268087380

ENVIRO forensics

Rec'd 1-19-16 DSV

January 12, 2016

Mr. David G. Volkert, Hydrogeologist
Wisconsin Department of Natural Resources
Bureau for Remediation & Redevelopment
Waukesha Service Center
141 NW Barstow Street
Waukesha, Wisconsin 53188

Re: Results of Further WDNR Requested Site Investigations Supplemental to the NR 716 Site Investigation Report
OHM - Oconomowoc
36929 Plank Road
Oconomowoc, Wisconsin
FID # 268087380; BRRTS # 02-68-551911

Dear Mr. Volkert:

As consultant to Mr. Charles Cass of OHM Holdings, Inc., Environmental Forensic Investigations, Inc. (EnviroForensics) is providing this results report of additional site investigation activities at the One Hour Martinizing (OHM) facility formerly located at 36929 Plank Road in Oconomowoc, Wisconsin (Site). This report is in response to the Wisconsin Department of Natural Resources (the Department) request of January 12, 2015 for additional groundwater and vapor intrusion information to supplement the Site Investigation Report dated November 20, 2014.

As stated in the Department letter, the Department requested additional groundwater monitoring wells on neighboring properties located east of the Site. Specifically, one (1) monitoring well on the KIA Dealership property (KIA) between existing wells MW-11 and MW-12, and wells further to the east on the NAPA Auto Parts Store (NAPA) property. It is our understanding that the Department concerns are as follows:

1. There may be a vapor intrusion risk to the Ewald KIA building if groundwater concentrations adjacent to the building are above the groundwater Enforcement Standards (ES); and
2. If groundwater impacts have spread further to the east to encroach the NAPA property at concentrations above the ES, then there may be a vapor intrusion risk to this building. Also, a Groundwater Use Restriction would need to be registered for this property.

Environmental Forensic Investigations, Inc.
N16 W23390 Stone Ridge Drive, Suite G, Waukesha, WI 53188
Phone: 262-290-4001 • Fax 262-510-0460

Proposed Additional Sampling

To address these concerns, EnviroForensics proposed the following in a work scope titled *Work Scope for Further Site Investigations,* dated February 2, 2015:

- Three (3) wells to be installed on the NAPA auto parts store property to include two (2) water table wells (MW-14 and MW-15) and one deeper piezometer (PZ-2) to define vertical and down-gradient extent of chlorinated solvent impacts (see attached **Figure 1**); and
- Five (5) sub-slab vapor samples would be collected inside the KIA building to determine if a vapor risk was present, rather than installing a permanent monitoring well. This was deemed a more practical approach. The exact sample locations would be selected based on configuration of office and other potential partially closed spaces within the building and areas where installation of the sub-slab vapor probes would be most inconspicuous.

Access Issues and Modifications to Scope

Several attempts were made to gain access to the Ewald KIA building for the planned sub-slab sampling. The owner, Mr. Brian Ewald, refused to allow sub-slab sampling ports to be installed in his building. Alternative options were discussed with WDNR project manager Dave Volkert and Mr. Ewald in an attempt to resolve Mr. Ewald's concerns. It was decided that groundwater conditions would be evaluated on the Ewald KIA property near the building by installing and sampling the groundwater monitoring well originally requested by the WDNR (MW-17 on attached **Figure 1**). If groundwater impacts were detected in this well at concentrations exceeding the ES, then a vapor sample would be collected from the well, and the concentrations detected in the vapor sample would be compared to vapor risk levels (VRLs) established for deep soil gas.

Well Installation Procedures and Groundwater Sampling Results

NAPA Auto Parts Store Property

Two (2) water table observation wells (MW-14 and MW-15) and piezometer PZ-2 were installed in April, 2015 on the NAPA Auto Parts property at the locations shown on **Figure 1**. The wells were constructed in accordance with the requirements of the Department regulation Chapter NR 141. The water table wells and piezometer were constructed of 2-inch diameter schedule 40 PVC.

The water table observation wells were installed with screen lengths of ten-feet and factory cut 0.010-inch wide factory-cut slots. The screens were placed to intersect the water table, which was at a depth of approximately 31 feet below ground surface at the time of installation.

The piezometer was constructed of similar materials, except it was installed with a screen length of five-feet and installed below the water table at a depth of 61.5 feet below ground surface. **Well construction logs** are attached.

The new wells were developed according to NR 141 and sampled according to guidance in the Department Groundwater Sampling Desk Reference, PUBL-DGT-037. The wells were sampled using low-flow procedures, sent to a Wisconsin Certified laboratory, and analyzed by EPA Method 8260 for the short list of chlorinated dry cleaning solvents, only. **Well Development Logs** are attached.

The wells have been sampled two to four (2-4) times on a quarter year basis since their installation (see attached **Table 1** for a summary of all analytical results, and attached **laboratory sheets** for the June sampling event, only). As can be seen in **Table 1**, the concentration of tetrachloroethylene (PCE) in MW-14 has been above the ES during all four (4) sampling events and MW-15 has alternately contained PCE above the PAL and ES, respectively. This prompted the installation of an additional water table observation well further down-gradient, MW-16. Concentrations of PCE in MW-16 have been above the groundwater Preventative Action Limit (PAL), but below the ES. Piezometer PZ-2 did not contain chlorinated compounds above laboratory detection limits.

During the initial sampling event of April, 2015, MW-15 had a concentration of PCE that was above the PAL, but below the ES (**Table 1**). However, during the subsequent sampling event in June, 2015, MW-15 contained PCE in a concentration above the ES. This well is nearest to the NAPA building (**Figure 1**), and as such, the concentrations of PCE above the ES poses a potential vapor intrusion risk to the NAPA building. To evaluate this risk, a vapor sample was later collected from this well.

Ewald KIA Property

Water table observation well MW-17 was installed on the Ewald KIA property in July, 2015, after access was granted (**Figure 1**). This well was constructed in a similar fashion to the other water table observation wells with the exception of a longer screen length of 15 feet to provide adequate open screen length above the water table for potential collection of a soil vapor sample. The screen was installed to a depth of 37.5 feet below ground surface with the water table residing at a depth of 32.5 feet below ground surface. As can be seen in **Table 1**, the concentrations of PCE detected during the August 2015 sampling event exceeded the ES indicating the potential for a vapor intrusion risk to the building. To evaluate this risk, a vapor sample was collected from this well.

Vapor Sampling in Monitoring Wells MW-15 and MW-17

The vapor intrusion risk to the NAPA Auto Parts Store and the Ewald KIA dealership was evaluated by collecting soil vapor samples from monitoring wells MW-15 and MW-17, respectively. The vapor samples were analyzed by EPA Method TO-15 for the dry cleaning list of chlorinated solvents, only.

Vapor Sampling Procedures

A custom sample collection train was fashioned to allow the following adaptations (see attached **photographs**):

- A rubber connector was fitted to one end of the sample train with a screw-tightened hose clamp to allow an air-tight connection to the 2-inch diameter PVC well riser;
- Another rubber connector was fitted with a screw-tightened hose clamp on the opposite end of the sample train to allow attachment of a vacuum source for purging of the dead air space in the monitoring well;
- A shut off lever-operated valve was installed to isolate the open vacuum end used for purging stagnant air in the well prior to sample collection; and
- A tee connector and hose barb was installed below the shut-off valve to allow attachment of tubing for helium leak testing and for sample collection.

To ensure that the sub-slab vapor samples were representative of subsurface vapor conditions, leak testing was performed generally in accordance with methods presented in the *Standard Practice for Active Soil Gas Sampling in the Vadose Zone for Vapor Intrusion Evaluation*, ASTM Standard D7663-11, and WDNR Publication RR-800.

Testing the integrity of the sample ports was conducted utilizing a helium tracer gas inside of a shroud (sealed plastic bag) that covered the sample collection train. While purging stagnant air from the well, if there was no detection of helium, the train was considered free of leaks. The integrity of the sampling lines was tested prior to sampling using a hand pump with a pressure gauge. Negative pressure was added to the line and observed for 60 seconds for changes. If no change to the pressure is observed the line was considered to be intact.

Calculating the Purge Volume

Prior to testing the integrity of the sampling ports, the depth to groundwater was measured to calculate the amount of unsaturated sand pack and well column.

The air flow of a small vacuum pump was calculated by connecting the pump to the entire sampling system and purging into a bag of known volume. The flow rate was calculated to be about 4 liters per second.

The amount of air per well volume was found by adding the calculated volume of air in the PVC riser (V_{riser}) and calculated amount of air in the unsaturated sand pack which includes the two foot filter pack above the well screen (V_{unsat}). The V_{unsat} was then adjusted for effective porosity of 35%. The amount of air per well volume was calculated using the following formulae:

Equations

$V_{unsat} = \pi \times r^2 \times h_{unsat} \times ef$

$V_{riser} = \pi \times r^2 \times h_{riser}$

$V_{total} = V_{riser} + V_{unsat}$

$1\ ft^3 = 28.31$ liters

$t = (V_{total} /$ vacuum flow rate)

Definitions

V_{unsat} = volume of air in unsaturated filter pack

V_{riser} = volume of air in well riser

V_{total} = total volume of air in well

t = length of purge time

ef = effective porosity

h_{riser} = height of riser

h_{unsat} = height of unsaturated zone

r = radius

l = liter

ft^3 = cubic feet

$1\ ft^3 = 28.31$ liters

flow rate = 4 liters/second

The amount of time and air purged is equal to the total volume of air in one well, divided by the flow rate. About three well volumes were purged from each well. 50.1 liters was purged from MW-15 and 44.1 liters was purged from MW-17.

Following purging, the vapor samples were collected in laboratory batch-certified one-liter sample vacuum canisters. In order to avoid the potential desorption of contaminants from the soil and to avoid leaks in the sampling system, a recommended sampling flow rate of 200 milliliters per minute (mL/min) was maintained by using a laboratory supplied flow controller. The vacuum canisters were connected to each vapor port using compression fittings and Teflon®-lined polyethylene tubing. Initial and final pressure readings were collected from the vacuum canisters and recorded on the attached **Field Sampling Forms**, along with all other required information. Soil gas vapor samples were submitted to Envision Laboratories of Indianapolis, Indiana for analysis of VOCs according to EPA Method TO-15. The samples were shipped via courier under appropriate chain-of-custody procedures.

Vapor Sampling Results

The vapor sampling results are recorded in attached **Table 2**, and attached **Laboratory Results Sheets**. As can be seen in **Table 2**, PCE was detected in both wells, but at concentrations well below the VRSLs established for deep soil gas samples.

Conclusions

PCE concentrations in down-gradient monitoring well MW-16 exceed the PAL, but do not exceed the ES. However, PCE in groundwater at concentrations above the ES have migrated to the adjacent NAPA and Ewald properties, and groundwater use restrictions will be needed for these properties. The concentrations of PCE detected in vapor samples collected from groundwater monitoring wells located near the Ewald KIA and NAPA buildings are well below VRSLs. These concentrations of PCE do not pose a vapor intrusion risk to the buildings. Based on these findings, the site investigations are

considered complete. EnviroForensics recommends that no further site investigations are needed to determine the extent of impacts. Instead, efforts should be focused on pilot testing and selecting the most appropriate and cost effective methods for remediation.

If you have any questions or require additional information, please don't hesitate to contact me at 414-982-3988.

Sincerely yours,

Wayne P. Fassbender, PG, PMP
Senior Project Manager

Attachments:

Attachment 1: Figure 1 showing locations of groundwater monitoring wells

Attachment 2: Well Construction Logs

Attachment 3: Well development logs

Attachment 4: Table 1 of groundwater analytical results

Attachment 5: Laboratory results sheets

Attachment 6: Photographs of vapor sampling train

Attachment 7: Field sampling logs

Attachment 8: Table 2 of vapor sampling results

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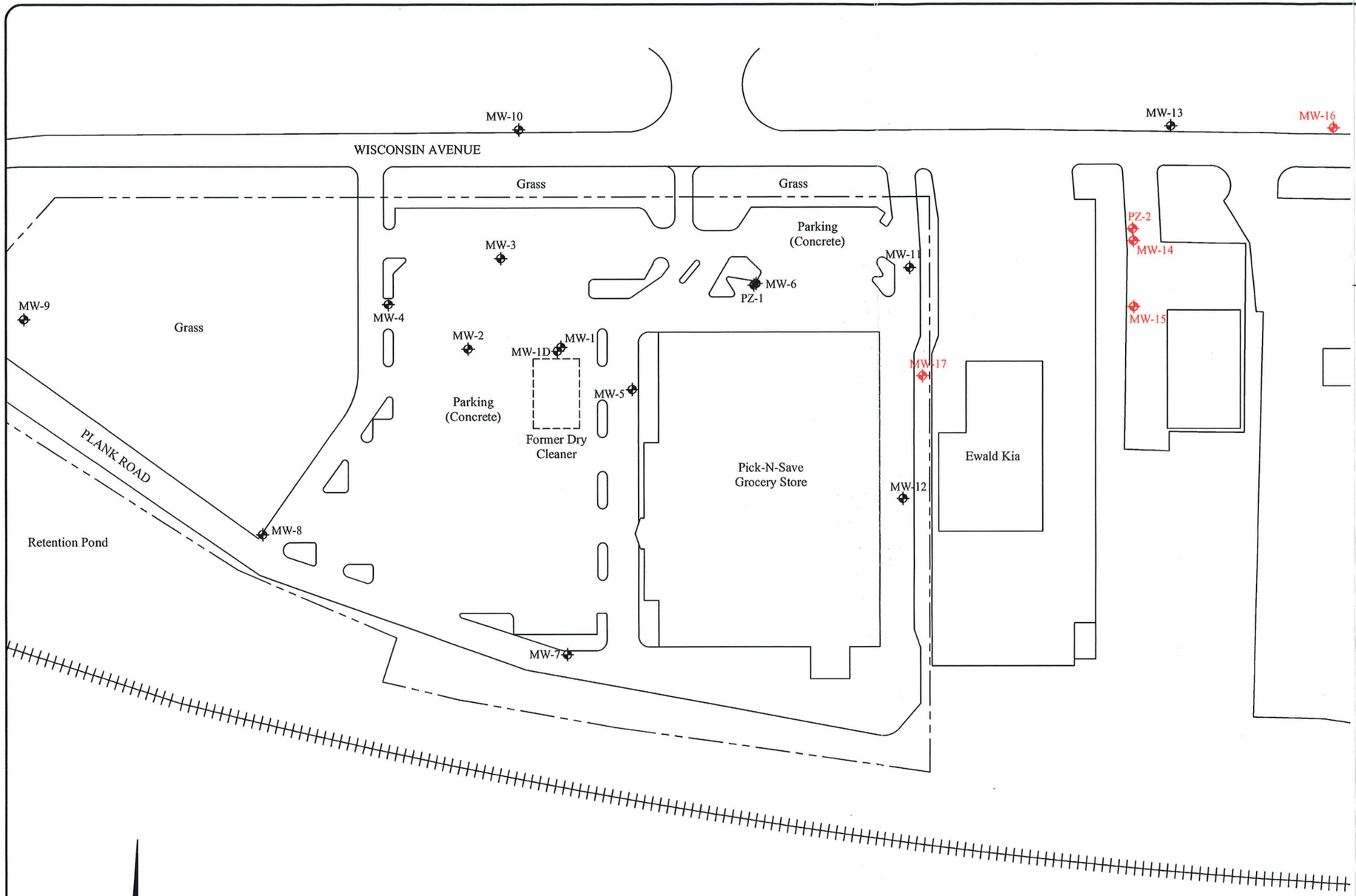
ATTACHMENT 1

Figure 1 Showing Locations of Groundwater Monitoring Wells



MONITORING WELL LOCATION MAP

Martinizing Dry Cleaning
36929 Plank Road
Oconomowoc, WI

Date:	5/1/15
Designed:	EB
Drawn:	EB
Checked:	KH
DWG file:	6143-0135

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

Figure	1
Project	6143

ATTACHMENT 2

Well Construction Logs

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: OHM Oconomowoc	Local Grid Location of Well: _____ ft. ☐N. ☐S. _____ ft. ☐E. ☐W.	Well Name: MW-14
Facility License, Permit or Monitoring No.: 02-68-551911	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ___ ° ___ ' _____ " Long. ___ ° ___ ' _____ " or	Wis. Unique Well No.: VY-861 / DNR Well ID No.: ____
Facility ID: 268087380	St. Plane _____ ft. N, _____ ft. E. S/C/N	Date Well Installed: 04/06/2015 (m m d d y y y y)
Type of Well: Well Code 11 / MW	Section Location of Waste/Source: ____ 1/4 of ____ 1/4 of Sec. ____, T. ____ N, R. ____ ☐E ☐W	Well Installed By: Name (first, last) and Firm: Alex Plummer / Badger State Drilling
Distance from Waste/Source _____ ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known	Gov. Lot Number: _____

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation _____ ft. MSL

D. Surface seal, bottom _____ ft. MSL or 1 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☒ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☒ 41
8 1/4 inch OD Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe _____

17. Source of water (attach analysis, if required):

_____

E. Bentonite seal, top _____ ft. MSL or 1 ft.

F. Fine sand, top _____ ft. MSL or 22.5 ft.

G. Filter pack, top _____ ft. MSL or 24 ft.

H. Screen joint, top _____ ft. MSL or 26 ft.

I. Well bottom _____ ft. MSL or 36 ft.

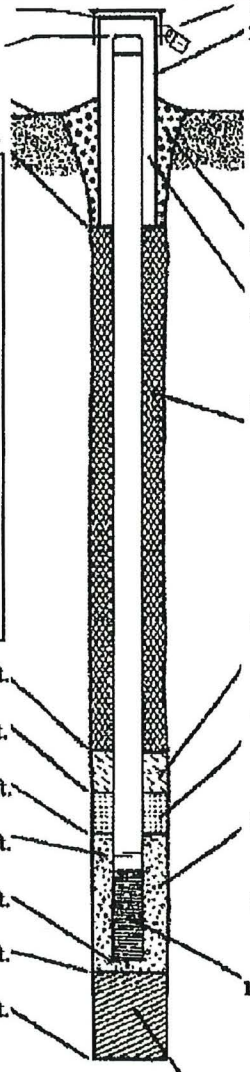
J. Filter pack, bottom _____ ft. MSL or 37 ft.

K. Borehole, bottom _____ ft. MSL or 37 ft.

L. Borehole, diameter 8.25 in.

M. O.D. well casing 2.375 in.

N. I.D. well casing 2.047 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 8 in.
b. Length: 1 ft.
c. Material: Steel ☒ 04 / Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____

3. Surface seal: Bentonite ☐ 30 / Concrete ☒ 01 / Other ☐
_____

4. Material between well casing and protective pipe: Bentonite ☒ 30 / Other ☐
_____

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. Black Hills / Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
a. Red Flint #15
b. Volume added 0.25 ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. Ohio #5
b. Volume added 2.5 ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / Other ☐
_____

10. Screen material: _____
a. Screen type: Factory cut ☒ 11 / Continuous slot ☐ 01 / Other ☐
b. Manufacturer MonoFlex
c. Slot size: 0.1 in.
d. Slotted length: 10 ft.

11. Backfill material (below filter pack): None ☒ 14 / Other ☐
_____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature _____ Firm EnviroForensics

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: OHM Oconomowoc	Local Grid Location of Well: _____ ft. ☐N. ☐S. _____ ft. ☐E. ☐W.	Well Name: MW-15
Facility License, Permit or Monitoring No.: 02-68-551911	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: VY-862 / DNR Well ID No.: ____
Facility ID: 268087380	St. Plane _____ ft. N, _____ ft. E. S/C/N	Date Well Installed: 04/07/2015 (mm dd yyyy)
Type of Well: Well Code 11 / MW	Section Location of Waste/Source: _____ 1/4 of _____ 1/4 of Sec. _____, T. _____ N, R. _____ ☐E ☐W	Well Installed By: Name (first, last) and Firm: Alex Plummer / Enviro Forensics
Distance from Waste/Source _____ ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known	Gov. Lot Number: _____

A. Protective pipe, top elevation _____ ft. MSL
B. Well casing, top elevation _____ ft. MSL
C. Land surface elevation _____ ft. MSL
D. Surface seal, bottom _____ ft. MSL or 1 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☒ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☒ 41
8¼ inch OD
Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):
_____

E. Bentonite seal, top _____ ft. MSL or 1 ft.
F. Fine sand, top _____ ft. MSL or 23.5 ft.
G. Filter pack, top _____ ft. MSL or 25.5 ft.
H. Screen joint, top _____ ft. MSL or 23.5 ft.
I. Well bottom _____ ft. MSL or 37.5 ft.
J. Filter pack, bottom _____ ft. MSL or 38 ft.
K. Borehole, bottom _____ ft. MSL or 38 ft.
L. Borehole, diameter 8.25 in.
M. O.D. well casing 2.375 in.
N. I.D. well casing 2.047 in.

1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 8 in.
b. Length: 1 ft.
c. Material: Steel ☒ 04
_____ Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____
3. Surface seal: Bentonite ☐ 30
Concrete ☒ 01
_____ Other ☐
4. Material between well casing and protective pipe:
Bentonite ☒ 30
_____ Other ☐
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☐ 02
Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite chips ☒ 32
c. Black Hills Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
a. Red Flint #15
b. Volume added 0.25 ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. Ohio #5
b. Volume added 2.5 ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
_____ Other ☐
10. Screen material: _____
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
_____ Other ☐
b. Manufacturer MonoFlex
c. Slot size: 0.1 in.
d. Slotted length: 10 ft.
11. Backfill material (below filter pack): None ☒ 14
_____ Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature _____ Firm Enviro Forensics

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Ohm Oconomowoc	Local Grid Location of Well: _____ ft. ☐N. ☐S. _____ ft. ☐E. ☐W.	Well Name: PZ-2
Facility License, Permit or Monitoring No.: 02-68-551911	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: VY-860 / DNR Well ID No.: ___
Facility ID: 268087380	St. Plane _____ ft. N, _____ ft. E. S/C/N	Date Well Installed: 04/07/2015 (m m d d y y y y)
Type of Well: Well Code 12 / PZ	Section Location of Waste/Source: 1/4 of ___ 1/4 of Sec. ___, T. ___ N, R. ___ ☐E ☐W	Well Installed By: Name (first, last) and Firm: Alex Plummer, Badger State Drilling
Distance from Waste/Source _____ ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known	Gov. Lot Number: _____

A. Protective pipe, top elevation _____ ft. MSL
B. Well casing, top elevation _____ ft. MSL
C. Land surface elevation _____ ft. MSL
D. Surface seal, bottom _____ ft. MSL or 1 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☒ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

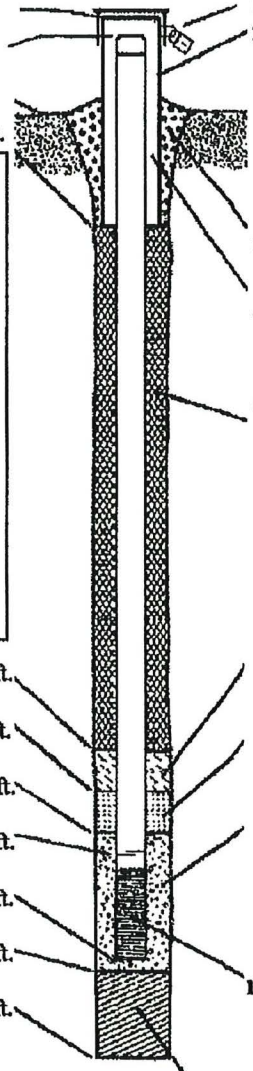
14. Drilling method used: Rotary ☒ 50; Hollow Stem Auger ☐ 41; Other ☐ _____

15. Drilling fluid used: Water ☐ 02; Air ☐ 01; Drilling Mud ☒ 03; None ☐ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required): Madison, WI

E. Bentonite seal, top _____ ft. MSL or 1 ft.
F. Fine sand, top _____ ft. MSL or 53 ft.
G. Filter pack, top _____ ft. MSL or 54.5 ft.
H. Screen joint, top _____ ft. MSL or 56.5 ft.
I. Well bottom _____ ft. MSL or 61.5 ft.
J. Filter pack, bottom _____ ft. MSL or 62 ft.
K. Borehole, bottom _____ ft. MSL or 62 ft.
L. Borehole, diameter 6 in.
M. O.D. well casing 2.375 in.
N. I.D. well casing 2.047 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 8 in.
b. Length: 1 ft.
c. Material: Steel ☒ 04; Other ☐ _____
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____
3. Surface seal: Bentonite ☐ 30; Concrete ☒ 01; Other ☐ _____
4. Material between well casing and protective pipe: Bentonite ☒ 30; Other ☐ _____
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01; Tremie pumped ☐ 02; Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite chips ☒ 32
c. Black Hills Other ☐ _____
7. Fine sand material: Manufacturer, product name & mesh size
a. Red Flint #15 _____
b. Volume added 0.25 ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. Ohio #5 _____
b. Volume added 0.75 ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 23; Flush threaded PVC schedule 80 ☐ 24; Other ☐ _____
10. Screen material: _____
a. Screen type: Factory cut ☒ 11; Continuous slot ☐ 01; Other ☐ _____
b. Manufacturer Mono Flex
c. Slot size: 0.1 in.
d. Slotted length: 5 ft.
11. Backfill material (below filter pack): None ☒ 14; Other ☐ _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature _____ Firm EnviroForensics

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: OHM Oconomowoc	Local Grid Location of Well: _____ ft. ☐N. ☐S. _____ ft. ☐E. ☐W.	Well Name: 6143-MW-16
Facility License, Permit or Monitoring No.: 02-68-551911	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: VY 866 / DNR Well ID No.: ____
Facility ID: 268087380	St. Plane _____ ft. N, _____ ft. E. S/C/N	Date Well Installed: 07/27/2015 (m m d d y y y y)
Type of Well — Well Code: 11 / MW	Section Location of Waste/Source: ____ 1/4 of ____ 1/4 of Sec. ____, T. ____ N, R. ____ ☐E ☐W	Well Installed By: Name (first, last) and Firm: Kevin Duerst - Badger State Drilling
Distance from Waste/Source: _____ ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number: _____

A. Protective pipe, top elevation _____ ft. MSL
B. Well casing, top elevation _____ ft. MSL
C. Land surface elevation _____ ft. MSL
D. Surface seal, bottom _____ ft. MSL or 1.5 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

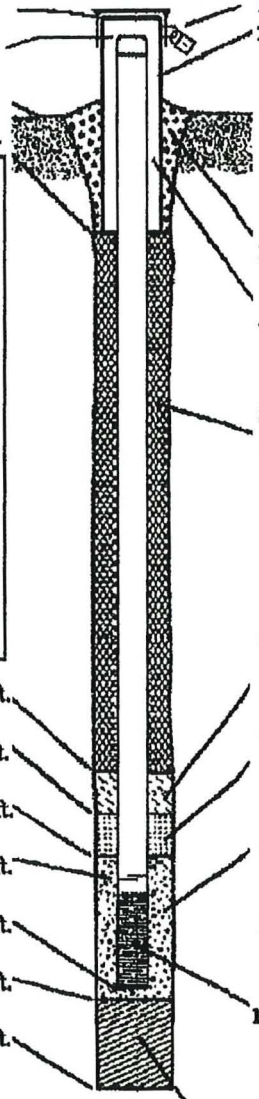
14. Drilling method used: Rotary ☐ 50 / Hollow Stem Auger ☒ 41 / Other ☐ ____

15. Drilling fluid used: Water ☐ 02 / Air ☐ 01 / Drilling Mud ☐ 03 / None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):
_____

E. Bentonite seal, top _____ ft. MSL or 1.5 ft.
F. Fine sand, top _____ ft. MSL or 22 ft.
G. Filter pack, top _____ ft. MSL or 22 ft.
H. Screen joint, top _____ ft. MSL or 26 ft.
I. Well bottom _____ ft. MSL or 36 ft.
J. Filter pack, bottom _____ ft. MSL or 36.5 ft.
K. Borehole, bottom _____ ft. MSL or 36.5 ft.
L. Borehole, diameter 8 1/2 in.
M. O.D. well casing 2.375 in.
N. I.D. well casing 2.067 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 8 in.
b. Length: 1 ft.
c. Material: Steel ☐ 04 / Other ☐ ____
d. Additional protection? ☒ Yes ☐ No
If yes, describe: Concrete flushmount
3. Surface seal: Bentonite ☒ 30 / Concrete ☐ 01 / Other ☐ ____
4. Material between well casing and protective pipe: Sand
Bentonite ☐ 30 / Other ☒ ____
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight... Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight..... Bentonite slurry ☐ 31
d. _____ % Bentonite ..... Bentonite-cement grout ☐ 50
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐ ____
7. Fine sand material: Manufacturer, product name & mesh size
a. Red Flint #15
b. Volume added _____ ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. R.W. Sidley #5
b. Volume added _____ ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / Other ☐ ____
10. Screen material: PVC
a. Screen type: Factory cut ☐ 11 / Continuous slot ☐ 01 / Other ☐ ____
b. Manufacturer Monoflex
c. Slot size: 0.____ in.
d. Slotted length: 10 ft.
11. Backfill material (below filter pack): None ☒ 14 / Other ☐ ____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
	EnviroForensics

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: OHM Oconomowoc	Local Grid Location of Well: _____ ft. ☐N. ☐S. _____ ft. ☐E. ☐W.	Well Name: 6143-MW-17
Facility License, Permit or Monitoring No.: 02-68-551911	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: VY 867 / DNR Well ID No.: ____
Facility ID: 268087380	St. Plane _____ ft. N, _____ ft. E. S/C/N	Date Well Installed: 07/27/2015 (m m d d y y y y)
Type of Well: Well Code 11 / MW	Section Location of Waste/Source: 1/4 of ____ 1/4 of Sec. ____ T. ____ N, R. ____ ☐E ☐W	Well Installed By: Name (first, last) and Firm: Kevin Duerst / Badger State Drilling
Distance from Waste/Source _____ ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☒ Downgradient n ☐ Not Known	Gov. Lot Number: _____

A. Protective pipe, top elevation _____ ft. MSL
B. Well casing, top elevation _____ ft. MSL
C. Land surface elevation _____ ft. MSL
D. Surface seal, bottom _____ ft. MSL or 1.5 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☒ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

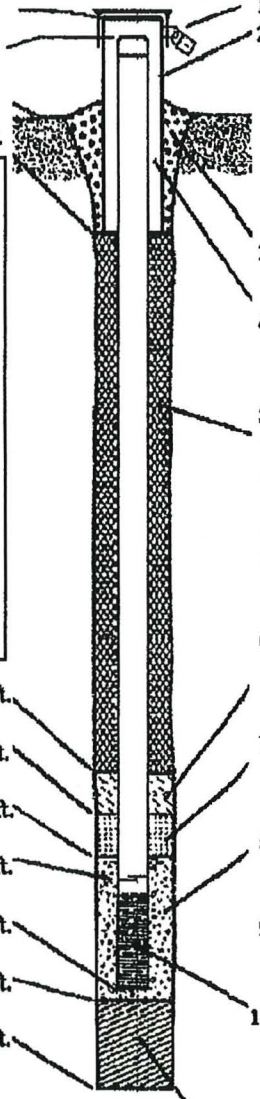
14. Drilling method used: Rotary ☐ 50 / Hollow Stem Auger ☒ 41 / Other ☐ _____

15. Drilling fluid used: Water ☐ 02 / Air ☐ 01 / Drilling Mud ☐ 03 / None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):
_____

E. Bentonite seal, top _____ ft. MSL or 1.5 ft.
F. Fine sand, top _____ ft. MSL or 19.3 ft.
G. Filter pack, top _____ ft. MSL or 21.6 ft.
H. Screen joint, top _____ ft. MSL or 22.8 ft.
I. Well bottom _____ ft. MSL or 37.8 ft.
J. Filter pack, bottom _____ ft. MSL or 37.8 ft.
K. Borehole, bottom _____ ft. MSL or 37.8 ft.
L. Borehole, diameter 8 1/2 in.
M. O.D. well casing 2.375 in.
N. I.D. well casing 2.067 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 8 in.
b. Length: 1 ft.
c. Material: Steel ☒ 04 / Other ☐ _____
d. Additional protection? ☒ Yes ☐ No
If yes, describe: concrete flushpad
3. Surface seal: Bentonite ☒ 30 / Concrete ☐ 01 / Other ☐ _____
4. Material between well casing and protective pipe: Bentonite ☐ 30 / Other ☒ sand
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight ... Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight ..... Bentonite slurry ☐ 31
d. _____ % Bentonite ..... Bentonite-cement grout ☐ 50
e. _____ Ft³ volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐ _____
7. Fine sand material: Manufacturer, product name & mesh size
a. Red Flint #15
b. Volume added _____ ft³
8. Filter pack material: Manufacturer, product name & mesh size
a. R.W. Sidley #5
b. Volume added _____ ft³
9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / Other ☐ _____
10. Screen material: PVC
a. Screen type: Factory cut ☒ 11 / Continuous slot ☐ 01 / Other ☐ _____
b. Manufacturer Monoflex
c. Slot size: 0.___ in.
d. Slotted length: 15 ft.
11. Backfill material (below filter pack): None ☒ 14 / Other ☐ _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: _____ Firm: EnviroForensics

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

ATTACHMENT 3

Well Development Logs

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
OHM Oconomowoc	Waukesha	MW-14

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well ID Number
02-68-551911	67	VY-861	___

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

surged with bailer and bailed	☐	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☒	62
surged with block, bailed and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
Other _____	☐	

3. Time spent developing well 55 min.

4. Depth of well (from top of well casisng) 35.8 ft.

5. Inside diameter of well 2.__ in.

6. Volume of water in filter pack and well casing 44.1 gal.

7. Volume of water removed from well 20.8 gal.

8. Volume of water added (if any) ___.__ gal.

9. Source of water added NA

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☒ No

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 31.84 ft.	31.84 ft.
Date	b. 04/09/2015 (mm/dd/yyyy)	04/09/2015 (mm/dd/yyyy)
Time	c. 04:32 ☐ a.m. ☒ p.m.	05:27 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	1.1 inches	___.__ inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe) very murky	Clear ☒ 20 Turbid ☐ 25 (Describe)
14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

Fill in if drilling fluids were used and well is at solid waste facility:

16. Well developed by: Name (first, last) and Firm
First Name: Kyle Last Name: VanderHeiden
Firm: EnviroForensics

17. Additional comments on development:
purged clear

Name and Address of Facility Contact/Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: Kyle VanderHeiden
Firm: EnviroForensics

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☑ Other ☐ _____

Facility/Project Name	County Name	Well Name
OHM Oconomowoc	Waukesha	MW-15

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well ID Number
02-68-551911	67	UY-862	___

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☒	62
surged with block, bailed and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
Other _____	☐	80

3. Time spent developing well 70 min.

4. Depth of well (from top of well casisng) 37.2 ft.

5. Inside diameter of well 2.__ in.

6. Volume of water in filter pack and well casing 53 gal.

7. Volume of water removed from well 48.5 gal.

8. Volume of water added (if any) ____ gal.

9. Source of water added N/A

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☒ No

	Before Development	After Development
11. Depth to Water (from top of well casing) a.	31.31 ft.	31.71 ft.
Date b. (mm/dd/yyyy)	04/09/2015	04/09/2015
Time c.	03:08 ☐ a.m. ☒ p.m.	04:18 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	1.7 inches	___ inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe) very murky	Clear ☐ 20 Turbid ☒ 25 (Describe) slightly murky

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Kyle Last Name: Vander Heiden
Firm: Enviro Forensics

17. Additional comments on development:

Name and Address of Facility Contact /Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: Kyle Vander Heiden
Firm: Enviro Forensics

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
OHM Oconomowoc	Waukesha	PZ-2

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
02-68-551911	67	VY-860	___

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☒ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 18 min.

4. Depth of well (from top of well casisng) 61.2 ft.

5. Inside diameter of well 2 in.

6. Volume of water in filter pack and well casing 16.0 gal.

7. Volume of water removed from well 54 gal.

8. Volume of water added (if any) ___ gal.

9. Source of water added N/A

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☒ No

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 16.14 ft.	20.33 ft.
Date	b. 04/09/2015 (m m d d y y y y)	04/09/2015 (m m d d y y y y)
Time	c. 05:41 ☐ a.m. ☒ p.m.	05:59 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	0 inches	___ inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe) slightly murky	Clear ☒ 20 Turbid ☐ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Kyle Last Name: VanderHeiden
Firm: EnviroForensics

17. Additional comments on development:
* pretty clear after 4 minutes..
* purged clear

Name and Address of Facility Contact/Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: Kyle VanderHeiden
Firm: EnviroForensics

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment [X] Other ☐ _____

Facility/Project Name	County Name	Well Name
OHM Oconomowoc	Waukesha	6143-MW-16

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well ID Number
68-68-551911	67	WY 866	___

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

surged with bailer and bailed	☐	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☐	62
surged with block, bailed and pumped	☒	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
Other _____	☐	___

3. Time spent developing well 129 min.

4. Depth of well (from top of well casisng) 36.05 ft.

5. Inside diameter of well 2.067 in.

6. Volume of water in filter pack and well casing 20.92 gal.

7. Volume of water removed from well 39 gal.

8. Volume of water added (if any) NA gal.

9. Source of water added _____

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☒ No

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 28.54 ft.	28.53 ft.
Date	b. 07/28/2015 (m m d d y y y y)	07/28/2015 (m m d d y y y y)
Time	c. 14:35 ☐ a.m. ☐ p.m.	16:44 ☐ a.m. ☐ p.m.
12. Sediment in well bottom	0.22 inches	___ inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 20 Turbid ☒ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	_____ mg/l	_____ mg/l
15. COD	_____ mg/l	_____ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Kyle Last Name: Vander Heiden
Firm: EnviroForensics

17. Additional comments on development:

Name and Address of Facility Contact/Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____ WI

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: _____
Print Name: Kyle Vander Heiden
Firm: EnviroForensics

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment [X] Other ☐ _____

Facility/Project Name	County Name	Well Name
OHM Oconomowoc	Waukesha	6143- MW-17
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well ID Number**
02-68-551911	67	VY 867	____

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

surged with bailer and bailed	☐	41
surged with bailer and pumped	☒	61
surged with block and bailed	☐	42
surged with block and pumped		62
surged with block, bailed and pumped	☒	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
Other _____	☐	

3. Time spent developing well 70 min.

4. Depth of well (from top of well casisng) 37.54 ft.

5. Inside diameter of well 2.067 in.

6. Volume of water in filter pack and well casing 14.24 gal.

7. Volume of water removed from well 27 gal.

8. Volume of water added (if any) NA gal.

9. Source of water added _____

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☒ No

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 32.42 ft.	32.43 ft.
Date	b. 07/28/2015 (m m d d y y y y)	07/28/2015 (m m d d y y y y)
Time	c. 13:05 ☐ a.m. ☐ p.m.	14:15 ☐ a.m. ☐ p.m.
12. Sediment in well bottom	0.1 inches	____ inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe) slightly turbid

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	_____ mg/l	_____ mg/l
15. COD	_____ mg/l	_____ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Kyle Last Name: VanderHeiden
Firm: EnviroForensics

17. Additional comments on development:

Name and Address of Facility Contact/Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____ WI

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: _____
Print Name: Kyle VanderHeiden
Firm: EnviroForensics

NOTE: See instructions for more information including a list of county codes and well type codes.

ATTACHMENT 4

Table 1 of Groundwater Analytical Results

Table 1

Summary of Groundwater Analytical Results

Former One Hour Martinizing Cleaners

Oconomowoc, Wisconsin

Monitoring Well ID	Sample Date	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride
Preventive Action Limit		**0.5**	**0.5**	**7**	**20**	**0.02**
Enforcement Standard		**5**	**5**	**70**	**100**	**0.2**
MW-14	4/15/2015	**10.50**	<0.47	<0.45	<0.54	<0.17
	6/22/2015	**12.6**	<0.47	<0.45	<0.54	<0.17
	8/3/2015	**6.7**	<0.47	<0.45	<0.54	<0.17
	11/6/2015	**12.2**	<0.47	<0.45	<0.54	<0.17
MW-15	4/15/2015	**2.97**	<0.47	<0.45	<0.54	<0.17
	6/22/2015	**10.7**	<0.47	<0.45	<0.54	<0.17
	8/3/2015	**3.2**	<0.47	<0.45	<0.54	<0.17
	11/6/2015	**8.2**	<0.47	<0.45	<0.54	<0.17
MW-16	8/3/2015	**2.99**	<0.47	<0.45	<0.54	<0.17
	11/6/2015	**4.6**	<0.47	<0.45	<0.54	<0.17
MW-17	8/3/2015	**8.4**	<0.47	<0.45	<0.54	<0.17
	11/5/2015	**11.1**	<0.47	<0.45	<0.54	<0.17
PZ-2	4/15/2015	<0.74	<0.47	<0.45	<0.54	<0.17
	6/23/2015	<0.74	<0.47	<0.45	<0.54	<0.17
	8/3/2015	<0.74	<0.47	<0.45	<0.54	<0.17
	11/6/2015	<0.49	<0.47	<0.45	<0.54	<0.17

Notes:

Samples analyzed using EPA SW-846 Method 8260

All concentrations reported in µg/L

Bolded and orange shaded values are above Public Health Enforcement Standards

Bolded and blue shaded values are above Public Health Preventive Action Limits

ATTACHMENT 5

Laboratory Results Sheets

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 *29-Jun-15*

Project Name OHM
Project # 6143 PO#2015536

Invoice # E29155

Lab Code 5029155A
Sample ID 6143-MW-1
Sample Matrix Water
Sample Date 6/23/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 2.25	ug/l	2.25	7	5	8260B		6/25/2015	CJR	1
trans-1,2-Dichloroethene	< 2.7	ug/l	2.7	8.5	5	8260B		6/25/2015	CJR	1
Tetrachloroethene	78	ug/l	3.7	12	5	8260B		6/25/2015	CJR	1
Trichloroethene (TCE)	< 2.35	ug/l	2.35	7.5	5	8260B		6/25/2015	CJR	1
Vinyl Chloride	< 0.85	ug/l	0.85	2.7	5	8260B		6/25/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	103	REC %			5	8260B		6/25/2015	CJR	1
SUR - 4-Bromofluorobenzene	103	REC %			5	8260B		6/25/2015	CJR	1
SUR - Dibromofluoromethane	109	REC %			5	8260B		6/25/2015	CJR	1
SUR - Toluene-d8	93	REC %			5	8260B		6/25/2015	CJR	1

Lab Code 5029155B
Sample ID 6143-MW-1d
Sample Matrix Water
Sample Date 6/23/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/25/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/25/2015	CJR	1
Tetrachloroethene	2.33 "J"	ug/l	0.74	2.4	1	8260B		6/25/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/25/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/25/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	98	REC %			1	8260B		6/25/2015	CJR	1
SUR - 4-Bromofluorobenzene	98	REC %			1	8260B		6/25/2015	CJR	1
SUR - Dibromofluoromethane	104	REC %			1	8260B		6/25/2015	CJR	1
SUR - Toluene-d8	94	REC %			1	8260B		6/25/2015	CJR	1

Project Name OHM
Project # 6143 PO#2015536

Invoice # E29155

Lab Code 5029155C
Sample ID 6143-MW-2
Sample Matrix Water
Sample Date 6/23/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/25/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/25/2015	CJR	1
Tetrachloroethene	16.9	ug/l	0.74	2.4	1	8260B		6/25/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/25/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/25/2015	CJR	1
SUR - Toluene-d8	93	REC %			1	8260B		6/25/2015	CJR	1
SUR - Dibromofluoromethane	106	REC %			1	8260B		6/25/2015	CJR	1
SUR - 4-Bromofluorobenzene	103	REC %			1	8260B		6/25/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	99	REC %			1	8260B		6/25/2015	CJR	1

Lab Code 5029155D
Sample ID 6143-MW-3
Sample Matrix Water
Sample Date 6/23/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/25/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/25/2015	CJR	1
Tetrachloroethene	64	ug/l	0.74	2.4	1	8260B		6/25/2015	CJR	1
Trichloroethene (TCE)	1.55	ug/l	0.47	1.5	1	8260B		6/25/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/25/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	96	REC %			1	8260B		6/25/2015	CJR	1
SUR - 4-Bromofluorobenzene	95	REC %			1	8260B		6/25/2015	CJR	1
SUR - Dibromofluoromethane	109	REC %			1	8260B		6/25/2015	CJR	1
SUR - Toluene-d8	96	REC %			1	8260B		6/25/2015	CJR	1

Lab Code 5029155E
Sample ID 6143-MW-4
Sample Matrix Water
Sample Date 6/23/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/25/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/25/2015	CJR	1
Tetrachloroethene	14.8	ug/l	0.74	2.4	1	8260B		6/25/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/25/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/25/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	98	REC %			1	8260B		6/25/2015	CJR	1
SUR - 4-Bromofluorobenzene	103	REC %			1	8260B		6/25/2015	CJR	1
SUR - Dibromofluoromethane	106	REC %			1	8260B		6/25/2015	CJR	1
SUR - Toluene-d8	98	REC %			1	8260B		6/25/2015	CJR	1

Project Name OHM
Project # 6143 PO#2015536

Invoice # E29155

Lab Code 5029155F
Sample ID 6143-MW-5
Sample Matrix Water
Sample Date 6/23/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/25/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/25/2015	CJR	1
Tetrachloroethene	152	ug/l	0.74	2.4	1	8260B		6/25/2015	CJR	1
Trichloroethene (TCE)	0.89 "J"	ug/l	0.47	1.5	1	8260B		6/25/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/25/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	97	REC %			1	8260B		6/25/2015	CJR	1
SUR - Toluene-d8	93	REC %			1	8260B		6/25/2015	CJR	1
SUR - 4-Bromofluorobenzene	97	REC %			1	8260B		6/25/2015	CJR	1
SUR - Dibromofluoromethane	106	REC %			1	8260B		6/25/2015	CJR	1

Lab Code 5029155G
Sample ID 6143-MW-6
Sample Matrix Water
Sample Date 6/23/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/25/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/25/2015	CJR	1
Tetrachloroethene	45	ug/l	0.74	2.4	1	8260B		6/25/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/25/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/25/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	112	REC %			1	8260B		6/25/2015	CJR	1
SUR - 4-Bromofluorobenzene	92	REC %			1	8260B		6/25/2015	CJR	1
SUR - Dibromofluoromethane	107	REC %			1	8260B		6/25/2015	CJR	1
SUR - Toluene-d8	97	REC %			1	8260B		6/25/2015	CJR	1

Lab Code 5029155H
Sample ID 6143-MW-7
Sample Matrix Water
Sample Date 6/23/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/25/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/25/2015	CJR	1
Tetrachloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/25/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/25/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/25/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	103	REC %			1	8260B		6/25/2015	CJR	1
SUR - 4-Bromofluorobenzene	102	REC %			1	8260B		6/25/2015	CJR	1
SUR - Dibromofluoromethane	107	REC %			1	8260B		6/25/2015	CJR	1
SUR - Toluene-d8	93	REC %			1	8260B		6/25/2015	CJR	1

Project Name OHM
Project # 6143 PO#2015536

Invoice # E29155

Lab Code 5029155I
Sample ID 6143-MW-8
Sample Matrix Water
Sample Date 6/23/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/26/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/26/2015	CJR	1
Tetrachloroethene	2.12 "J"	ug/l	0.74	2.4	1	8260B		6/26/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/26/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/26/2015	CJR	1
SUR - Toluene-d8	97	REC %			1	8260B		6/26/2015	CJR	1
SUR - Dibromofluoromethane	108	REC %			1	8260B		6/26/2015	CJR	1
SUR - 4-Bromofluorobenzene	110	REC %			1	8260B		6/26/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	105	REC %			1	8260B		6/26/2015	CJR	1

Lab Code 5029155J
Sample ID 6143-MW-9
Sample Matrix Water
Sample Date 6/22/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/26/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/26/2015	CJR	1
Tetrachloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/26/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/26/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/26/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	103	REC %			1	8260B		6/26/2015	CJR	1
SUR - 4-Bromofluorobenzene	102	REC %			1	8260B		6/26/2015	CJR	1
SUR - Dibromofluoromethane	102	REC %			1	8260B		6/26/2015	CJR	1
SUR - Toluene-d8	95	REC %			1	8260B		6/26/2015	CJR	1

Lab Code 5029155K
Sample ID 6143-MW-10
Sample Matrix Water
Sample Date 6/23/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/26/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/26/2015	CJR	1
Tetrachloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/26/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/26/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/26/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	103	REC %			1	8260B		6/26/2015	CJR	1
SUR - 4-Bromofluorobenzene	101	REC %			1	8260B		6/26/2015	CJR	1
SUR - Dibromofluoromethane	106	REC %			1	8260B		6/26/2015	CJR	1
SUR - Toluene-d8	96	REC %			1	8260B		6/26/2015	CJR	1

Project Name OHM
Project # 6143 PO#2015536

Invoice # E29155

Lab Code 5029155L
Sample ID 6143-MW-11
Sample Matrix Water
Sample Date 6/22/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/26/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/26/2015	CJR	1
Tetrachloroethene	24	ug/l	0.74	2.4	1	8260B		6/26/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/26/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/26/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	101	REC %			1	8260B		6/26/2015	CJR	1
SUR - 4-Bromofluorobenzene	110	REC %			1	8260B		6/26/2015	CJR	1
SUR - Dibromofluoromethane	105	REC %			1	8260B		6/26/2015	CJR	1
SUR - Toluene-d8	95	REC %			1	8260B		6/26/2015	CJR	1

Lab Code 5029155M
Sample ID 6143-MW-12
Sample Matrix Water
Sample Date 6/22/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/26/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/26/2015	CJR	1
Tetrachloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/26/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/26/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/26/2015	CJR	1
SUR - Dibromofluoromethane	108	REC %			1	8260B		6/26/2015	CJR	1
SUR - Toluene-d8	95	REC %			1	8260B		6/26/2015	CJR	1
SUR - 4-Bromofluorobenzene	106	REC %			1	8260B		6/26/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	99	REC %			1	8260B		6/26/2015	CJR	1

Lab Code 5029155N
Sample ID 6143-MW-13
Sample Matrix Water
Sample Date 6/22/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/26/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/26/2015	CJR	1
Tetrachloroethene	3.9	ug/l	0.74	2.4	1	8260B		6/26/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/26/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/26/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	107	REC %			1	8260B		6/26/2015	CJR	1
SUR - 4-Bromofluorobenzene	103	REC %			1	8260B		6/26/2015	CJR	1
SUR - Dibromofluoromethane	104	REC %			1	8260B		6/26/2015	CJR	1
SUR - Toluene-d8	97	REC %			1	8260B		6/26/2015	CJR	1

Project Name OHM
Project # 6143 PO#2015536

Invoice # E29155

Lab Code 5029155O
Sample ID 6143-MW-14
Sample Matrix Water
Sample Date 6/22/2015

	Result		Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic											
VOC's											
cis-1,2-Dichloroethene		< 0.45	ug/l	0.45	1.4	1	8260B		6/26/2015	CJR	1
trans-1,2-Dichloroethene		< 0.54	ug/l	0.54	1.7	1	8260B		6/26/2015	CJR	1
Tetrachloroethene	12.6		ug/l	0.74	2.4	1	8260B		6/26/2015	CJR	1
Trichloroethene (TCE)		< 0.47	ug/l	0.47	1.5	1	8260B		6/26/2015	CJR	1
Vinyl Chloride		< 0.17	ug/l	0.17	0.54	1	8260B		6/26/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	104		REC %			1	8260B		6/26/2015	CJR	1
SUR - 4-Bromofluorobenzene	103		REC %			1	8260B		6/26/2015	CJR	1
SUR - Dibromofluoromethane	110		REC %			1	8260B		6/26/2015	CJR	1
SUR - Toluene-d8	98		REC %			1	8260B		6/26/2015	CJR	1

Lab Code 5029155P
Sample ID 6143-MW-15
Sample Matrix Water
Sample Date 6/22/2015

	Result		Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic											
VOC's											
cis-1,2-Dichloroethene		< 0.45	ug/l	0.45	1.4	1	8260B		6/26/2015	CJR	1
trans-1,2-Dichloroethene		< 0.54	ug/l	0.54	1.7	1	8260B		6/26/2015	CJR	1
Tetrachloroethene	10.7		ug/l	0.74	2.4	1	8260B		6/26/2015	CJR	1
Trichloroethene (TCE)		< 0.47	ug/l	0.47	1.5	1	8260B		6/26/2015	CJR	1
Vinyl Chloride		< 0.17	ug/l	0.17	0.54	1	8260B		6/26/2015	CJR	1
SUR - 4-Bromofluorobenzene	105		REC %			1	8260B		6/26/2015	CJR	1
SUR - Dibromofluoromethane	103		REC %			1	8260B		6/26/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	99		REC %			1	8260B		6/26/2015	CJR	1
SUR - Toluene-d8	93		REC %			1	8260B		6/26/2015	CJR	1

Lab Code 5029155Q
Sample ID 6143-PZ-1
Sample Matrix Water
Sample Date 6/23/2015

	Result		Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic											
VOC's											
cis-1,2-Dichloroethene		< 0.45	ug/l	0.45	1.4	1	8260B		6/26/2015	CJR	1
trans-1,2-Dichloroethene		< 0.54	ug/l	0.54	1.7	1	8260B		6/26/2015	CJR	1
Tetrachloroethene	10.6		ug/l	0.74	2.4	1	8260B		6/26/2015	CJR	1
Trichloroethene (TCE)		< 0.47	ug/l	0.47	1.5	1	8260B		6/26/2015	CJR	1
Vinyl Chloride		< 0.17	ug/l	0.17	0.54	1	8260B		6/26/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	104		REC %			1	8260B		6/26/2015	CJR	1
SUR - 4-Bromofluorobenzene	103		REC %			1	8260B		6/26/2015	CJR	1
SUR - Dibromofluoromethane	107		REC %			1	8260B		6/26/2015	CJR	1
SUR - Toluene-d8	94		REC %			1	8260B		6/26/2015	CJR	1

Project Name OHM **Invoice #** E29155
Project # 6143 PO#2015536

Lab Code 5029155R
Sample ID 6143-PZ-2
Sample Matrix Water
Sample Date 6/23/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/27/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/27/2015	CJR	1
Tetrachloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/27/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/27/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/27/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	106	REC %			1	8260B		6/27/2015	CJR	1
SUR - 4-Bromofluorobenzene	102	REC %			1	8260B		6/27/2015	CJR	1
SUR - Dibromofluoromethane	110	REC %			1	8260B		6/27/2015	CJR	1
SUR - Toluene-d8	96	REC %			1	8260B		6/27/2015	CJR	1

Lab Code 5029155S
Sample ID 6143-DUP-1
Sample Matrix Water
Sample Date 6/23/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/27/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/27/2015	CJR	1
Tetrachloroethene	138	ug/l	0.74	2.4	1	8260B		6/27/2015	CJR	1
Trichloroethene (TCE)	1.15 "J"	ug/l	0.47	1.5	1	8260B		6/27/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/27/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	99	REC %			1	8260B		6/27/2015	CJR	1
SUR - Toluene-d8	95	REC %			1	8260B		6/27/2015	CJR	1
SUR - 4-Bromofluorobenzene	102	REC %			1	8260B		6/27/2015	CJR	1
SUR - Dibromofluoromethane	107	REC %			1	8260B		6/27/2015	CJR	1

Lab Code 5029155T
Sample ID 6143-DUP-2
Sample Matrix Water
Sample Date 6/23/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/27/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/27/2015	CJR	1
Tetrachloroethene	85	ug/l	0.74	2.4	1	8260B		6/27/2015	CJR	1
Trichloroethene (TCE)	0.53 "J"	ug/l	0.47	1.5	1	8260B		6/27/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/27/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	102	REC %			1	8260B		6/27/2015	CJR	1
SUR - 4-Bromofluorobenzene	105	REC %			1	8260B		6/27/2015	CJR	1
SUR - Dibromofluoromethane	106	REC %			1	8260B		6/27/2015	CJR	1
SUR - Toluene-d8	93	REC %			1	8260B		6/27/2015	CJR	1

Project Name OHM
Project # 6143 PO#2015536

Invoice # E29155

Lab Code 5029155U
Sample ID 6143-EB-1
Sample Matrix Water
Sample Date 6/22/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/25/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/25/2015	CJR	1
Tetrachloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/25/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/25/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/25/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	96	REC %			1	8260B		6/25/2015	CJR	1
SUR - 4-Bromofluorobenzene	96	REC %			1	8260B		6/25/2015	CJR	1
SUR - Dibromofluoromethane	103	REC %			1	8260B		6/25/2015	CJR	1
SUR - Toluene-d8	92	REC %			1	8260B		6/25/2015	CJR	1

Lab Code 5029155V
Sample ID 6143-EB-2
Sample Matrix Water
Sample Date 6/23/2015

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/26/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/26/2015	CJR	1
Tetrachloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/26/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/26/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/26/2015	CJR	1
SUR - Toluene-d8	94	REC %			1	8260B		6/26/2015	CJR	1
SUR - Dibromofluoromethane	102	REC %			1	8260B		6/26/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	98	REC %			1	8260B		6/26/2015	CJR	1
SUR - 4-Bromofluorobenzene	112	REC %			1	8260B		6/26/2015	CJR	1

Lab Code 5029155W
Sample ID TRIP BLANK
Sample Matrix Water
Sample Date 6/23/2015

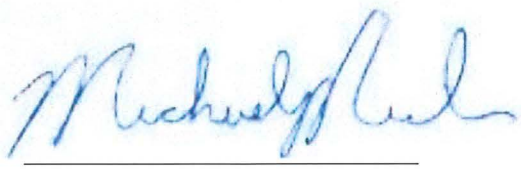
	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
cis-1,2-Dichloroethene	< 0.45	ug/l	0.45	1.4	1	8260B		6/26/2015	CJR	1
trans-1,2-Dichloroethene	< 0.54	ug/l	0.54	1.7	1	8260B		6/26/2015	CJR	1
Tetrachloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/26/2015	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/26/2015	CJR	1
Vinyl Chloride	< 0.17	ug/l	0.17	0.54	1	8260B		6/26/2015	CJR	1
SUR - Toluene-d8	95	REC %			1	8260B		6/26/2015	CJR	1
SUR - 1,2-Dichloroethane-d4	99	REC %			1	8260B		6/26/2015	CJR	1
SUR - 4-Bromofluorobenzene	108	REC %			1	8260B		6/26/2015	CJR	1
SUR - Dibromofluoromethane	110	REC %			1	8260B		6/26/2015	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 CUSTODY RECORD

Synergy Environmental Lab, Inc.

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

Chain # Nº 2460

WOF Page 1 of 3

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

Lab I.D. #	
Account No. :	Quote No.:
Project #: 6143	
Sampler: (signature)	
Project (Name / Location): OHM - Owensmouth / Owensmouth, WI	
Reports To: W. Frostbender / K. Heimstead	Invoice To:
Company Enviroforensics	Company
Address N16 W23377 Stone Ridge Pl.	Address
City State Zip Waukesha WI 53188	City State Zip
Phone 317-972-7870	Phone
FAX	FAX

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)	PVOC (EPA 8021)	PVOC + NAPHTHALENE	SULFATE	TOTAL SUSPENDED SOLIDS	VOC DW (EPA 542.2)	VOC (EPA 8260)	8-RCRA METALS					PID/FID
50291554	6143 MW-1	6-23-15	935		x	N	3	GW	HCl												x						
B	6143 MW-1d	6-23-15	1030		x	N	3	GW	HCl												x						
C	6143-MW-2	6-23-15	1120		x	N	3	GW	HCl												x						
D	6143-MW-3	6-23-15	1355		x	N	3	GW	HCl												x						
E	6143-MW-4	6-23-15	1305		x	N	3	GW	HCl												x						
F	6143-MW-5	6-23-15	850		x	N	3	GW	HCl												x						
G	6143-MW-6	6-23-15	1635		x	N	3	GW	HCl												x						
H	6143-MW-7	6-23-15	800		x	N	3	GW	HCl												x						
I	6143-MW-8	6-23-15	1210		x	N	3	GW	HCl												x						
J	6143-MW-9	6-22-15	1205		x	N	3	GW	HCl												x						

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

PO# 2015536

Only report PCE, TCE, cis-1,2-DCE, Trans-1,2-DCE & Vinyl chloride

Sample Integrity - To be completed by receiving lab.
Method of Shipment:
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
	6.24.15	11:01		11:01	6/24/15

Received in Laboratory By: Time: 8:00 Date: 6/25/15

CHAIN OF CUSTODY RECORD

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

WAF

Chain # Nº 2451
Page 2 of 3

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

Lab I.D. #
Account No. : Quote No.:
Project #: 6143
Sampler: (signature)

Project (Name / Location): OHM-Oconomowoc / Oconomowoc, WI
Reports To: W. Fassbender / K. Heimstead
Company Enviroforensics
Address N16 W23390 Stone Ridge Dr.
City State Zip Waukesha WI 53188
Phone 317-972-7570
FAX

Invoice To:
Company
Address
City State Zip
Phone
FAX

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)	PVOC (EPA 8021)	PVOC + NAPHTHALENE	SULFATE	TOTAL SUSPENDED SOLIDS	VOC DW (EPA 542.2)	VOC (EPA 8260)	8-RCRA METALS	PID/FID
502955C	6143-MW-10	6-23-15	1445		X	N	3	GW	HCl												X		
L	6143-MW-11	6-22-15	1355		X	N	3	GW	HCl												X		
M	6143-MW-12	6-22-15	1300		X	N	3	GW	HCl												X		
N	6143-MW-13	6-22-15	1730		X	N	3	GW	HCl												X		
O	6143-MW-14	6-22-15	1450		X	N	3	GW	HCl												X		
P	6143-MW-15	6-22-15	1635		X	N	3	GW	HCl												X		
Q	6143-PZ-1	6-23-15	1340		X	N	3	GW	HCl												X		
R	6143-PZ-2	6-23-15	1545		X	N	3	GW	HCl												X		
S	6143-Dup-1	6-23-15	-		X	N	3	GW	HCl												X		
T	6143-Dup-2	6-22-15	-		X	N	3	GW	HCl												X		

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

PO# 2015536

Only report PCE, TCE, cis-1,2-DCE, Trans-1,2-DCE & Vinyl chloride

Sample Integrity - To be completed by receiving lab.
Method of Shipment:
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
	1101	6/24/15		11:01	6/24/15

Received in Laboratory By: Time: 8:00 Date: 6/25/15

CHAIN OF CUSTODY RECORD

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

WAF

Chain # № 2450

Page 3 of 3

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

Lab I.D. #
Account No. :
Quote No.:
Project #: 6143
Sampler: (signature)

Project (Name / Location): OHM-Oconomowoc / Oconomowoc, WI

Reports To: W. Fassbender / K. Hinsteed	Invoice To:
Company EnviroForensics	Company
Address N16 W23310 Stone Ridge D.	Address
City State Zip Waukesha WI 53188	City State Zip
Phone 317-972-7870	Phone
FAX	FAX

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
502955 U	6143-EB-1	6-22-15	-		X	N	3	GW	HCl
V	6143-EB-2	6-23-15	-		X	N	3	GW	HCl
W	TRIP BLANK	-	-			-	1	-	

DRO (Mod DRO Sep 95)
GRO (Mod GRO Sep 95)
LEAD
NITRATE/NITRITE
OIL & GREASE
PAH (EPA 8270)
PVOC (EPA 8021)
PVOC + NAPHTHALENE
SULFATE
TOTAL SUSPENDED SOLIDS
VOC DW (EPA 542.2)
VOC (EPA 8260): U X, V X, W X
8-RCRA METALS
PID/FID

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

PO# 2015536

Only Report PCE, TCE, Cis-1,2-DCE, Trans-1,2-DCE & Vinyl Chloride

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

Relinquished By: (sign)	Time	Date	Received By: (sign)	Time	Date
	1101	6-24-15		11:02	6/24/15

Received in Laboratory By: Time: 8:00 Date: 6/25/15

EnvisionAir
1441 Sadlier Circle West Drive
Indianapolis, IN 46239
Ph: 317-351-0885
Fax: 317-351-0882
www.envision-air.com

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

September 29, 2015

ENVision Project Number: 2015-538
Client Project Name: 6143 – OHM-Oconomowoc

Dear Mr. Fassbender,

Please find the attached analytical report for the samples received September 17, 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

EnvisionAir
1441 Sadlier Circle West Drive
Indianapolis, IN 46239
Ph: 317-351-0885
Fax: 317-351-0882
www.envision-air.com

Client Name: ENVIROFORENSICS

Project ID: 6143 - OHM-OCONOMOWOC

Client Project Manager: W. FASSBENDER

EnvisionAir Project Number: 2015-538

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)
15-1972	6143-SG-5 (MW-15)	A	9/15/15	13:10	9/15/15	13:17	9/17/15	9:15	-29	-2	-2

EnvisionAir
1441 Sadlier Circle West Drive
Indianapolis, IN 46239
Ph: 317-351-0885
Fax: 317-351-0882
www.envision-air.com

Client Name: ENVIROFORENSICS

Project ID: 6143 - OHM-OCONOMOWOC

Client Project Manager: W. FASSBENDER

EnvisionAir Project Number: 2015-538

Analytical Method: TO-15
Analytical Batch: 092515AIR

Client Sample ID: 6143-SG-5 (MW-15)

Envision Sample Number: 15-1972
Sample Matrix: AIR

Sample Collection START Date/Time: 9/15/15 13:10
Sample Collection END Date/Time: 9/15/15 13:17
Sample Received Date/Time: 9/17/15 9:15

Compounds	Sample Results ug/m³	Reporting Limit ug/m³	Flag
cis-1,2-Dichloroethene	< 198	198	1
Tetrachloroethene	**661**	31.9	1
trans-1,2-Dichloroethene	< 396	396	1
Trichlorethene	< 10.7	10.7	1
Vinyl Chloride	< 12.8	12.8	1
4-bromofluorobenzene (surrogate)	108%		
Analysis Date/Time:	09-25-15/12:47		
Analyst Initials	tjg		

EnvisionAir
1441 Sadlier Circle West Drive
Indianapolis, IN 46239
Ph: 317-351-0885
Fax: 317-351-0882
www.envision-air.com

Analytical Report

TO-15 Quality Control Data

EnvisionAir Batch Number: 092515AIR

Method Blank (MB):	MB Results (ppbv)	Reporting Limit (ppbv)	Flags
cis-1,2-Dichloroethene	< 5	5	
Tetrachloroethene	< 0.47	0.47	
trans-1,2-Dichloroethene	< 10	10	
Trichlorethene	< 0.2	0.2	
Vinyl Chloride	< 0.5	0.5	
4-bromofluorobenzene (surrogate)	111%		
Analysis Date/Time:	09-24-15/20:19		
Analyst Initials	tjg		

LCS/LCSD	LCS Results (ppbv)	LCSD Results (ppbv)	LCS/D Conc(ppbv)	LCS Rec.	LCSD Rec.	RPD	Flag
cis-1,2-Dichloroethene	9.71	8.52	10	97%	85%	13.1%	
Tetrachloroethene	8.91	8.14	10	89%	81%	9.0%	
trans-1,2-Dichloroethene	9.35	8.05	10	94%	81%	14.9%	
Trichlorethene	8.91	8.85	10	89%	89%	0.7%	
Vinyl Chloride	9.36	9.32	10	94%	93%	0.4%	
4-bromofluorobenzene (surrogate)	116%	109%					
Analysis Date/Time:	09-24-15/19:09	09-24-15/19:45					
Analyst Initials	tjg	tjg					

EnvisionAir
1441 Sadlier Circle West Drive
Indianapolis, IN 46239
Ph: 317-351-0885
Fax: 317-351-0882
www.envision-air.com

Flag Number	Comments
1	Reported value is from a 10x dilution. TJG 09-29-15

EnvisionAir Proj#: 2015-538 Page 1 of 1

CHAIN OF CUSTODY RECORD WAF

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

Client: Enviro Forensics	P.O. Number: 2015835
Report/Bill Address: 2016 W233930 Stone Ridge Dr Waukesha WI 53188	Project Name or Number: 6143 OHM-Oconomowoc
Report To: W. Fassbender / K. Heimstead	Sampled by:
Phone: 317-972-7870	QA/QC Required: (circle if applicable) Level III Level IV
Invoice Address:	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 Dry Cleaners

ENVISIONAIR

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

www.envision-air.com

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
6143-SG-5 (MW-15)	1LC	9-15-15	1310	9-15-15	1317		X			84049	-	-29	-2	-2	15-1972

Comments:

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9-16-15		FEDEX	9-16-15	
			Stanley A. Hummelstad	9/17/15	0915

EnvisionAir
1441 Sadlier Circle West Drive
Indianapolis, IN 46239
Ph: 317-351-0885
Fax: 317-351-0882
www.envision-air.com

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

September 29, 2015

ENVision Project Number: 2015-537
Client Project Name: 6143 – OHM-Oconomowoc

Dear Mr. Fassbender,

Please find the attached analytical report for the samples received September 17, 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

David Norris

Client Services Manager
EnvisionAir

EnvisionAir
1441 Sadlier Circle West Drive
Indianapolis, IN 46239
Ph: 317-351-0885
Fax: 317-351-0882
www.envision-air.com

Client Name: ENVIROFORENSICS

Project ID: 6143 - OHM-OCONOMOWOC

Client Project Manager: W. FASSBENDER

EnvisionAir Project Number: 2015-537

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)
15-1971	6143-SG-4 (MW-17)	A	9/15/15	13:55	9/15/15	14:01	9/17/15	9:15	-29	-2	-2

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1441 Sadlier Circle West Drive
Indianapolis, IN 46239
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Client Name: ENVIROFORENSICS

Project ID: 6143 - OHM-OCONOMOWOC

Client Project Manager: W. FASSBENDER

EnvisionAir Project Number: 2015-537

Analytical Method: TO-15
Analytical Batch: 092515AIR

Client Sample ID: 6143-SG-4 (MW-17)
Envision Sample Number: 15-1971
Sample Matrix: AIR

Sample Collection START Date/Time: 9/15/15 15:55
Sample Collection END Date/Time: 9/15/15 14:01
Sample Received Date/Time: 9/17/15 9:15

Compounds	Sample Results ug/m³	Reporting Limit ug/m³	Flag
cis-1,2-Dichloroethene	< 198	198	1
Tetrachloroethene	**54.9**	31.9	1
trans-1,2-Dichloroethene	< 396	396	1
Trichlorethene	< 10.7	10.7	1
Vinyl Chloride	< 12.8	12.8	1
4-bromofluorobenzene (surrogate)	107%		
Analysis Date/Time:	09-25-15/08:48		
Analyst Initials	tjg		

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Analytical Report

TO-15 Quality Control Data

EnvisionAir Batch Number: 092515AIR

Method Blank (MB):	MB Results (ppbv)	Reporting Limit (ppbv)	Flags
cis-1,2-Dichloroethene	< 5	5	
Tetrachloroethene	< 0.47	0.47	
trans-1,2-Dichloroethene	< 10	10	
Trichlorethene	< 0.2	0.2	
Vinyl Chloride	< 0.5	0.5	
4-bromofluorobenzene (surrogate)	111%		
Analysis Date/Time:	09-24-15/20:19		
Analyst Initials	tjg		

LCS/LCSD	LCS Results (ppbv)	LCSD Results (ppbv)	LCS/D Conc(ppbv)	LCS Rec.	LCSD Rec.	RPD	Flag
cis-1,2-Dichloroethene	9.71	8.52	10	97%	85%	13.1%	
Tetrachloroethene	8.91	8.14	10	89%	81%	9.0%	
trans-1,2-Dichloroethene	9.35	8.05	10	94%	81%	14.9%	
Trichlorethene	8.91	8.85	10	89%	89%	0.7%	
Vinyl Chloride	9.36	9.32	10	94%	93%	0.4%	
4-bromofluorobenzene (surrogate)	116%	109%					
Analysis Date/Time:	09-24-15/19:09	09-24-15/19:45					
Analyst Initials	tjg	tjg					

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Flag Number	Comments
1	Reported value is from a 10x dilution. TJG 09-29-15

EnvisionAir Proj#: 2015-537 Page 1 of 1

CHAIN OF CUSTODY RECORD 1 OF

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

Client: Enviro Forensics	P.O. Number: 2015835
Report Address: N16 W23390 Stone Ridge Dr Waukesha WI 53188	Project Name or Number: 6143 OHM-Oconomowoc
Report To: W. Fassbender / K. Hemstead	Sampled by: K. Hemstead
Phone: 317-972-7870	QA/QC Required: (circle if applicable) Level III Level IV
Invoice Address:	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 Dry Cleaners

ENVISIONAIR

Sampling Type:
Soil-Gas: X
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
6143-SG-4 (Rw-17)	1LC	9-15-15	1355	9-15-15	1401		X			2235	-	-29	-2	-2	15-1971

Comments:

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9-16-15		FEDEX	9-16-15	
			Timothy A. Mummert	9/17/15	0915

ATTACHMENT 6

Photographs of Vapor Sampling Train

ATTACHMENT 7

Field Sampling Logs

ENVIRO forensics

602 N. Capitol Avenue, Ste. 210,
Indianapolis, IN 46204
T:317-972-7870 F: 317-972-7875

Sub-Slab Vapor/ Soil Gas Field Sampling Form

PROJECT NAME	OHM- Clearwater	SAMPLE DATE	9-15-2015
LOCATION/ADDRESS	36929 Plank Rd Clearwater	SAMPLE ID	6143-SG-4 (Mar-17)
PROJECT NO.	6143	SAMPLE TIME	
CLIENT/CONTACT	Brian Cass	CANISTER ID	2235
DATA COLLECTION: START DATE	9-15-2015	END DATE	9-15-2015

Time	Vacuum Reading	Wind Direction	Wind Speed	Temperature	Barometer	Relative Humidity
hh:mm	In. of Hg		mph	°F	Hg	%
1355	-29	S	10-15	80	30.15	42
1401	-2					

Helium Leak Test		Negative Pressure Test	
Date/Time performed:	9-15-2015 /	Date/Time performed:	9-15-2015 /
Background He concentration (ppm):	0	Negative pressure of at least -15 in. Hg induced on sampling train?	
Shroud He concentration (%):	57.1	(circle one):	(yes) no
Sub-slab vapor/soil-gas He concentration (post helium insertion):	0	Did pressure hold?	(yes) no
Helium Leak Test Passed:	(yes) no		

Notes:

ENVIRO forensics

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Indianapolis, IN 46204
T:317-972-7870 F: 317-972-7875

Sub-Slab Vapor/ Soil Gas Field Sampling Form

PROJECT NAME	OHM-Oronomowoc	SAMPLE DATE	9-15-15
LOCATION/ADDRESS	36929 Plank Rd, Oronomowoc	SAMPLE ID	6143-SG-5 (Rev. 15)
PROJECT NO.	6143	SAMPLE TIME	
CLIENT/CONTACT		CANISTER ID	840449
DATA COLLECTION: START DATE	9-15-15	END DATE	9-15-15

Time	Vacuum Reading	Wind Direction	Wind Speed	Temperature	Barometer	Relative Humidity
hh:mm	In. of Hg		mph	°F	Hg	%
1510	-29	S	10-15	80	30.15	42
1517	-2					

Helium Leak Test			Negative Pressure Test		
Date/Time performed:	9-15-15	/	Date/Time performed:	9-15-15	/
Background He concentration (ppm):	0		Negative pressure of at least -15 in. Hg induced on sampling train?		
Shroud He concentration (%):	61.8		(circle one):	(yes)	no
Sub-slab vapor/soil-gas He concentration (post helium insertion):	0		Did pressure hold?	(yes)	no
Helium Leak Test Passed:	(yes)	no			

Notes:

ATTACHMENT 8

Table 2 of Vapor Sampling Results

Table 2

Summary of Soil Gas Analytical Results

Former One Hour Martinizing

Oconomowoc, Wisconsin

Soil Gas Well ID	Sample Date	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl chloride
Deep Vapor Risk Screening Level [1]		**18,000**	**880**	**NE**	**NE**	**2,800**
NAPA 6143-SG-5 (MW-15)	9/15/2015	**661**	<10.7	<198	<396	<12.8
Ewald 6143-SG-4 (MW-17)	9/15/2015	**54.9**	<10.7	<198	<396	<12.8

Notes:

[1] The Vapor Risk Screeing Levels are based on U.S. E.P.A.'s Regional Screening Levels (RSL's) for non-residential indoor air with an attenuation factor of 0.001 for soil gas deeper than 5 feet below the foundation of a large commercial buildings and a 0.1 adjustment for 1 x 10-5 lifetime cancer risk for carcinogens.

Bolded values are above laboratory detection limits

NE = Not Established


SAMPLE
CLIENT: