REMEDIAL ACTION IMPLEMENTATION REPORT

FORMER ROBINSON'S CLEANERS
1838 W. COURT STREET
JANESVILLE, WI 53548
BRRTS# 02-54-221852

July 20, 2018

Prepared By:

EnviroForensics, LLC
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Brian Kappen, PG
Project Manager

Wayne Fassbender, PG, PMP
Senior Project Manager

Document: 6155-3041

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CERTIFICATIONS

I, Andrew Horwath, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Andrew D. Horwath 2018.07.20 15:24:44 -04'00'

Dir. of Engineering and Remediation Services, PE #E-43831-6

Signature, title and P.E. number

WISCONSIN ANDREW D HORWATH E-43831-6 NOBLESVILLE, IN PROFESSIONAL ENGINEER

P.E. stamp

I, Brian Kappen, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Project Manager

Signature and title

7/20/18

Date

1.0 INTRODUCTION

EnviroForensics, LLC (EnviroForensics) has prepared this Remedial Action Implementation Report (Report) on behalf of Ray Gehrig and RayChris, Inc. formerly d/b/a Robinson's Cleaners (Robinson's) located at 1838 West Court Street in Janesville, Wisconsin (Site). This Report follows guidelines for documentation of remedial actions set forth in Wisconsin Administrative Code (WAC) Chapter NR 724 rule and other associated State of Wisconsin Chapter NR 700 series rules.

This Report follows submittal of the Remedial Action Design Report, dated January 9, 2018, which described a plan for in-situ remediation of near-source groundwater contamination. This Report details the implementation of the remedial action, including deviations from the design.

1.1 Site Description

The Site is located in the southeast ¼ of the northwest ¼ of Section 35, Township 3 North, Range 12 East; WTM Coordinates 598365.7 (X); 245741.3 (Y). The topography at the Site is generally flat. In the surrounding area the land surface slopes downward toward the south to the Rock River. The Site is approximately 1.1 miles north of the Rock River. The location of the Site is depicted on **Figure 1**.

The former Robinson's Cleaners was located within the Sunnyside Shopping Center strip mall. The general layout of the Site and surrounding area, including Site features, is depicted on **Figure 2**. The Sunny Side Shopping Center strip mall is bound by West Court Street to the south, North Oakhill Avenue to the east, a city park to the north and commercial properties to the west. Single family residences are located to the northwest, northeast, and east.

1.2 Contaminant Fate and Transport

Chlorinated volatile organic compounds (CVOCs) are present in unsaturated dolomite bedrock and groundwater at the Site. The compounds consist of tetrachloroethene (PCE) and the products of natural degradation of PCE including: trichlorethene (TCE); dichloroethene (DCE); and vinyl chloride. A thin layer of unconsolidated soil generally 8-18 feet thick blankets the dolomite bedrock at the Site. The majority of impacts within the soil layer were previously removed by excavation. Groundwater impacts are present in the Platteville Dolomite, underlying

St. Peter Sandstone, and in downgradient sand and gravel deposits of an ancestral river valley. The lateral and vertical extent of impacts within the subsurface environment has been defined.

PCE was released either from leaking sections of the sanitary sewer, or from surface spills on the north side of the building that migrated vertically to the dolomite bedrock, or both. Groundwater in the Platteville Dolomite is unconfined and generally perched. Groundwater flows toward the south/southwest and into the unconsolidated valley fill deposits and St. Peter Sandstone where the Platteville Dolomite is eroded away. However, vertical leakage into the underlying St. Peter Sandstone also occurs along the path of flow between the Site building and point where the dolomite tapers. The highest concentrations of PCE occur within the dolomite, very near the source of PCE release, and extend to the west/southwest in the general direction of shallow groundwater flow.

Past groundwater monitoring data have shown that concentrations of PCE can fluctuate widely in wells near the source area. It is likely that fluctuations in groundwater concentrations are the result of contaminated groundwater moving out of the fractured dolomite and then leaking into the underlying sandstone following significant precipitation events due to direct precipitation and possibly introduction of water from leaky storm water conveyance systems. Direct infiltration of precipitation can occur in the unpaved area directly adjacent and west of the Site, and also within the park area directly adjacent and north of the Site.

Groundwater within the St. Peter Sandstone is unconfined and flow is to the southeast near the Site. Further down-gradient, the direction of groundwater flow changes more to the south under the influence of the Rock River which flows to the west. CVOC detections in groundwater extend to the south approximately 4,000 feet down-gradient of the release, but concentrations are below the groundwater enforcement standard prior to reaching the Rock River. The width of the sandstone CVOC plume is approximately 600 feet.

1.3 Remedial Action Objective

The remedial objective is to cut off the source of contamination feeding the downgradient plume in the sandstone aquifer via active trapping and subsequent natural biological degradation of dissolved-phase CVOCs. Directly treating contamination in the dolomite, where the majority of residual contaminant mass is contained, would be very difficult given that the fracture network within the dolomite is highly variable and unpredictable, many fractures and bedding planes are mud-filled which would impede contaminant removal, and there are some larger open apertures

present that would act as conduits resulting in uneven distribution of remedial products. Therefore, the upper part of the sandstone aquifer was targeted for treatment rather than attempting to directly treat the overlying fractured dolomite unit. CVOC concentrations in the downgradient plume are expected to decrease gradually as mass loading to the sandstone aquifer is reduced.

2.0 GROUNDWATER REMEDIAL INJECTIONS

PlumeStop® liquid activated carbon, an in-situ sorption product which allows for subsequent natural dechlorination by ubiquitous microbes in the subsurface, was selected to achieve remediation objectives. The very fine activated carbon particles in PlumeStop adhere to the aquifer matrix for a very long time, up to 20-30 years or more. Supplemental nutrients were also added with the PlumeStop to enhance microbial growth. The goal was to effectively create a horizontal barrier to contaminant movement from the dolomite to the underlying sandstone by injecting the PlumeStop within the upper sandstone formation across the area of greatest impact within the overlying dolomite bedrock.

Contaminants leaching out of the overlying dolomite bedrock will enter the top of the sandstone water bearing zone, where they will be adsorbed onto the activated carbon sites. The surface of these carbon particles then concentrate contaminants and create beneficial microhabitats for microbial growth. The bacteria species *Dehalococcoides* utilize the CVOCs in their respiratory process and contaminant breakdown occurs through reductive dechlorination with final harmless end products of ethene and carbon dioxide. Upon complete breakdown, the carbon particles are free to adsorb more contaminants.

2.1 Permitting

EnviroForensics prepared an Injection Request document to obtain approval for the injection and coverage under the Wisconsin Pollutant Discharge Elimination System general permit for contaminated groundwater from remedial action operations. Copies of the Wisconsin Department of Natural Resources (WDNR) approval letters are provided in **Appendix A**.

2.2 Treatment Area and Infrastructure

A 24,000 square foot treatment area was established based on analysis of the dolomite and sandstone groundwater plumes. A network of 21 PVC injection points (SIW-3 through SIW-23) was installed to facilitate the injection of PlumeStop in the treatment area. The layout of the injection points is shown on **Figure 3**. Each injection point had an estimated radius of influence of 20 feet based on hydraulic conductivity measurements from aquifer testing previously performed within the upper zone of the sandstone. Depth to sandstone in the source area varies between 42-50 feet below ground surface (bgs); however, the upper 5 to 10-feet is a dolomite-sandstone transition zone that is fractured and harder than the sandstone below. Therefore,

screen depths were selected to allow a more homogeneous distribution of remedial fluids just below this transition zone. The injection points were constructed of 2-inch diameter PVC with a 10-foot, 0.020 slot screen set at 53-63 feet bgs. Additional injection point construction details were provided in the Remedial Action Design Report.

2.3 Injection Activities

PlumeStop injection activities were performed by Regenesis Remediation Services, under the direction of EnviroForensics, between March 5 and April 19, 2018. The PlumeStop solution was produced by mixing the concentrated product with potable water from the City of Janesville supply. Mixing occurred in dual 350-gallon trailer-mounted tanks. Typically, 300 gallon batches consisting of approximately 19 gallons of PlumeStop and 281 gallons of water were mixed. The PlumeStop solution was delivered from the mixing tanks to the injection points using a positive displacement pump. Injection occurred at three (3) to four (4) injection points simultaneously using the injection trailer manifold system. Over 309 batches of PlumeStop solution were prepared and delivered over the course of the injection event.

2.3.1 Observations and Troubleshooting

During the injections, many of the injection wells did not receive the injected products as easily as anticipated based on previous hydraulic conductivity testing. At many locations, injection pressures gradually increased as more volume was applied. Additionally, as more volume was applied to these wells, injection flowrates decreased. In some cases, injection pressures temporarily spiked to 200-300 pounds per square inch at which flowrates dropped below 1 gallon per minute or ceased entirely. The pressure increases in these wells typically occurred after injecting between 250 to 450 gallons, but some of the wells showed increased pressures after injecting only 10-50 gallons.

Various troubleshooting actions were attempted to overcome the challenges presented by the variable pressures and flow rates, such as intentionally starting with lower flowrates, intentionally starting with higher flowrates, gravity feeding, frequently moving from point to point, limiting the total volume applied and allowing wells to depressurize, adding a polymer dispersant (Aqua-Clear), and surging injection points with a surge block. Ultimately, the combination of surging and frequently moving between injection points seemed to help reduce application pressures and increase flowrates. Minor surfacing/short circuiting was observed at a few injection points, but was limited to immediately around the well annulus.

In contrast, PlumeStop was observed to flow almost freely into SIW-23; however, daylighting occurred at SIW-21 while injecting at SIW-23. Daylighting during this injection did not occur at other injection points, and no significant groundwater mounding or PlumeStop material was detected at nearby well cluster MW-27. PlumeStop was added to SIW-23 over a period of several days to give time for the PlumeStop to disperse and prevent daylighting. It is likely that these two injection points intersected a major vertical fracture not connected to other nearby injection or observation wells. Conversely, injections at SIW-21 did not produce daylighting at SIW-23, probably because SIW-21 was connected to other fractures that absorbed more of the PlumeStop solution.

We are unsure why the PlumeStop solution could not be easily injected into many of the injection points. It is possible that the more cemented dolomite-sandstone transition zone extended deeper at these locations and was not fractured as highly as in other areas. Also, at the time of injections the piezometric surface in the sandstone was historically high and extended up into the dolomite unit. Significant groundwater mounding occurred in the sandstone during the injections, but the water table within the dolomite rose only 0-1 feet as measured in water table observation wells. It is possible that the higher hydraulic head contributed to higher injection pressures observed at some injection points. Despite these issues, the total design volume of PlumeStop solution was applied to the treatment zone. An injection summary is presented in **Table 1**.

2.3.2 Deviations from Remedial Design

Injection points SIW-9, SIW-10 and SIW-15 did not receive the full volume of PlumeStop solution due to elevated injection pressures and low flow rates at all times. The remaining volume of solution prescribed for those points was redistributed to SIW-7, SIW-8 and SIW-14. Additionally, on April 19 injection points SIW-4, SIW-5, SIW-6, SIW-10, SIW-11, SIW-12, SIW-19, SIW-20 and SIW-21 received a limited amount of doubly concentrated PlumeStop solution. This was done both to compensate for shortfalls of PlumeStop in other injection points, and to deliver excess PlumeStop to injection points located within the immediate source area.

2.4 Performance Monitoring

Remediation performance monitoring will be conducted to evaluate the PlumeStop barrier with respect to the objective of reducing or eliminating contaminant mass loading from the dolomite

to the sandstone aquifer. For the first year following injections, the monitoring program is designed to demonstrate that the remedial actions have changed the groundwater chemistry and begun to reduce the CVOC mass through microbial reductive de-chlorination processes. Monitoring will be conducted on an approximate quarterly basis beginning in August 2018. Monitoring in subsequent years will be recommended after evaluation of the initial data.

The monitoring program is detailed in **Table 2**, including sample frequency, and monitoring wells selected for sampling are depicted on **Figure 4**. Monitoring procedures were presented in the Remedial Action Design Report. The need for additional remediation will be evaluated based on the results of performance groundwater monitoring.

2.4.1 Reporting

EnviroForensics will tabulate and evaluate the groundwater analytical data to determine the effects of remediation on groundwater conditions. Performance monitoring data will be submitted in Remediation Site Operation, Maintenance, Monitoring and Optimization Reports (Form 4400-194) on a semi-annual basis, as required.

Sample results notifications will be prepared and submitted to off-site property owners and WDNR, as required, following each sampling event.

TABLES

TABLE 1
PLUMESTOP INJECTION SUMMARY
Former Robsinson's Cleaners
Janesville, Wisconsin

Injection Point	Solution Volume (Gallons)	PlumeStop (lbs)
SIW-3	4,566	2,381
SIW-4	4,716	2,795
SIW-5	4,716	2,795
SIW-6	4,666	2,588
SIW-7	5,335	2,775
SIW-8	5,991	3,115
SIW-9	2,792	1,456
SIW-10	3,464	1,962
SIW-11	4,586	2,547
SIW-12	4,586	2,547
SIW-13	4,566	2,381
SIW-14	5,767	3,001
SIW-15	150	78
SIW-16	4,566	2,381
SIW-17	4,566	2,381
SIW-18	4,788	2,496
SIW-19	4,596	2,505
SIW-20	4,646	2,505
SIW-21	4,665	2,552
SIW-22	4,566	2,381
SIW-23	4,566	2,381
Total	**92,860**	**50,003**

TABLE 2
REMEDIATION PERFORMANCE MONITORING PROGRAM
Former Robinson's Cleaners
Janesville, Wisconsin

Parameter	VOCs	Total Fe	Dissolved Fe	Sulfate	Nitrate	Nitrite	TOC	Dehalococcoides
MW-12	S							
MW-13	S							
PZ-17D1	A							
MW-20D	Q	Q	Q	Q	Q	Q	Q	S
PZ-25D2	A							
MW-27D	Q	Q	Q	Q	Q	Q	Q	S
MW-27DS	Q	Q	Q	Q	Q	Q	Q	S
MW-29	Q	Q	Q	Q	Q	Q	Q	S
MW-30S	S							
MW-30D	Q	Q	Q	Q	Q	Q	Q	S
MW-31D	S							
MW-32	S							
MW-35D	A							
MW-36D	A							
MW-39S	S							
PZ-42D1	S							
PZ-42D2	S							
PZ-42D3	S							
PZ-43D1	S							
MW-44S	A							
PZ-44D1	S							
PZ-44D2	S							
PZ-46D1	A							
PZ-46D2	A							
PZ-46D3	A							
PZ-47D1	S							
PZ-47D2	S							
PZ-47D3	S							
PZ-49D1	S							
PZ-49D2	S							
PZ-49D3	S							
PZ-49D4	S							
MW-51S	A							
PZ-52D1	A							
PZ-52D2	A							
PZ-52D3	A							
PZ-53D1	S							
PZ-53D2	S							
PZ-53D3	S							

Notes:

This program applies to the first year (4 quarters) following injections only

A = Single sample collected approximately one year after injections

Q = Sample collected quarterly

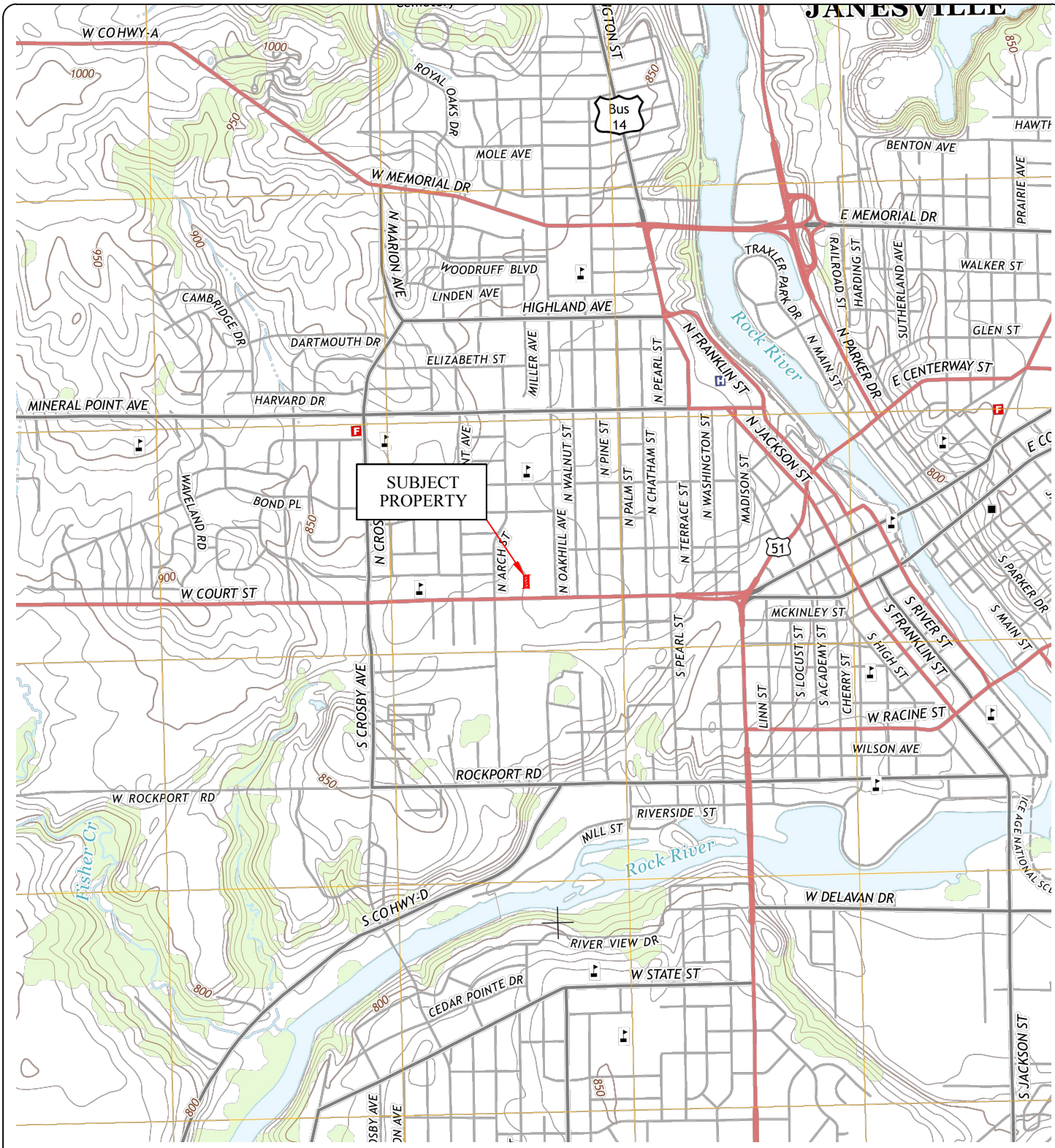
S = Sample collected semi-annually

VOCs - Volatile Organiuc Compounds

Fe = Iron

TOC = Total Organic Carbon

FIGURES



Scale 1:24,000

1 1/2 0 1 Mile

1000 0 1000 2000 3000 4000 5000 6000 7000 Feet

1 .5 0 1 Kilometer

N

Source: US Geological Survey, Janesville, Wisconsin Quadrangle, 7.5 Minute Series, 2013

No.	Date	Revision	Approved

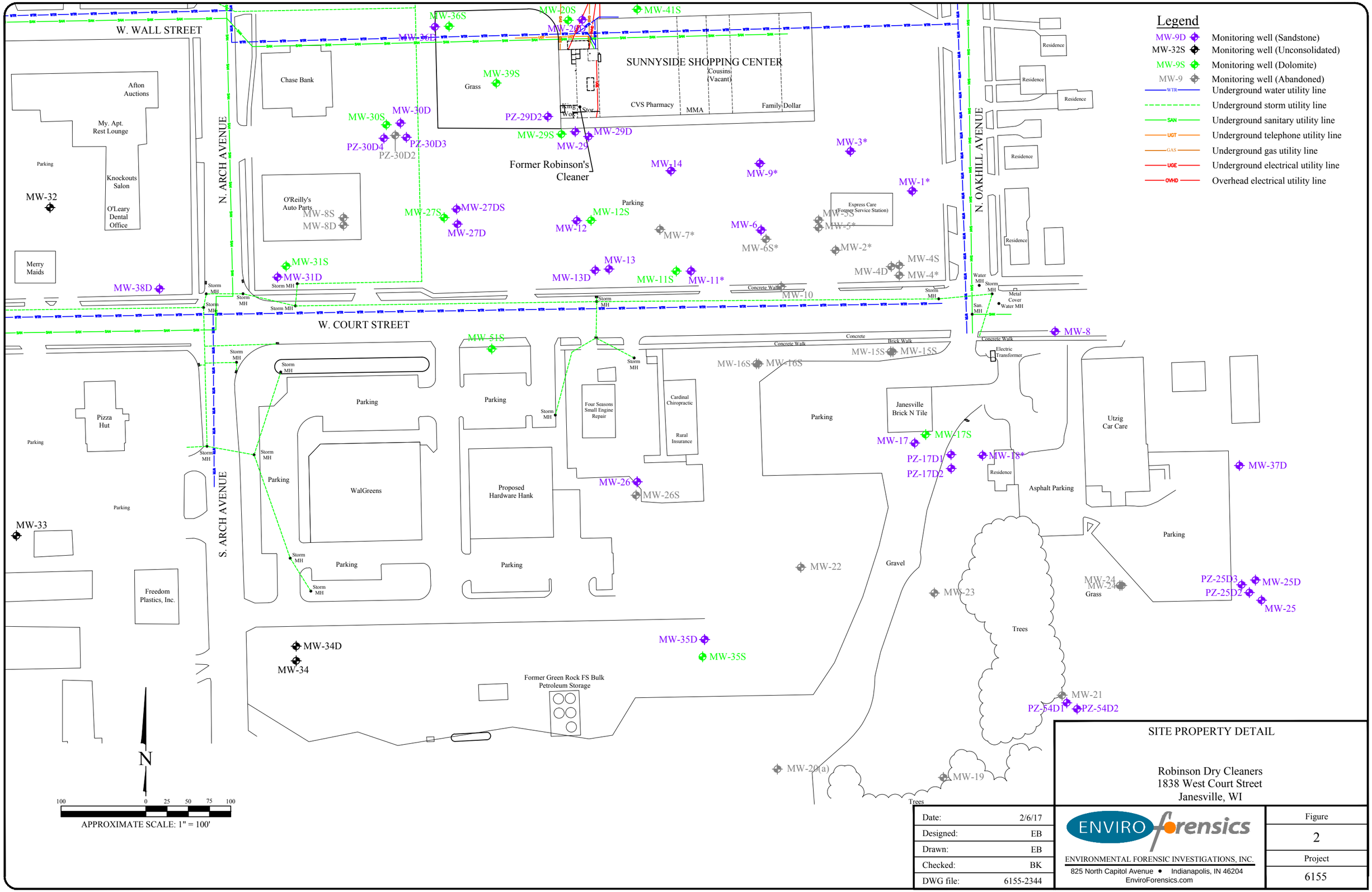
ENVIRO forensics
ENVIRONMENTAL FORENSIC INVESTIGATIONS, INC.
825 North Capitol Avenue • Indianapolis, IN 46204
EnviroForensics.com

Date:	02/25/11
Designed:	SP
Drawn:	SP
Checked:	KG
DWG file:	62720-11

SITE LOCATION MAP

Robinson Dry Cleaners
1838 West Court Street
Janesville, WI

Figure
1
Project
6155



Legend

- MW-9D — Monitoring well (Sandstone)
- MW-32S — Monitoring well (Unconsolidated)
- MW-9S — Monitoring well (Dolomite)
- MW-9 — Monitoring well (Abandoned)
- WTR — Underground water utility line
- Underground storm utility line
- SAN — Underground sanitary utility line
- UGT — Underground telephone utility line
- GAS — Underground gas utility line
- UGE — Underground electrical utility line
- OVHD — Overhead electrical utility line

SITE PROPERTY DETAIL

Robinson Dry Cleaners
1838 West Court Street
Janesville, WI

Date:	2/6/17
Designed:	EB
Drawn:	EB
Checked:	BK
DWG file:	6155-2344

ENVIRO forensics
ENVIRONMENTAL FORENSIC INVESTIGATIONS, INC.
825 North Capitol Avenue • Indianapolis, IN 46204
EnviroForensics.com

Figure 2

Project 6155

Legend

- Property boundary
- MW-9S — Monitoring well (Dolomite)
- MW-9D — Monitoring well (Sandstone)
- 17 / 4,566 — Sandstone injection point (Gallons of PlumeStop solution injected)
- Treatment area
- WTR — Underground water utility line
- Underground storm utility line
- SAN — Underground sanitary utility line

Notes:
1. * = Wells with asterisk are screened across dolomite and sanstone.

MW-40S
Park
Park
LL STREET
MW-36S
MW-36D
Former Robinson's Cleaner
MW-20S
MW-20D
MW-41S
3 / 4,566
4 / 4,716
5 / 4,716
10 / 3,464
SUNNYSIDE SHOPPING CENTER
Chase Bank
6 / 4,666
Grass
MW-39S
11 / 4,586
CVS Pharmacy
Cousins (Vacant)
Family Dollar
MMA
12 / 4,586
18 / 4,788
King Wok
Stor.
PZ-29D2
7 / 5,335
8 / 5,991
MW-30S
9 / 2,792
MW-30D
13 / 4,566
19 / 4,596
PZ-30D3
PZ-30D4
15 / 150
14 / 5,767
20 / 4,646
MW-29S
MW-29
MW-29D
MW-3*
N. ARCH AVENUE
17 / 4,566
16 / 4,566
21 / 4,665
22 / 4,566
MW-14
MW-9*
MW-1*
O'Reilly's Auto Parts
Parking
23 / 4,566
MW-27DS
MW-27S
MW-27D
MW-12S
MW-12
MW-6
N
MW-31S
MW-31D
MW-13
MW-13D
MW-11S
MW-11*
60 0 20 40 60
APPROXIAMTE SCALE: 1" = 60'
Concrete Walk
W. COURT STREET
MW-51S

FULL-SCALE INJECTION POINT LAYOUT MAP SHOWING APPROXIMATE AREA OF PLUMESTOP DISPERSION IN SANDSTONE AND GALLONS INJECTED AT EACH POINT

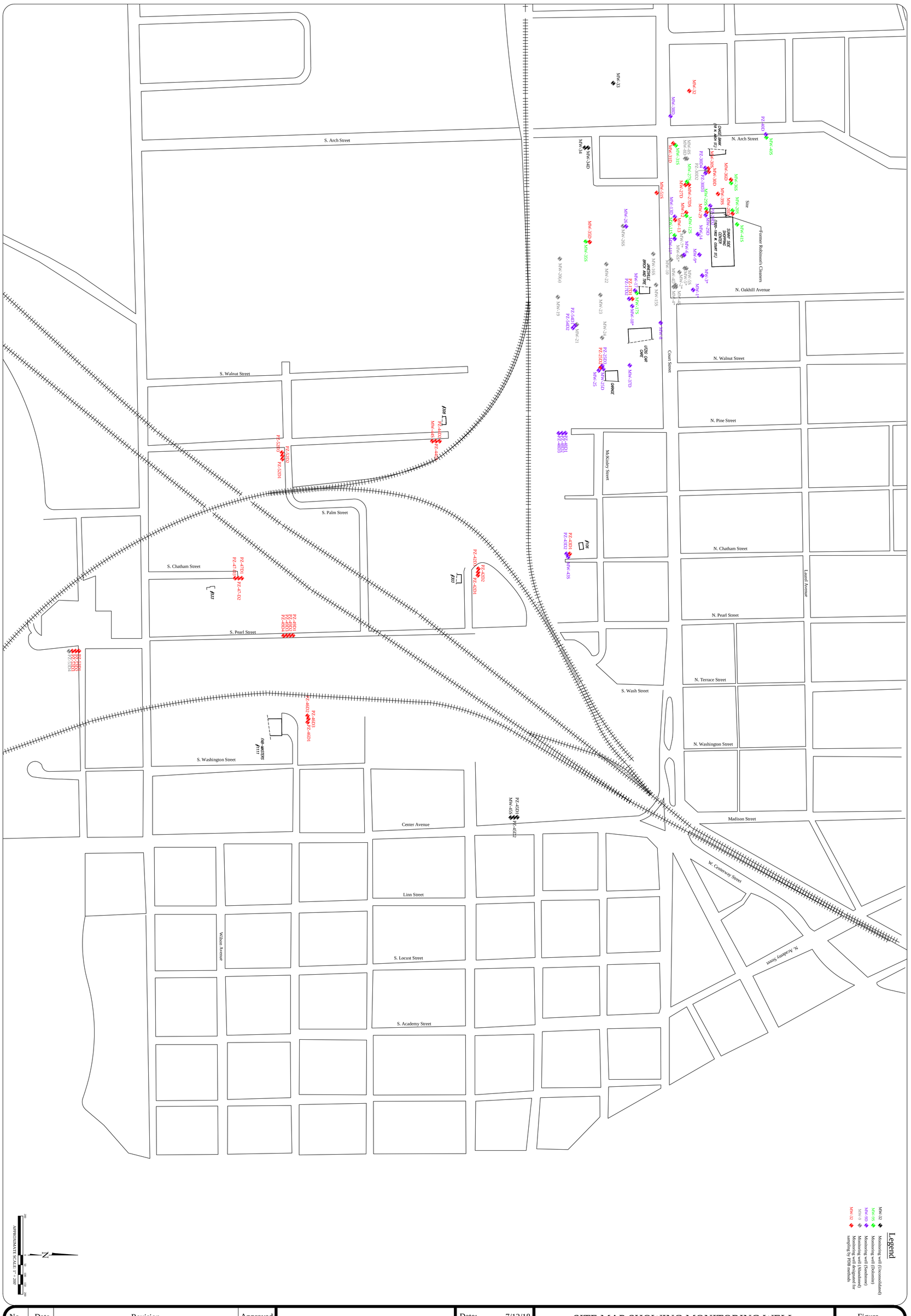
Robinson Dry Cleaners
1838 West Court Street
Janesville, WI

Date:	7/9/18
Designed:	EB
Drawn:	EB
Checked:	WF
DWG file:	6155-3047

ENVIRO forensics
825 North Capitol Avenue • Indianapolis, IN 46204
EnviroForensics.com

Figure 3

Project 6155



No.	Date	Revision	Approved

ENVIRO forensics
825 North Capitol Avenue • Indianapolis, IN 46204
EnviroForensics.com

Date:	7/12/18
Designed:	EB
Drawn:	EB
Checked:	WF
DWG file:	6155-2343

SITE MAP SHOWING MONITORING WELL DESIGNATED FOR SAMPLING

Robinsons Dry Cleaners
1838 West Court Street
Janesville, WI

Figure
4

Project
6155

APPENDIX A

WDNR Approval Letters

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
3911 Fish Hatchery Road
Fitchburg WI 53711-5397

Scott Walker, Governor
Daniel L. Meyer, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

February 12, 2018

Raychris, Inc.
c/o Brian Kappen
Enviroforensics, LLC
N16 W23390 Ston Ridge Dr., Suite G
Waukesha WI 53188

Subject: Temporary Exemption for Injection into Groundwater at
"Robinson's Cleaners – Former", 1838 Court St., Janesville, Wisconsin
DNR BRRTS Activity #02-54-221852

Dear Mr. Kappen:

This letter provides a temporary exemption for the injection of a remedial material into groundwater. The request for a temporary exemption to inject PlumeStop® was requested by Enviroforensics, LLC in a January 9, 2018 letter, which was received by the Department on January 12, 2018, along with the necessary review fee. The Department also received a request for a WPDES General Permit for Contaminated Groundwater from Remedial Action Operations, via email on January 26, 2018. The temporary exemption and general permit are intended to provide assurance that the environmental cleanup will be conducted in accordance with section 292.12 and chapter 283 of the Wisconsin Statutes.

The proposed remediation is a full-scale injection of PlumeStop® liquid activated carbon for in situ treatment of tetrachloroethene in groundwater at the site. Sorption of chlorinated volatile compounds (CVOCs) onto the PlumStop® material and biodegradation of CVOCs are expected to reduce contaminant concentrations.

Determination on the NR 812 Injection Prohibition:
The injection prohibition under s. NR 812.05, Wis. Adm. Code, is not applicable in this case because the proposed action is a Department-approved activity necessary for the remediation of groundwater. This letter serves as your approval from the Department to inject PlumeStop®, to treat CVOCs in groundwater, in accordance with this temporary exemption.

NR 140 Temporary Exemption:
Department approval is hereby granted, under section NR 140.28(1)(d), Wis. Adm. Code, to RayChris Inc., Enviroforensics, LLC, and their subcontractors, for the injection of PlumeStop® into groundwater at the site, according to the terms and conditions described in this letter and the WPDES general permit. The expiration date of this temporary exemption is December 31, 2022.

The need to obtain a temporary exemption for the injection of a remedial material for which a groundwater quality standard has not been established is required under s. NR 140.28 (1) (d), Wis. Adm. Code. Based on the information you provided, it appears the requirements for a temporary exemption for the injection of a remedial material for which a groundwater quality standard has not been established under s. NR 140.28 (1) (d) have been or will be met, in accordance with sections NR 140.28 (5) (c) and (d), Wis. Adm. Code.

Department approval is granted with the following terms and conditions:

A. General:

1. The remedial action for restoring contaminated groundwater or soil, and any infiltrated or injected contaminated water and remedial materials, shall achieve the applicable response objectives required by s. NR 140.24 (2) or s. NR 140.26 (2), Wis. Adm. Code, within a reasonable period of time.
2. The type, concentration and volume of substances or remedial material to be infiltrated or injected shall be minimized to the extent that is necessary for restoration of the contaminated groundwater.
3. Any infiltration or injection of contaminated water or remedial material into groundwater shall not significantly increase the threat to public health or welfare, or to the environment.
4. No uncontaminated or contaminated groundwater, substance or remedial material shall be infiltrated or injected into an area where a floating non-aqueous liquid is present in the contaminated groundwater.
5. There shall be no expansion of soil or groundwater contamination, or migration of any infiltrated or injected contaminated water or remedial material, beyond the edge of previously contaminated areas, except that infiltration or injection into previously uncontaminated areas may be allowed if the Department determines that expansion into adjacent, previously uncontaminated areas is necessary for the restoration of the contaminated groundwater, and the requirements of s. NR 140.18 (1), Wis. Adm. Code will be met.
6. All necessary federal, state and local licenses, permits and other approvals are obtained and compliance with all applicable environmental protection requirements is required. A WPDES general permit for Discharge of Contaminated Groundwater from Remedial Action Operations is required for this action.

B. Specific:

7. The remedial materials to be injected to the groundwater shall be limited to PlumeStop® and inert substances that are necessary for the injection (e.g. water).
8. The remedial material and injection project shall be as described in Enviroforensic's January 9, 2018 "Remediation Injection Request"
9. Enviroforensics shall notify the Department of field activities at least one week before implementation.
10. In the monitoring plan, include screening for soil vapor as a best management practice.
11. Remediation progress reports shall be submitted with the semi-annual progress reports. The progress reports shall include the groundwater monitoring results. The first report should be submitted not more than six months after the first injection. Recommendations as to the next phase of sampling and/or the need for additional treatment shall be included in a future report. This report shall be submitted as soon as the necessary information is available, and must be submitted prior to the expiration date of this temporary approval.
12. Any significant changes based on information from the injection groundwater monitoring reports or results shall be submitted to the Department for approval prior to the changes being implemented at the "Robinson's Cleaners – Former" site. This includes, but is not limited to, adjustments to the volume/mass of the media injected, additional injection points, number of injection events, and/or changes in the type of remediation media used in the injection points.
13. Modifications to the sampling schedule may be requested.
14. In the event of future injection activities, the responsible party may apply for an extension of this approval. A request for an extension of this approval must be received by the Department before the expiration date.
15. Any permit extension approvals will be dependent on Department review of site-specific data or any other information it deems necessary.
16. Upon completion of the project, the injection holes must be abandoned in accordance with s. NR 141.25, Wis. Adm. Code, and later topped off with grout or native soils if settling occurs, unless converted to NR 141 complying monitoring wells, or an alternative approved by the Department Project Manager.

Monitoring Conditions:

1. That the actual volume injected be recorded on an hourly basis for each day of the project.
2. That the monitoring program specified in Enviroforensic's January 9, 2018 "Remediation Injection Request" if followed.
3. That a Site Specific Health and Safety Plan be followed.
4. That the injection is performed at less than 100 psi at a rate which prohibits solution mounding in the aquifer, and plume disfigurement.

Failure to adhere to the provisions of this temporary exemption may result in the Department requiring revisions to the remedial action design, operation or monitoring procedures, or the revocation of this exemption and the implementation of an alternative remedial action to restore soil or groundwater quality, or both.

WPDES Permit

Your proposed discharge received coverage under the general Wisconsin Pollutant Discharge Elimination System (WPDES) permit WI_0046566-06 for Discharge of Contaminated Groundwater from Remedial Action Operations, in a February 6, 2018, Department letter to Rob Hoverman of Enviroforenics. You are responsible for compliance with the conditions contained in this permit. The permit and factsheet can be downloaded from the Department website at http://dnr.wi.gov/topic/wastewater/GeneralPermits.html.

If you have questions, please contact me at (608) 275-3323 or jeff.ackerman@wi.gov.

Sincerely,

Jeff Ackerman
Hydrogeologist
Remediation & Redevelopment Program

cc: Brian Austin, DNR groundwater program
Karl Knutson, DNR waste water program

Appeal Rights

Section 283.35, Wisconsin Statutes, authorizes the Department to issue general permits for discharges from categories or classes of point sources. If a permittee believes coverage of a facility under a general WPDES permit is not appropriate, the permittee may apply for issuance of an individual WPDES permit pursuant to section 283.35 (2) and may petition the Department for withdrawal of coverage under the general permit. The individual permit application should indicate which site specific factors would justify alternate WPDES limits for the operation. Issuance of such a site specific WPDES permit will provide for a 30 day public comment period, and potentially a public informational hearing and/or an adjudicatory hearing. The Department may withdraw a facility from coverage under a general permit if it is determined that a discharge is a significant contributor of pollutants to waters of Wisconsin, or in certain other cases set out in s. 283.35, Stats. In lieu of general permit withdrawal, the Department may refer any violation of this permit to the Department of Justice for enforcement under s. 283.89, Stats. In order to avoid any enforcement action, please read the WPDES permit carefully and comply with the permit requirements.

If you believe you have a right to challenge the Department decision to cover this facility with a WPDES general permit, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed. To request a contested case hearing pursuant to section 227.42, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. Such a petition should identify pollutant(s) that are believed to be not appropriately regulated by the general permit for the specific site. All requests for contested case hearings must be made in accordance with section NR 2.05 (5), Wis. Adm. Code, and served on the Secretary in accordance with section NR 2.03, Wis. Adm. Code. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the time period for filing a petition for judicial review.

For judicial review of a decision pursuant to sections 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. A petition for judicial review must name the Department of Natural Resources as the respondent.

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
2300 N. Dr. Martin Luther King Jr. Drive
Milwaukee WI 53212-3128

Scott Walker, Governor
Daniel L. Meyer, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

February 6, 2018

(via email to: rhoverman@enviroforensics.com)
Rob Hoverman
EnviroForensics
N16 W23390 Stone Ridge Drive
Suite G
Waukesha, WI 53188

SUBJECT:	Coverage under General Permit WI-0046566-06, Contaminated Groundwater from Remedial Action Operations
FACILITY:	Former Robinson Cleaners
LOCATION:	1838 W. Court St, Janesville, WI
FIN:	59530

Dear Mr. Hoverman,

The Wisconsin Department of Natural Resources, hereafter the Department, has reviewed your application for authorization to inject PlumeStop® Liquid Activated Carbon solution for in-situ treatment of tetrachloroethane (PCE) dissolved in groundwater at 1920 West Court Street and 18 Arch Street, Janesville, WI (Former Robinson Cleaners). The presence of chlorinated solvent PCE and the products of natural degradation of PCE to include: trichloroethane, dichloroethene, and vinyl chloride compounds are likely attributable to previously leaking bulk storage drums as well as improper handling and disposal of dry cleaning solvents at the Former Robinson Cleaners site (WDNR BRRTS #02-54-221852).

EnviroForensics is authorized by this letter for enhanced biodegradation in-situ treatment of PCEs in contaminated groundwater at the addresses stated above. According to the management plan EnviroForensics has proposed, enhanced biodegradation will be implemented using PlumeStop® liquid activated solution. A network of 21 injection points will be used with an estimated radius of influence of twenty (20) feet, with an overall treatment zone of 24,000 square feet. The goal is to effectively create a horizontal barrier to contaminant movement from the dolomite to the underlying sandstone. The concentrated PlumeStop will be mixed with water obtained from the City of Janesville to produce a solution. For each injection point, 285 gallons of PlumeStop will be mixed with 4,280 gallons of water to produce the appropriate solution for injection. A total of approximately 96,000 gallons of PlumeStop solution, or 4,565 gallons per injection point, will be added to the treatment zone. The PlumeStop will be shipped to the site in 300 gallon totes and mixing will be performed on-site in large, trailer-mounted, tanks with continuous agitation. The solution will then be pumped from the tanks, through a manifold to the injection points via a hose. Pressure and flow rate will be monitored and recorded to confirm that injection design parameters are met. Additional treatment injection events will be based on the effectiveness of the injections at reducing contaminant levels at the site and the contaminated area is not significantly expanded as a result of the in-situ remedial activities. Any significant injection changes will require Department approval.

Your proposed discharge is eligible for coverage under the general Wisconsin Pollutant Discharge Elimination System (WPDES) permit WI-0046566-06 for Discharge of Contaminated Groundwater from Remedial Action Operations. You are responsible for compliance with the conditions contained in this permit. The permit and fact sheet should be downloaded from the DNR website at http://dnr.wi.gov/topic/wastewater/generalpermits.html.

Discharges under this permit are required to be consistent with a discharge management plan that has been approved by the Department. Your application submitted will be considered as the required discharge

management plan. All of your contaminated wastewater treatment, discharges, and remedial actions must be done according to the terms and conditions of the permit, specifically sections 1, 2, 6 and 8.

General Requirements

1. **Effective Term:** Permit Coverage begins on February 6, 2018.

2. **Additives:** The discharge of other water treatment additives is prohibited unless their use is approved in writing by the DNR.

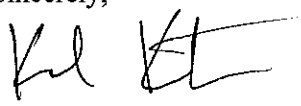
3. **Monitoring requirements:** Monitoring requirements for discharges designed to enhance the remediation of in-situ contaminants are found in Section 6 of the permit.
   - **Flow:** A record must be kept of the total daily volume of PlumeStop® solutions injected.
   - **Parameters:** Jeff Ackerman, DNR Remediation & Redevelopment Project Manager may require additional monitoring and reporting.

4. **Reporting:**
   - Records of effluent volume and chemical monitoring data shall be submitted on discharge monitoring report (DMR) forms following each injection. All sample results must be reported on the DMR. Reports are due on the 15th day of the month following the completion of the injection. The owner must sign the DMRs. DMRs should be sent to the address indicated on the DMR. Please make copies of the enclosed DMR for your use.
   - Records required by this permit must be kept for the duration of the permit and made available for inspection by Department staff upon request.
   - **Any exceedances of the permit limits shall be reported to the Department within 24 hours of the permittee becoming aware of the exceedance.**

Limits based on groundwater quality protection are set at the preventive action limits in ch. NR 140, Wis. Adm. Code. These limits are based on substances reported to be in the discharge, but may not necessarily include all substances of public health or welfare concern, which are in the discharge. However, nothing in this permit allows the permittee to discharge any substance in a concentration that would cause groundwater standards in Ch. NR 140 to be exceeded.

If you have any questions about permit requirements or the contents of this letter, please feel free to contact me at (414) 263-8713.

Sincerely,



Karl Knutson
Wastewater Specialist

cc: Trevor Moen, General Permit Coordinator, WDNR (via email)
Jeff Ackerman, WDNR (via email)
Brian Austin, WDNR (via email)
Wayne Fassbender, EnviroForensics (via email)
Brian Kappen, EnviroForensics (via email)

LEGAL AUTHORITIES AND APPEAL RIGHTS

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