rec.	RPD	Flag
Propylene	8.81	9.01	10	88%	90%	2.2%	
Dichlorodifluoromethane	10.9	10.2	10	109%	102%	6.6%	
Chloromethane	9.16	9.93	10	92%	99%	8.1%	
Vinyl Chloride	9.43	10.7	10	94%	107%	12.6%	
1,3-Butadiene	9.14	10.1	10	91%	101%	10.0%	
Bromomethane	10.1	11.2	10	101%	112%	10.3%	
Chloroethane	8.95	10.1	10	90%	101%	12.1%	
Vinyl Bromide	10.3	11.6	10	103%	116%	11.9%	
Trichlorofluoromethane	10.2	11.3	10	102%	113%	10.2%	
Acetone	9.44	10.6	10	94%	106%	11.6%	
1,1-Dichloroethene	10	11	10	100%	110%	9.5%	
Methylene Chloride	9.46	9.37	10	95%	94%	1.0%	
Carbon Disulfide	8.54	9.86	10	85%	99%	14.3%	
trans-1,2-Dichloroethene	9.18	10.3	10	92%	103%	11.5%	
Methyl-tert-butyl ether	9.49	10.7	10	95%	107%	12.0%	
1,1-Dichloroethane	9.03	10.1	10	90%	101%	11.2%	
Vinyl Acetate	11	9.28	10	110%	93%	17.0%	
N-Hexane	8.15	9.36	10	82%	94%	13.8%	
2-Butanone (MEK)	8.59	9.57	10	86%	96%	10.8%	
cis-1,2-Dichloroethene	9.32	10.3	10	93%	103%	10.0%	
Ethyl Acetate	8.12	9.14	10	81%	91%	11.8%	
Chloroform	9.76	10.7	10	98%	107%	9.2%	
Tetrahydrofuran	9.34	9.96	10	93%	100%	6.4%	
1,2-Dichloroethane	11.4	11.3	10	114%	113%	0.9%	
1,1,1-Trichloroethane	11.3	11.5	10	113%	115%	1.8%	
Carbon Tetrachloride	11.5	11.4	10	115%	114%	0.9%	
Benzene	9.69	9.95	10	97%	100%	2.6%	
Cyclohexane	8.07	8.24	10	81%	82%	2.1%	
1,2-Dichloropropane	9.44	9.82	10	94%	98%	3.9%	
Trichlorethene	10.3	10.6	10	103%	106%	2.9%	
Bromodichloromethane	11	11.1	10	110%	111%	0.9%	
1,4-Dioxane	9.33	10.2	10	93%	102%	8.9%	
Isooctane	9.26	9.44	10	93%	94%	1.9%	
N-Heptane	9.45	9.33	10	95%	93%	1.3%	
cis-1,3-Dichloropropene	10.3	10.4	10	103%	104%	1.0%	
4-Methyl-2-pentanone (MIBK)	9.83	10.1	10	98%	101%	2.7%	
trans-1,3-Dichloropropene	10.3	10.6	10	103%	106%	2.9%	
1,1,2-Trichloroethane	9.99	10.5	10	100%	105%	5.0%	
Toluene	9.46	9.87	10	95%	99%	4.2%	
2-Hexanone	9.8	10	10	98%	100%	2.0%	
Dibromochloromethane	10.9	10.7	10	109%	107%	1.9%	
1,2-dibromoethane (EDB)	9.97	10	10	100%	100%	0.3%	
Tetrachloroethene	10.7	10.2	10	107%	102%	4.8%	
Chlorobenzene	9.72	9.67	10	97%	97%	0.5%	
Ethylbenzene	10	9.91	10	100%	99%	0.9%	
m,p-Xylene	19.4	19	20	97%	95%	2.1%	
Bromoform	10.7	10.6	10	107%	106%	0.9%	

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Analytical Report

LCS/LCSD	LCS Results (ppbv)	LCSD Results (ppbv)	LCS/D Conc(ppbv)	LCS Rec.	LCSD Rec.	RPD	Flag
Styrene	9.67	9.56	10	97%	96%	1.1%	
1,1,2,2-Tetrachloroethane	9.23	9.18	10	92%	92%	0.5%	
o-Xylene	9.6	9.59	10	96%	96%	0.1%	
4-Ethyltoluene	9.6	9.29	10	96%	93%	3.3%	
1,3,5-Trimethylbenzene	9.18	9.13	10	92%	91%	0.5%	
1,2,4-Trimethylbenzene	9.47	9.24	10	95%	92%	2.5%	
1,3-Dichlorobenzene	9.06	8.78	10	91%	88%	3.1%	
Benzyl Chloride	10.1	9.88	10	101%	99%	2.2%	
1,4-Dichlorobenzene	9.01	8.66	10	90%	87%	4.0%	
1,2-Dichlorobenzene	9.37	9.08	10	94%	91%	3.1%	
1,2,4-Trichlorobenzene	8.8	8.42	10	88%	84%	4.4%	
Hexachloro-1,3-butadiene	9.1	8.52	10	91%	85%	6.6%	
4-bromofluorobenzene (surrogate)	107%	106%					
Analysis Date/Time:	9-17-15/13:23	9-17-15/14:48					
Analyst Initials	tjg	tjg					

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Flag Number	Comments
1	Reporting limit is supported by MDL. TJG

WAF EnvisionAir Proj#: 2015-529 Page 1 of 1

CHAIN OF CUSTODY RECORD

EnvisionAir | 1441 Sadlier Circle West Drive | Indianapolis, IN 46239 | Phone: (317) 351-0885 | Fax: (317) 351-0882

Client: EnviroForensics	P.O. Number: 2015838
Report Address: N16 W23390 Stone Ridge Drive, Suite G Waukesha, WI 53188	Project Name or Number: 6406 / OHM Lincoln
Report To: W. Fassbender	Sampled by: K. Vanderbleider
Phone: 317-972-7870	QA/QC Required: (circle if applicable) Level III · Level IV
Invoice Address: Same as above	Reporting Units needed: (circle) ug/m³ mg/m³ PPBV PPMV
Desired TAT: (Please Circle One) 1 day 2 days 3 days Std (5 bus. days)	Media type: 1LC = 1 Liter Canister; 6LC = 6 Liter Canister; TB = Tedlar Bag; TD = Thermal Desorption Tube

REQUESTED PARAMETERS

TO-15 Full List | TO-15 Short List

ENVISIONAIR

Sampling Type:
Soil-Gas: ☐
Sub-Slab: ☐
Indoor-Air: ☒

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Canister Pressure / Vacuum

Air Sample ID	Media Type (see code above)	Coll. Date (Grab/Comp Start)	Coll. Time (Grab/Comp Start)	Coll. Date (Comp. End)	Coll. Time (Comp. End)					Canister Serial #	Flow Controller Serial #	Initial Field (in. Hg)	Final Field (in. Hg)	Lab Received (in. Hg)	EnvisionAir Sample Number
6406-10710-IA-B	6LC	9/9	1030	9/10	1030		X			11089	07436	-27	-2.5	-2.5	15-1945
6406-10710-IA-1	6LC	9/9	1025	9/10	1025		X			91579	07301	-29	-2.5	-2.5	15-1946
6406-10710-IA-2	6LC	9/9	1020	9/10	1020		X			~~10625~~ 10025 AM	07622	-27	-3	-3	15-1947
6406-10710-OA	6LC	9/9	1015	9/10	1015		X			91535	07256	-30	-4	-4	15-1948

Comments:

Relinquished by:	Date	Time	Received by:	Date	Time
	9/11/15	16:00	Stanley A. Hunnicutt	9/15/15	09:30

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Mr. Wayne Fassbender
Enviroforensics
N16 W. 23390 Stone Ridge Dr
Suite G
Waukesha, WI 53188

September 28, 2015

ENVision Project Number: 2015-530
Client Project Name: 6406 – OHM Lincoln

Dear Mr. Fassbender,

Please find the attached analytical report for the samples received September 15, 2015. All test methods performed were fully compliant with local, state, and federal EPA methods unless otherwise noted. The project was analyzed as requested on the enclosed chain of custody record. Please review the comments section for additional information about your results or Quality Control data.

Feel free to contact me if you have any questions or comments regarding your analytical report or service.

Thank you for your business. EnvisionAir looks forward to working with you on your next project.

Yours Sincerely,

David Norris

Client Services Manager
EnvisionAir

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Client Name: ENVIROFORENSICS

Project ID: 6406 / OHM LINCOLN

Client Project Manager: W. FASSBENDER

EnvisionAir Project Number: 2015-530

Sample Summary

Canister Pressure / Vacuum

Laboratory Sample Number:	Sample Description:	Matrix:	START Date Collected:	START Time Collected:	End Date Collected:	End Time Collected:	Date Received:	Time Received	Initial Field (in. Hg)	Final Field (in. Hg)	Lab Received (in. Hg)
15-1949	6406-10710-SS-1	A	9/10/15	11:08	9/10/15	11:12	9/15/15	9:30	-27	-1.5	-1.5
15-1950	6406-10710-SS-2	A	9/10/15	11:27	9/10/15	11:31	9/15/15	9:30	-28.5	-2	-2

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Client Name: ENVIROFORENSICS

Project ID: 6406 / OHM LINCOLN

Client Project Manager: W. FASSBENDER

EnvisionAir Project Number: 2015-530

Analytical Method: TO-15
Analytical Batch: 092415AIR

Client Sample ID: 6406-10710-SS-1
Envision Sample Number: 15-1949
Sample Matrix: AIR

Sample Collection START Date/Time: 09/10/15 11:08
Sample Collection END Date/Time: 09/10/15 11:12
Sample Received Date/Time: 09/15/15 9:30

Compounds	Sample Results ug/m³	Reporting Limit ug/m³	Flag
4-Ethyltoluene	< 4920	4920	2
4-Methyl-2-pentanone (MIBK)	< 20500	20500	2
1,1,1-Trichloroethane	< 5460	5460	2
1,1,2,2-Tetrachloroethane	< 3.36	3.36	1,2
1,1,2-Trichloroethane	< 2.10	2.10	1,2
1,1-Dichloroethane	< 40.5	40.5	2
1,1-Dichloroethene	< 1980	1980	2
1,2,4-Trichlorobenzene	< 7.42	7.42	2
1,2,4-Trimethylbenzene	< 49.2	49.2	2
1,2-dibromoethane (EDB)	< 0.32	0.32	1,2
1,2-Dichlorobenzene	< 601	601	2
1,2-Dichloroethane	< 4.05	4.05	2
1,2-Dichloropropane	< 4.62	4.62	2
1,3,5-Trimethylbenzene	< 49.2	49.2	2
1,3-Butadiene	< 2.21	2.21	2
1,3-Dichlorobenzene	< 601	601	2
1,4-Dichlorobenzene	< 6.01	6.01	2
1,4-Dioxane	< 18.0	18.0	2
2-Butanone (MEK)	< 29500	29500	2
2-Hexanone	< 205	205	2
Acetone	< 23800	23800	2
Benzene	< 16.0	16.0	2
Benzyl Chloride	< 4.14	4.14	1,2
Bromodichloromethane	< 5.36	5.36	1,2
Bromoform	< 103	103	2
Bromomethane	< 38.8	38.8	2
Carbon Disulfide	< 3110	3110	2
Carbon Tetrachloride	< 6.29	6.29	2
Chlorobenzene	< 230	230	2
Chloroethane	< 132	132	2

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Compounds	Sample Results ug/m³	Reporting Limit ug/m³	Flag
Chloroform	< 8.30	8.30	2
Chloromethane	< 206	206	2
cis-1,2-Dichloroethene	< 198	198	2
cis-1,3-Dichloropropene	< 45.4	45.4	2
Cyclohexane	< 55100	55100	2
Dibromochloromethane	< 8.52	8.52	2
Dichlorodifluoromethane	< 495	495	2
Ethyl Acetate	< 18000	18000	2
Ethylbenzene	< 86.8	86.8	2
Hexachloro-1,3-butadiene	< 10.7	10.7	2
Isooctane	< 4670	4670	2
m,p-Xylene	< 434	434	2
Methylene Chloride	< 417	417	2
Methyl-tert-butyl ether	< 361	361	2
N-Heptane	< 4100	4100	2
N-Hexane	< 1760	1760	2
o-Xylene	< 434	434	2
Propylene	< 1720	1720	2
Styrene	< 4260	4260	2
Tetrachloroethene	**276**	31.9	2
Tetrahydrofuran	< 2950	2950	2
Toluene	< 37700	37700	2
trans-1,2-Dichloroethene	< 396	396	2
trans-1,3-Dichloropropene	< 45.4	45.4	2
Trichlorethene	< 10.7	10.7	2
Trichlorofluoromethane	< 5620	5620	2
Vinyl Acetate	< 1760	1760	2
Vinyl Bromide	< 4.37	4.37	2
Vinyl Chloride	< 12.8	12.8	2
4-bromofluorobenzene (surrogate)	115%		
Analysis Date/Time:	9-25-15/00:21		
Analyst Initials	tjg		

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Client Name: ENVIROFORENSICS

Project ID: 6406 / OHM LINCOLN

Client Project Manager: W. FASSBENDER

EnvisionAir Project Number: 2015-530

Analytical Method: TO-15
Analytical Batch: 092415AIR

Client Sample ID: 6406-10710-SS-2
Envision Sample Number: 15-1950
Sample Matrix: AIR

Sample Collection START Date/Time: 09/10/15 11:27
Sample Collection END Date/Time: 09/10/15 11:31
Sample Received Date/Time: 09/15/15 9:30

Compounds	Sample Results ug/m³	Reporting Limit ug/m³	Flag
4-Ethyltoluene	< 4920	4920	2
4-Methyl-2-pentanone (MIBK)	< 20500	20500	2
1,1,1-Trichloroethane	< 5460	5460	2
1,1,2,2-Tetrachloroethane	< 3.36	3.36	1,2
1,1,2-Trichloroethane	< 2.10	2.10	1,2
1,1-Dichloroethane	< 40.5	40.5	2
1,1-Dichloroethene	< 1980	1980	2
1,2,4-Trichlorobenzene	< 7.42	7.42	2
1,2,4-Trimethylbenzene	< 49.2	49.2	2
1,2-dibromoethane (EDB)	< 0.32	0.32	1,2
1,2-Dichlorobenzene	< 601	601	2
1,2-Dichloroethane	< 4.05	4.05	2
1,2-Dichloropropane	< 4.62	4.62	2
1,3,5-Trimethylbenzene	< 49.2	49.2	2
1,3-Butadiene	< 2.21	2.21	2
1,3-Dichlorobenzene	< 601	601	2
1,4-Dichlorobenzene	< 6.01	6.01	2
1,4-Dioxane	< 18.0	18.0	2
2-Butanone (MEK)	< 29500	29500	2
2-Hexanone	< 205	205	2
Acetone	< 23800	23800	2
Benzene	< 16.0	16.0	2
Benzyl Chloride	< 4.14	4.14	1,2
Bromodichloromethane	< 5.36	5.36	1,2
Bromoform	< 103	103	2
Bromomethane	< 38.8	38.8	2
Carbon Disulfide	< 3110	3110	2
Carbon Tetrachloride	< 6.29	6.29	2
Chlorobenzene	< 230	230	2
Chloroethane	< 132	132	2

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Compounds	Sample Results ug/m³	Reporting Limit ug/m³	Flag
Chloroform	< 8.30	8.30	2
Chloromethane	< 206	206	2
cis-1,2-Dichloroethene	< 198	198	2
cis-1,3-Dichloropropene	< 45.4	45.4	2
Cyclohexane	< 55100	55100	2
Dibromochloromethane	< 8.52	8.52	2
Dichlorodifluoromethane	< 495	495	2
Ethyl Acetate	< 18000	18000	2
Ethylbenzene	< 86.8	86.8	2
Hexachloro-1,3-butadiene	< 10.7	10.7	2
Isooctane	< 4670	4670	2
m,p-Xylene	< 434	434	2
Methylene Chloride	< 417	417	2
Methyl-tert-butyl ether	< 361	361	2
N-Heptane	< 4100	4100	2
N-Hexane	< 1760	1760	2
o-Xylene	< 434	434	2
Propylene	< 1720	1720	2
Styrene	< 4260	4260	2
Tetrachloroethene	**63.8**	31.9	2
Tetrahydrofuran	< 2950	2950	2
Toluene	< 37700	37700	2
trans-1,2-Dichloroethene	< 396	396	2
trans-1,3-Dichloropropene	< 45.4	45.4	2
Trichlorethene	< 10.7	10.7	2
Trichlorofluoromethane	< 5620	5620	2
Vinyl Acetate	< 1760	1760	2
Vinyl Bromide	< 4.37	4.37	2
Vinyl Chloride	< 12.8	12.8	2
4-bromofluorobenzene (surrogate)	115%		
Analysis Date/Time:	9-25-15/00:57		
Analyst Initials	tjg		

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Analytical Report

TO-15 Quality Control Data

EnvisionAir Batch Number: 092415AIR

Method Blank (MB):	MB Results (ppbv)	Reporting Limit (ppbv)	Flags
4-Ethyltoluene	< 100	100	
4-Methyl-2-pentanone (MIBK)	< 500	500	
1,1,1-Trichloroethane	< 100	100	
1,1,2,2-Tetrachloroethane	< 0.049	0.049	1
1,1,2-Trichloroethane	< 0.038	0.038	1
1,1-Dichloroethane	< 1	1	
1,1-Dichloroethene	< 50	50	
1,2,4-Trichlorobenzene	< 0.1	0.1	
1,2,4-Trimethylbenzene	< 1	1	
1,2-dibromoethane (EDB)	< 0.0041	0.0041	1
1,2-Dichlorobenzene	< 10	10	
1,2-Dichloroethane	< 0.1	0.1	
1,2-Dichloropropane	< 0.1	0.1	
1,3,5-Trimethylbenzene	< 1	1	
1,3-Butadiene	< 0.1	0.1	
1,3-Dichlorobenzene	< 10	10	
1,4-Dichlorobenzene	< 0.1	0.1	
1,4-Dioxane	< 0.5	0.5	
2-Butanone (MEK)	< 1000	1000	
2-Hexanone	< 5	5	
Acetone	< 1000	1000	
Benzene	< 0.5	0.5	
Benzyl Chloride	< 0.08	0.08	1
Bromodichloromethane	< 0.08	0.08	1
Bromoform	< 1	1	
Bromomethane	< 1	1	
Carbon Disulfide	< 100	100	
Carbon Tetrachloride	< 0.1	0.1	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
Chloroform	< 0.17	0.17	
Chloromethane	< 10	10	
cis-1,2-Dichloroethene	< 5	5	
cis-1,3-Dichloropropene	< 1	1	
Cyclohexane	< 1600	1600	
Dibromochloromethane	< 0.1	0.1	
Dichlorodifluoromethane	< 10	10	
Ethyl Acetate	< 500	500	
Ethylbenzene	< 2	2	
Hexachloro-1,3-butadiene	< 0.1	0.1	
Isooctane	< 100	100	
m,p-Xylene	< 10	10	
Methylene Chloride	< 12	12	
Methyl-tert-butyl ether	< 10	10	
N-Heptane	< 100	100	
N-Hexane	< 50	50	
o-Xylene	< 10	10	
Propylene	< 100	100	
Styrene	< 100	100	
Tetrachloroethene	< 0.47	0.47	
Tetrahydrofuran	< 100	100	

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Analytical Report

Method Blank (MB):	MB Results (ppbv)	Reporting Limit (ppbv)	Flags
Toluene	< 1000	1000	
trans-1,2-Dichloroethene	< 10	10	
trans-1,3-Dichloropropene	< 1	1	
Trichlorethene	< 0.2	0.2	
Trichlorofluoromethane	< 100	100	
Vinyl Acetate	< 50	50	
Vinyl Bromide	< 0.1	0.1	
Vinyl Chloride	< 0.5	0.5	
4-bromofluorobenzene (surrogate)	111%		
Analysis Date/Time:	9-24-15/20:19		
Analyst Initials	tjg		

LCS/LCSD	LCS Results (ppbv)	LCSD Results (ppbv)	LCS/D Conc(ppbv)	LCS Rec.	LCSD Rec.	RPD	Flag
Propylene	9.26	10.8	10	93%	108%	15.4%	
Dichlorodifluoromethane	9.59	11	10	96%	110%	13.7%	
Chloromethane	8.73	10.8	10	87%	108%	21.2%	3
Vinyl Chloride	9.36	9.32	10	94%	93%	0.4%	
1,3-Butadiene	10.8	10.5	10	108%	105%	2.8%	
Bromomethane	10.8	11.6	10	108%	116%	7.1%	
Chloroethane	9.64	11.8	10	96%	118%	20.1%	3
Vinyl Bromide	11.9	10	10	119%	100%	17.4%	
Trichlorofluoromethane	11.8	10.1	10	118%	101%	15.5%	
Acetone	9.9	9.05	10	99%	91%	9.0%	
1,1-Dichloroethene	10.4	9.13	10	104%	91%	13.0%	
Methylene Chloride	9.35	8.48	10	94%	85%	9.8%	
Carbon Disulfide	9	9.01	10	90%	90%	0.1%	
trans-1,2-Dichloroethene	9.35	8.05	10	94%	81%	14.9%	
Methyl-tert-butyl ether	8.59	9.01	10	86%	90%	4.8%	
1,1-Dichloroethane	9.27	8.1	10	93%	81%	13.5%	
Vinyl Acetate	9.88	8.65	10	99%	87%	13.3%	
N-Hexane	8.6	8.35	10	86%	84%	2.9%	
2-Butanone (MEK)	9.32	9.93	10	93%	99%	6.3%	
cis-1,2-Dichloroethene	9.71	8.52	10	97%	85%	13.1%	
Ethyl Acetate	9.7	8.16	10	97%	82%	17.2%	
Chloroform	10.3	9.11	10	103%	91%	12.3%	
Tetrahydrofuran	8.93	9.56	10	89%	96%	6.8%	
1,2-Dichloroethane	11	10.6	10	110%	106%	3.7%	
1,1,1-Trichloroethane	10.2	9.82	10	102%	98%	3.8%	
Carbon Tetrachloride	10.5	10.2	10	105%	102%	2.9%	
Benzene	10.3	8.55	10	103%	86%	18.6%	
Cyclohexane	8.86	10.1	10	89%	101%	13.1%	
1,2-Dichloropropane	8.57	8.28	10	86%	83%	3.4%	
Trichlorethene	8.91	8.85	10	89%	89%	0.7%	
Bromodichloromethane	10.5	10.4	10	105%	104%	1.0%	
1,4-Dioxane	8.3	8.52	10	83%	85%	2.6%	
Isooctane	8.79	8.33	10	88%	83%	5.4%	
N-Heptane	8.44	8.59	10	84%	86%	1.8%	
cis-1,3-Dichloropropene	9.46	8.69	10	95%	87%	8.5%	
4-Methyl-2-pentanone (MIBK)	8.85	8.56	10	89%	86%	3.3%	
trans-1,3-Dichloropropene	10.4	10.1	10	104%	101%	2.9%	
1,1,2-Trichloroethane	9.27	8.88	10	93%	89%	4.3%	
Toluene	8.64	8.19	10	86%	82%	5.3%	
2-Hexanone	8.74	8.59	10	87%	86%	1.7%	
Dibromochloromethane	10.8	10	10	108%	100%	7.7%	
1,2-dibromoethane (EDB)	10.9	10.2	10	109%	102%	6.6%	
Tetrachloroethene	8.91	8.14	10	89%	81%	9.0%	
Chlorobenzene	9.62	8.95	10	96%	90%	7.2%	
Ethylbenzene	10.1	9.58	10	101%	96%	5.3%	
m,p-Xylene	21.3	21	20	107%	105%	1.4%	
Bromoform	11.5	11.4	10	115%	114%	0.9%	

EnvisionAir
1441 Sadlier Circle West Drive
Indianapolis, IN 46239
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Fax: 317-351-0882
www.envision-air.com

Analytical Report

LCS/LCSD	LCS Results (ppbv)	LCSD Results (ppbv)	LCS/D Conc(ppbv)	LCS Rec.	LCSD Rec.	RPD	Flag
Styrene	10.2	9.73	10	102%	97%	4.7%	
1,1,2,2-Tetrachloroethane	9.85	9.52	10	99%	95%	3.4%	
o-Xylene	9.9	9.36	10	99%	94%	5.6%	
4-Ethyltoluene	10.2	9.63	10	102%	96%	5.7%	
1,3,5-Trimethylbenzene	10.5	10.3	10	105%	103%	1.9%	
1,2,4-Trimethylbenzene	10.4	9.99	10	104%	100%	4.0%	
1,3-Dichlorobenzene	9.36	9.15	10	94%	92%	2.3%	
Benzyl Chloride	11	10.8	10	110%	108%	1.8%	
1,4-Dichlorobenzene	10.8	10.9	10	108%	109%	0.9%	
1,2-Dichlorobenzene	10.4	10.1	10	104%	101%	2.9%	
1,2,4-Trichlorobenzene	10.9	11.4	10	109%	114%	4.5%	
Hexachloro-1,3-butadiene	8.87	9.17	10	89%	92%	3.3%	
4-bromofluorobenzene (surrogate)	116%	109%					
Analysis Date/Time:	9-24-15/19:09	9-24-15/19:45					
Analyst Initials	tjg	tjg					

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Flag Number	Comments
1	Reporting limit is supported by MDL. TJG
2	Reported value is from a 10x dilution. TJG 9-25-15
3	RPD is biased high, but recoveries are within control. TJG 9-25-15

WPF EnvisionAir Proj#: 2015-530 Page 1 of 1

CHAIN OF CUSTODY RECORD

EnvisionAir | 1441 Sadlier Circle West Drive | Indianapolis, IN 46239 | Phone: (317) 351-0885 | Fax: (317) 351-0882

Client: Enviro Forensics	P.O. Number: 2015838
Report Address: N16 W23390 Stoneridge Drive Suite 6 Waukesha, WI 53188	Project Name or Number: 6406 / OHM Lincoln
Report To: W. Fassbender	Sampled by: K. Vanderheiden
Phone: 317-972-7873	QA/QC Required: (circle if applicable) Level III Level IV
Invoice Address: Same as above	Reporting Units needed: (circle) ug/m³ mg/m³ PPBV PPMV
Desired TAT: (Please Circle One) 1 day 2 days 3 days Std (5 bus. days)	Media type: 1LC = 1 Liter Canister; 6LC = 6 Liter Canister; TB = Tedlar Bag; TD = Thermal Desorption Tube

REQUESTED PARAMETERS

TO-15 Full List

TO-15 Short List

ENVISIONAIR

Sampling Type:
Soil-Gas: ☐
Sub-Slab: ☒
Indoor-Air: ☐

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Canister Pressure / Vacuum

Air Sample ID	Media Type (see code above)	Coll. Date (Grab/Comp Start)	Coll. Time (Grab/Comp Start)	Coll. Date (Comp. End)	Coll. Time (Comp. End)					Canister Serial #	Flow Controller Serial #	Initial Field (in. Hg)	Final Field (in. Hg)	Lab Received (in. Hg)	EnvisionAir Sample Number
6406-10710-SS-1	1LC	9/10	1108	9/10	1112		X			83831	NA	-27	-1.5	-1.5	15-1949
6406-10710-SS-2	1LC	9/10	1127	9/10	1131		X			84044	NA	-28.5	-2	-2	15-1950

Comments:

Relinquished by:	Date	Time	Received by:	Date	Time
	9/11/15		Stanley A. Kunnicutt	9/15/15	09:30