



Environmental
Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

July 31, 2012

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Robert Tankovich, Jr.
Diamond Hard Chrome, Inc.
6110 Grand Ave.
Cleveland, Ohio 44104

**RE: NOTICE OF VIOLATION
GROUND WATER MONITORING INSPECTION
DIAMOND HARD CHROME, INC.
OHR 000 012 880**

Dear Mr. Tankovich, Jr.:

On June 28, 2012, Ohio EPA, represented by John Palmer (DERR, NEDO) and Diane Kurlich (DDAGW, NEDO), conducted a site inspection of the ground water monitoring wells at Diamond Hard Chrome (DHC), 6300 Kinsman Avenue, Cleveland. Consultants Joe O'Brien of O'Brien Technical Services, and Tony Datillo of EnviroMatrix, Inc., represented the facility during the inspection and performed the purging and sampling activities. During this inspection, all of the monitoring wells at the site were inspected to determine if the integrities of the wells are being maintained. In addition, the purging and sampling of MW-9D and MW-6 were observed.

Diamond Hard Chrome is a hard chrome plating operation that previously operated at 6300 Kinsman Avenue, Cleveland. The facility currently operates at 6110 Grand Avenue, Cleveland; the two properties are contiguous. The Kinsman property was certified closed with waste in place (landfill closure) in September 2006. Facilities closing as landfills are required to submit and implement post-closure plans, including provisions for ground water monitoring in accordance with Ohio Administrative Code (OAC) Rules 3745-54-90 through 101. A minimum of 30 years of post-closure ground water monitoring is required. Ground water contamination (chromium and lead) has been documented at the site. At this time, the facility does not have an approved post-closure plan or an approved post-closure ground water monitoring plan. Issues related to Diamond Hard Chrome's Post Closure Plan have been identified in this letter; however, they will be addressed when Ohio EPA and DHC work to resolve and approve the draft Post Closure Plan.

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Ohio EPA inspected the facility to evaluate compliance with Ohio's hazardous waste rules and regulations; this inspection was limited to ground water monitoring regulations. The results of the June 28th inspection are summarized below. The inspection checklist is included as an attachment.

VIOLATIONS

1. **OAC Rule 3745-54-97(C) General ground water monitoring requirements.**

OAC Rule 3745-54-97 states: The owner or operator must comply with the following requirements for any ground water monitoring program developed to satisfy rule 3745-54-98, 3745-54-99, or 3745-55-013745-54-100 of the Administrative Code:

(C) All monitoring wells must be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of ground water samples. The annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the ground.

DHC is in violation of OAC Rule 3745-54-97(C), which requires that the integrity of a ground water monitoring well be maintained. The "*Ohio EPA Technical Guidance Manual for Hydrogeologic Investigations and Groundwater Monitoring*" (**TGM**) or other standards adopted by the director shall be used as a guide for monitoring well construction and sealing to prevent the contamination of ground water.

Wells MW-10 and MW-11 have heaved upwards so that the outer casing, well apron, and the concrete that fills the upper portions of the annular space are elevated above the ground surface and the top of the inner well casing. It is unclear whether the inner well casing also has heaved upward or if the concrete annular fill, apron, and outer casing slid upwards around the inner casing. However, it appears the annular spaces of MW-10 and MW-11 are not sufficiently sealed to prevent contamination of samples and ground water.

To return to compliance with regard to Violation 1 above, MW-10 and MW-11 must be repaired to ensure the annular space above the sampling depth is sealed to prevent contamination of samples and ground water. This will probably require, at a minimum, the removal and reinstallation of the concrete annular fill, the apron, and the outer casing. The tops of the inner well casings should be resurveyed to ensure that accurate water level elevations and total depths of the wells are obtained. **Please respond to Ohio EPA within fourteen (14) days of receipt of this letter with a plan and timeline for the work involved to return to compliance with Violation 1.**

This ends the section regarding violations.

More Information Needed to Determine Compliance

1. Compliance with OAC Rule 3745-54-97(C), requiring that the annular space above the sampling depth must be sealed to prevent contamination of samples and ground water, could not be determined at MW-5. The apron of MW-5 was covered with a mound of soil. Consequently, the condition of the apron and the annular seal could not be determined during the inspection.

The facility should remove the mound of soil and inspect the integrity of the well apron and the annular seal. **The condition of the apron and the annular seal should be reported to Ohio EPA.** It is recommended that photos be included in this report. **Please inspect the condition of MW-5 and respond to Ohio EPA (including photographs) within fourteen (14) days of receipt of this letter.**

Recommendations

1. The draft post-closure ground water monitoring plan includes the procedures for volumetric purging. However, as observed during this inspection, the facility is now using low-flow purging and sampling techniques.

It is recommended that **the next draft of the post-closure ground water monitoring plan be revised to include low-flow purging procedures**, if that is now the purging and sampling method of choice at the site. The Ohio EPA TGM should be consulted for recommended procedures for low-flow purging and sampling.

2. The water level indicator was not properly decontaminated between wells during the site inspection. The draft post-closure ground water monitoring plan indicates that the water level (interface probe) indicator "will be washed between wells using non-phosphate detergent and rinsed with potable water, then distilled water." During the inspection, the water level indicator tape was rolled back onto the spool directly from the well. A minimal amount of water was applied to the front of the coiled tape from a squeeze bottle. The water was not applied to the entire tape, and the non-phosphate detergent wash and second water rinse were omitted entirely.

To prevent cross-contamination between wells, it is recommended that the procedures for **decontamination of the water level indicator be performed as documented** in the draft post-closure ground water monitoring plan. This is particularly important if the facility plans to continue using low-flow purging and sampling procedures because the water level indicator will remain in the well during purging to ensure that the water level has stabilized. This increases the possibility of cross contamination if the indicator is not properly decontaminated.

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3. It appears that matrix spike/matrix spike duplicate (MS/MSD) samples are not collected during sampling events. The draft post-closure ground water monitoring plan does not include provisions for the collection of site specific samples for use by the laboratory for MS/MSD analysis.

It is recommended that the facility submit a site specific MS/MSD sample to the laboratory for use with the analytical batch that includes the facility's primary samples. This is especially important because the facility is collecting total metals samples instead of dissolved metals samples. Ohio EPA recommends DHC use field filtration during the collection of the samples. It is also recommended that **the next draft of the post-closure ground water monitoring plan** include provisions for the collection and analysis of a site specific MS/MSD sample during each sampling event; also include in the plan language describing the field filtration procedure. **Please ensure that matrix spike/matrix spike duplicate (MS/MSD) samples are collected during all future sampling events.**

4. Wells MW-1 and MW-4 cannot be located. The consultants indicated that they could not locate the wells when they returned to the site after a hiatus of several years in the ground water monitoring activities. It is assumed that the wells were paved over. **Prior to submitting the revised post-closure ground water monitoring plan, please modify the existing language to reflect this observation.**

Statements

1. Although the total depths of the wells obtained during the June 28 inspection do not match the total depths documented in Table 1 of the draft post-closure ground water monitoring plan, they are consistent with historic measurements.

This ends the violations/recommendations/statements portion of this letter related to the June 28th inspection.

Diamond Hard Chrome needs to immediately take the necessary measures to return to compliance with Ohio's environmental laws. Within 14 days of receipt of this letter, Diamond Hard Chrome is requested to provide documentation to this office including the steps taken to abate the violations cited above. Documentation of steps taken to return to compliance includes written correspondence, updated policies, and photographs, as appropriate, and may be submitted via the postal service or electronically to patricia.natali@epa.state.oh.us.

Issues related to the DHC Post Closure Plan will be covered under separate letter.

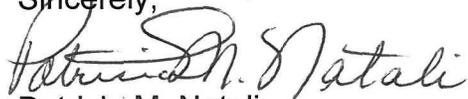
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Please be advised that violations cited above will continue until the violations have been properly abated. Failure to comply with Chapter 3734 of the Ohio Revised Code, and rules promulgated thereunder, may result in a civil penalty of up to \$10,000 per day for each violation. It is imperative that you return to compliance. If circumstances delay the abatement of violations, Diamond Hard Chrome is requested to submit written correspondence of the steps that will be taken by date certain to attain compliance.

Nothing in this letter shall be construed to authorize any waiver from the requirements of any applicable state or federal laws or regulations. This letter shall not be interpreted to release the owner or operator, or others, from responsibility under Chapters 3704, 3714, 3734, or 6111 of the Ohio Revised Code or under the Federal Clean Water Act, Resource Conservation and Recovery Act, or Comprehensive Environmental Response, Compensation, and Liability Act for remedying conditions resulting from any release of contaminants to the environment.

If you have any questions regarding this letter, do not hesitate to contact me at (330) 963-1279.

Sincerely,



Patricia M. Natali
Environmental Specialist
Division of Environmental Response and Revitalization

PMN/cl
Enclosures

cc: Diane Kurlich, Ohio EPA, DDAGW, NEDO
Joe O'Brien, O'Brien Technical Services

ec: Rod Beals, Ohio EPA, DERR, NEDO
Harry Courtright, Ohio EPA, DERR, NEDO
John Palmer, Ohio EPA, DERR, NEDO
Mike Allen, Ohio EPA, DERR, CO
Ed Lim, Ohio EPA, DERR, CO
Marlene Kinney, Ohio EPA, DMWM, NEDO
Nyall McKenna, Ohio EPA, DMWM, NEDO

Completed verification forms required to be submitted to CO should be e-mailed to brad.hauser@epa.state.oh.us.

Site EPA ID No.	EPA ID Number: OHR 000 012 880	
Site Name	Name: Diamond Hard Chrome	Website: (Optional)
Site Location Information	Street Address: 6300 Kinsman Ave.	
	City, Town, or Village: Cleveland	State: OH
Site Land Type (check only one)	County Name: Cuyahoga	
NAICS code(s) www.census.gov/epcd/www/naics.html	Private <input checked="" type="checkbox"/> County <input type="checkbox"/> District <input type="checkbox"/> Federal <input type="checkbox"/> Indian <input type="checkbox"/> Municipal <input type="checkbox"/> State <input type="checkbox"/> Other <input type="checkbox"/>	Zip Code: 44104

Facility Representative	First Name: John	MI: R.	Last Name: Tankovich, Jr.
Additional names can be recorded in number 12	Title: President		
Only provide address information if it is different than the site address	Phone Number: 216-391-3618		Phone Number Extension:
	E-Mail Address:		
	Fax Number:		Fax Number Extension:
	Street or P.O. Box: 6110 Grand Ave		
	City, Town or Village: Cleveland		
	State: OH	Zip Code: 44104	

Legal Owner And Operator of the Site. List Additional Owners and/or Operators in the Comment Section or on another copy of this form page	Name of Site's Legal Owner:		Date Became Owner (mm/dd/yyyy):	
	Owner Type:	Private <input type="checkbox"/> County <input type="checkbox"/> District <input type="checkbox"/>	Federal <input type="checkbox"/> Indian <input type="checkbox"/> Municipal <input type="checkbox"/> State <input type="checkbox"/> Other <input type="checkbox"/>	
	Street or P.O. Box: same as above			
	City, Town or Village:		Owner Phone #:	
	State:		Country:	Zip Code:
	Name of Site's Operator:		Date Became Operator (mm/dd/yyyy):	
	Operator Type:	Private <input checked="" type="checkbox"/> County <input type="checkbox"/> District <input type="checkbox"/>	Federal <input type="checkbox"/> Indian <input type="checkbox"/> Municipal <input type="checkbox"/> State <input type="checkbox"/> Other <input type="checkbox"/>	
	Street or P.O. Box:			
	City, Town or Village:		Operator Phone #:	
	State:		Country:	Zip Code:

VIOLATIONS CITED?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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TYPE OF HANDLER - MARK "X" AS APPROPRIATE

<input checked="" type="checkbox"/> Not a HW Generator	<input type="checkbox"/> UNKNOWN: Cited for violation of 3745-52-11 <input type="checkbox"/> Short-Term/Temporary Generator (generates from a short-term or one-time event and not from on-going processes). Check the box for the applicable generator status and provide a comment.	<input type="checkbox"/> Large Quantity Generator (LQG) <input type="checkbox"/> Small Quantity Generator (SQG) <input type="checkbox"/> Conditionally Exempt Small Quantity Generator <input type="checkbox"/> U.S. Importer of Hazardous Waste <input type="checkbox"/> Mixed Waste (Hazardous and Radioactive) Generator
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TYPE OF REGULATED WASTE ACTIVITY (MARK "X" IN ALL OF THE APPROPRIATE BOXES)

<input type="checkbox"/> Hazardous Waste Transporter	<input type="checkbox"/> Exempt Boiler and/or Industrial Furnace
<input type="checkbox"/> Hazardous Waste Transfer Facility	<input type="checkbox"/> Small Quantity On-Site Burner Exemption
<input checked="" type="checkbox"/> Treater, Storer or Disposer of Hazardous Waste	<input type="checkbox"/> Smelting, Melting, Refining Furnace Exemption
<input type="checkbox"/> Recycler of Hazardous Waste	<input type="checkbox"/> Underground Injection Control Facility
<input type="checkbox"/> 72-Hour Recycler	<input type="checkbox"/> Receives Hazardous Waste from Off-site

UNIVERSAL WASTE ACTIVITIES (INDICATE TYPES OF UNIVERSAL WASTE MANAGED (CHECK ALL BOXES THAT APPLY))

<input type="checkbox"/> Small Quantity Handler of Universal Waste	<input type="checkbox"/> Destination Facility for Universal Waste
<input type="checkbox"/> Large Quantity Handler of Universal Waste (accumulates 5,000 kg. or more)	

CHECK ALL BOXES BELOW THAT APPLY FOR THE TYPES OF UNIVERSAL WASTE THE FACILITY MANAGES

Batteries
 Pesticides
 Mercury containing equipment
 Lamps

USED OIL ACTIVITIES (INDICATE TYPE(S) OF ACTIVITY(S))

Used Oil Generator
 Used Oil Transporter
 Used Oil Transfer Facility
 Used Oil Processor
 Used Oil Re-refiner
 Off-Specification Used Oil Burner
 Used Oil Fuel Marketer who directs shipment of Off-Spec Used Oil
 Used Oil Fuel Marketer who first claims the Used Oil meets the specifications

Eligible Academic Entities with Laboratories: Facility has previously notified that they are opting into managing laboratory hazardous waste pursuant to OAC rules 3745-52-200 through 3745-52-216. Check the box(es) below to indicate the laboratory type.

College or University
 Teaching hospital that is owned by or has a formal written affiliation agreement with a college or university
 Non-profit Institute that is owned by or has a formal written affiliation agreement with a college or university

Waste Codes for Federally Regulated Hazardous Wastes. Please list the codes for the federally regulated hazardous waste handled at the site. List them in the order they are presented in the regulations (e.g., D001, D003, F007, U112). Use an additional page or list them in the comments if more space is needed. If the waste codes are the same as listed in the most recent RCRAInfo source record, you do not need to list them. Instead just indicate the date of the most recent source record.

COMMENTS: USE THIS AREA TO DESCRIBE WHETHER THE INSPECTION WAS ANNOUNCED, WHETHER THE WASTE IS STORED IN TANKS OR CONTAINERS, ETC.

Announced Yes No Additional Facility Representatives: **Tony Datillo, EnviroMatrix, Inc. and Joe O'Brien, O'Brien Technical Services**

Tanks Yes No
 Containers Yes No

Name of Inspector(s)	Name of Inspector(s)	Date of Inspection/Time (mm/dd/yyyy) (hh:mm)
John Palmer, DERR, NEDO	Diane Kurlich, DDAGW, NEDO	June 28, 2012 9:30

Comments:
The inspection was for the groundwater monitoring program; existing wells were inspected as were sampling procedures. The facility has a closed, waste-in-place landfill and semi-annual groundwater monitoring is required. The Closure, Post-Closure Plan has not yet been approved.

Attachment
Inspection Checklist

DDAGW GROUND WATER INSPECTION CHECKLIST

Site/Facility Name: Diamond Hard Chrome Inspection Date: June 28, 2012

Site/Facility Address: 6300 Kinsman Ave
Cleveland OH 44104 Ohio EPA ID#: OH 000-012-880
 Site/Facility Status (circle one): Operating Closed District: NE DO

Client Division/Program (check applicable)

DMWM _____ RCRA _____ DERR _____ DSW _____

MSW _____ Interim Standards (65-90 to 94) _____ Remedial Response _____
 ISW _____ Final Standards (54-90 to 100) X _____ VAP _____
 RSW _____ Site-wide CA/IGWMP (54-101) _____
 CDD _____

Site/Facility Contact, Name & Title:

Client Division Contact: Patricia Natali DDAGW Geologist: Diane Kurlich

Names and company affiliations of facility or consulting personnel performing field monitoring and sampling activities:

- Joe O'Brien O'Brien Technical Services
- Tommy Datillo Enviro Matrix, Inc.

Others in Attendance: John Palmer DERR-NE DO

Documentation Reviewed Prior to Field Inspection

Ground Water Sampling and Analysis Plan
 If the ground water sampling and analysis plan (SAP) has previously been reviewed by DDAGW, it need not be formally reviewed again prior to the field inspection. However, it should be consulted during completion of the office portion of the ground water field inspection form. If DDAGW has not previously reviewed the SAP, a formal review of the document should be requested by the client division and completed as a separate project prior to the field inspection.

1. Has the current SAP been formally reviewed by DDAGW? Yes X No _____
 If yes, document date: Nov 2009 Document has Approval date (if applicable): not been approved

2. The current SAP is: (circle one) a stand-alone document? included in another document? _____ If another document, specify: _____

3. Sampling and analysis procedures are often modified through correspondence between the regulated entity and Ohio EPA. A new, revised SAP may not be generated as part of this process. If the current SAP has been modified through correspondence between the Ohio EPA and the regulated entity, please list in the space below, the dates of the correspondence and the modifications that were documented and approved.

During closure, GW monitoring was in accordance w/ DAC 3745-65-90-94 and the GW Quality assessment plan approved in 1996. After closing as a landfill in 2006, GW monitoring ceased until 2008. Post closure gw monitoring plans in accordance w/ DAC 3745-54-90 through 101 were submitted in 2008+2009. Because of the number

Other Sources of Documentation

The key document for review prior to observing field activities is the SAP; however, it may be necessary to review other documents to establish the evaluation basis for the inspection. Which of the following documents were reviewed by Ohio EPA to determine the applicable monitoring and sampling requirements?

Document:	Yes	No	N/A	Comments:
1. Approved Permit?		✓		If yes, date approved:
2. Approved Closure Plan?		✓		If yes, date approved:
3. Final enforcement actions between AGO/Ohio EPA and facility?		✓		If yes, date signed:
4. Current Ground Water Detection Monitoring Plan (GWDMP)?		✓		If yes, document date:
5. Current Ground Water Quality Assessment Monitoring Plan (GWQAP)?		✓		If yes, document date:
6. Current Ground Water Compliance Monitoring Plan (GWCMP)?	✓			If yes, document date: Nov, 2009. Never approved by DEPA
7. Previous Ohio EPA inspection?	✓			If yes, inspection date: 1997 CME
8. Other? Please specify _____	✓			DDAGW files for DHC

deficiencies in these two plans, neither were approvable. Thus, the post closure ground water monitoring is currently being conducted w/o an approved plan.

Monitoring Well System

Maintenance & Sampling Information:	Yes	No	N/A	Comments:
1. Do the actual number, locations, and depths of the wells sampled correspond to the SAP or other governing document?	✓			
2. Are the wells maintained properly? (Refer to attached <i>Ground Water Monitoring Well Inspection Form</i>)		✓		MW-10 + ROW-11 are heaved upward MW-5 - inner and outer casings can be moved back and forth
3. Are there bumper guards around the wells?		✓		Located in limited access area
4. Are there additional monitoring wells or piezometers present at the site that are not currently used as part of the ground water monitoring program? a) If so, were they also inspected during this visit? b) If inspected, are they constructed/maintained properly? If inspected, please include these wells on the attached <i>Ground Water Monitoring Well Inspection Form</i> . If not inspected, please indicate why in the Comments column.		✓		Wells MW-1 and MW-4 cannot be located. Consultants indicated that the wells could not be located after several years when gw monitoring was not conducted
5. Additional comments:				

Please note that for the purposes of this inspection, the terms "monitoring well" and "well" include piezometers (used to collect water level elevation data only) required by the SAP or other governing document.

Sampling & Analysis Plan Requirements and Field Procedures

Completing the "SAP Requirement" section of the checklist is not meant to constitute a formal review of an already reviewed and approved SAP. It is meant to prepare the DDAGW geologist for the field inspection, where the implementation of the SAP is reviewed and evaluated.

The main purpose of the field inspection (along with a review of monitoring well maintenance) is to address whether the procedures and techniques required by the SAP were properly implemented. The questions posed here are not intended to encompass every detail that may be contained in a SAP. The comments column can be used to document, as necessary, any observations regarding SAP implementation not explicitly addressed by the questions. While the DDAGW geologist can comment if the approved procedures are inadequate to ensure collection of representative ground water samples and protection of human health and the environment, these comments would be considered "recommendations". However, if the inadequate procedures are insufficient to demonstrate compliance with applicable rules, those rules should be cited as part of the inspection findings.

Well Identification: Specify well numbers where ground water purging and sampling procedures were observed by Ohio EPA; Also, specify the parameters being samples at the well(s).	Wells: MW-9D + MW-6 Parameters: Cr, Pb, Cr 36						
	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
1. Does the person performing the sampling have a copy of the most current SAP with him/her in the field or is one available at the site?							
2. Measuring ground water levels/elevations (and surface water levels/elevations, if applicable), including:							
a) Measuring ground water levels (and if applicable, surface water levels) within a 24-hour period?		✓		✓			Although not specified in SAP, All water levels are measured w/ 24 hours
b) Measuring ground water levels prior to purging and sampling?	✓			✓			
c) Measuring ground water levels (and if applicable, surface water levels) to an accuracy of at least 0.01 ft?	✓			✓			
d) Using a reference point established at the top of each well casing (and at each surface water sampling point, if applicable) to measure each water level?	✓			✓			

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
2. Measuring ground water levels/elevations, cont.:							
e) Procedures for evaluating and documenting the presence of Dense non-aqueous phase liquid (DNAPL) and light non-aqueous phase liquid (LNAPL), including measuring the thickness of any NAPLs present?	✓					✓	NAPLs are not included in the site specific Contaminants of concern.
f) Is the total depth for each well measured? If so, does it match the total depth of the well documented on the well log? If not, what is the facility's schedule for measuring and evaluating total depths?	✓			✓			Total depths do not match table 1 in SAP, but they are consistent w/ historic values.
g) Type(s) of device(s) used to measure water levels and total depths?	SAP: electronic tape			Field: QED electronic tape			
h) Are water levels used for determining ground water flow direction recorded?	SAP: Yes			Field: Yes			
3. Well Purging (Generic to all methods):							
a) Specify purging method(s) used for each well observed.	SAP: Bailing or submersible pump.			Field: submersible pump			
(1) Volumetric Purge?	✓						SAP specifies 3 to 5 well volumes or to dryness.
(2) Low Flow?					✓		Samplers said they were using low flow
(3) Minimum/No Purge?	NA			NA			
(4) Purge to Dryness	NA			NA			SAP mentions possibly purging to dryness, but this doesn't seem to be an issue
(5) Other: _____	NA			NA			
b) Type of equipment used to purge each well observed. Type /material) (Note: Specify particular type of pump or bailer)	SAP: submersible pump			Field: submersible pump			disposable tubing used.

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
3. Well Purging (Generic), cont.:							
c) Is purging equipment dedicated?		✓			✓		The tubing is disposable, pumps are not dedicated
d) If equipment is not dedicated, was the equipment properly decontaminated?		✓			✓		Sampling pump decon ok Water purg' material was not decon'd properly
e) If bailers are used, specify the type of cord used with the bailer.	SAP:	NS		Field:	NA		
4. For Volumetric Purging:							
a) Was the volume of water in the well column determined?	✓					✓	Although volumetric purging is described in SAP, low flow
b) Was the purging performed in a manner that minimizes mixing and aeration of the water column?	✓					✓	purging was performed in the field.
c) Were all SAP field stabilization parameters obtained to properly determine when purging is adequate?	✓					✓	
(1) List stabilization parameters obtained:	SAP:	pH, Specific Cond, Temp		Field:	NA		
(2) Were stabilization parameters taken at least every 1 to 1 ½ well volumes?	✓					✓	
(3) Was it demonstrated that three consecutive measurements were within their respective stabilization criteria?	✓					✓	
d) Were samples obtained immediately after purging?	✓					✓	
5. For Low-Flow Purging:							
a) Was water level drawdown measured during purging?			✓	✓			On second well observed
b) Was it demonstrated that drawdown stabilized?			✓	✓			

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
5. For Low-Flow Purging, cont.:							
c) Specify location of pump.	SAP: NA			Field: w/ 50' screen interval			
d) What was the purging rate?	SAP: NA			Field: 100+ ml/min			
e) <u>Were all SAP field stabilization parameters obtained to properly determine when purging is adequate?</u>			✓	✓			
(1) List stabilization parameters obtained:	SAP: NA			Field: Specific cond, pH, T			
(2) Were stabilization parameters taken every 3 to 5 minutes?			✓	✓			
(3) Was it demonstrated that three consecutive measurements were within their respective stabilization criteria?			✓	✓			
f) Were samples obtained immediately after purging?			✓	✓			
6. For Minimum/No Purge:							
a) If the pump was not dedicated, was the pump placed far enough in advance so that the effect of the pump installation has completely dissipated?			✓			✓	
b) Specify the location of the pump.	SAP: NA			Field: NA			
c) <u>Were steps taken to prevent stagnant water from entering the screened interval of the well?</u>			✓			✓	
(1) Was drawdown measured during purging?			✓			✓	

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
6. For Minimum/No Purge, cont.: c)(2) Was the amount of drawdown no more than the distance from the top of the screen and the position of the pump intake within the screen, minus a 2 foot safety margin maintained?			✓			✓	
(3) If other, specify.	SAP: NA			Field: NA			
7. For Purging to Dryness: Were samples taken as soon as sufficient water was available?			✓			✓	
8. Field parameters for ground water, surface water, and/or leachate, including: a) Are field analyses of temperature, pH, and specific conductance performed?			✓			✓	
b) Are field parameters for ground water samples checked after purging and before sampling?			✓			✓	
9. Ground water (and if applicable, surface water or leachate) sample collection, including: a) Specify sample collection methods and equipment used:	SAP: Submersible pump			Field: Submersible pump			
b) Is the ground water sampling equipment dedicated?		✓			✓		
c) If applicable, is the well sampling order from least to most contaminated?	✓			✓			
d) Are sample containers filled in order of parameter volatilization sensitivity, e.g., VOCs, SVOCs, total metals?	✓			✓			

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
9. Ground water (and if applicable, surface water or leachate) sample collection, including, cont.:							
e) If bailers are used, are samples collected in a manner which minimizes mixing and aeration of the well water column?	✓					✓	Bailers are mentioned in SAP, but not used.
f) Specify type of cord or wire used with sampling bailers:	SAP: N/S			Field: N/A			
g) If used, are bladder pumps operated in a manner that prevents sample aeration and minimizes sample turbidity?			✓			✓	
h) Are pumps (all types) operated at a rate low enough to prevent sample aeration and minimize sample turbidity?	✓			✓			
10. Calibration of field monitoring and analytical equipment:							
a) Is each device calibrated to its manufacturer's specifications?	✓			✓			
b) Is each device calibrated prior to use in accordance with the SAP?	✓			✓			
c) Are all calibration procedures and/or equipment maintenance (and the date(s) performed) documented on field forms or in a field log book?	✓			✓			
11. Equipment decontamination, including:							
a) If applicable, is all non-dedicated monitoring, purging, and sampling equipment decontaminated between sampling locations in accordance with the SAP?	✓				✓		water level meter was not properly decont.
b) Is clean or decontaminated sampling equipment placed on the ground or in other potentially contaminated areas prior to use?		✓			✓		
c) Are all decontamination fluids contained and disposed in accordance with the SAP?	✓			✓			

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
12. Purge water disposal, including: a) If previous monitoring results indicate that a well has not been contaminated, is all purge water disposed in an area where it cannot affect purging or sampling activities at any sampling location during the ongoing event?		✓			✓		All purge water is containerized.
b) If previous monitoring results indicate that a well has been contaminated, or if the ground water is known to be contaminated, is all purge water properly contained, labeled, stored, transported, and disposed per applicable federal, state, and local laws?	✓			✓			
13. Field sample preparation, including: a) . <u>Sample containers and handling:</u>							
(1) Are all sample containers pre-cleaned and provided by the laboratory?	✓			✓			
(2) Are any samples field filtered prior to being transferred to their appropriate containers?		✓			✓		
(3) Are samples transferred directly from the sampling device to their appropriate containers in a manner that minimizes agitation and aeration?	✓			✓			
(4) Are VOC sample containers completely filled to form a meniscus and capped in a prompt manner to minimize volatilization?			✓			✓	VOCs are not COCs.
(5) Are VOC containers checked for air bubbles after filling and capping?			✓			✓	
(6) If any bubbles were observed, were the vial(s) discarded and a new sample taken?			✓			✓	

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
13. a) <u>Sample containers and handling, cont.:</u> (7) If sample(s) could not be obtained without air bubbles, was their presence noted on the field log or field data sheet?			✓			✓	
b) Were samples appropriately preserved? (See Ohio EPA TGM, Revision 1, February 2006, Chapter 10, pp 10-42 to 10-43)	✓			✓			
c) <u>Sample labeling:</u> (1) Unique sample (field) identification number that clearly associates the sample and the sampling location?	✓			✓			
(2) Facility/site name?	✓			✓			
(3) Sample type (matrix) and date and time of collection?	✓			✓			
(4) Parameters and analyses requested?	✓			✓			
(5) Sample preservatives?	✓			✓			
(6) Name or initials of sampler and company affiliation?	✓			✓			
(7) Is an indelible pen or marker used to complete sample labels?	✓			✓			
(8) Are sample labels secured and protected to ensure legibility when delivered to the laboratory?	✓				✓		
14. Field Quality Assurance/Quality Control (QA/QC), including: a) Use of standard procedures that ensure the validity and reliability of field and laboratory data, as well as representative analytical results?	✓			✓			

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
14. Field Quality Assurance/Quality Control (QA/QC), including, cont.:							
b) Documentation of all deviations from SAP-required procedures?	✓			✓			
c) <u>Collection of the following QA/QC samples in accordance with the SAP:</u>							
(1) Duplicate samples?	✓			✓			
(2) Field blanks?	✓			✓			
(3) Equipment blanks?	✓				✓		SAP only requires this if non-oxidized boilers are used
(4) Trip blanks?	✓			✓			
d) Collection of all necessary laboratory QA/QC samples (e.g., matrix spike, matrix spike duplicate)?		✓			✓		SAP doesn't specify collecting ms/msd samples
15. Chain-of-Custody (COC) procedures, including:							
a) Are all SAP-required COC procedures followed? (If not, explain why.)	✓			✓			
b) Are standardized COC forms used to establish a complete custody record from the field to the laboratory for all samples?	✓			✓			
c) <u>Is the following field and laboratory information properly documented on the COC form to provide effective sample tracking and to ensure that samples are properly identified, preserved, and analyzed?</u>	✓			✓			
(1) Address and contact information for the site/facility, laboratory, and, if applicable, all consulting firms performing sampling?	✓			✓			

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
15. c) Field and laboratory information, cont.:							
(2) Unique sample (field) identification numbers that clearly associate the sampling location and sample?	✓			✓			
(3) Sample type (matrix) and date and time of collection?	✓			✓			
(4) Requested parameters, or a reference for the requested parameters?	✓			✓			
(5) Requested analytical methods, or a reference for the requested analytical methods?	✓			✓			
(6) Types of sampling containers used, or a reference for the types of sampling containers used?		✓			✓		
(7) Types of sample preservatives used, or a reference for the types of sample preservatives used?		✓			✓		
(8) Sample shipping information, including but not limited to the transporter(s), tracking numbers, and delivery time frame(s)?		✓			✓		
(9) Legible names (printed) and signatures of all field and laboratory personnel relinquishing and/or receiving the samples and inclusive dates and times of possession that provide a complete record of sample custody? (Names and signatures of commercial shipping personnel are not required.)	✓			✓			
d) Are custody seals (signed by the sampler) placed on sample coolers prior to shipment to indicate if the cooler has been opened or tampered with during shipment?							UNK

	SAP Requirements?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
16. Is the following sampling and water level elevation information properly documented on field forms or in a field log book for each well, surface water, or leachate sampling location observed?							
<i>a)</i> Monitoring program (detection, assessment, or compliance) identified?		✓			✓		
<i>b)</i> Correct reference to well identification number or specific well location?	✓			✓			
<i>c)</i> Static ground water level (elevation), associated measurement technique, date, and time?	✓			✓			
<i>d)</i> Surface water level (elevation), associated measurement technique, date, and time?			✓			✓	
<i>e)</i> Total depth and associated measurement technique for each well?	✓			✓			
<i>f)</i> Presence and thickness of immiscible layers and associated measurement technique?	✓			✓			
<i>g)</i> Well purging procedures and all associated SAP-required information?	✓			✓			
<i>h)</i> Field analyses procedures and all associated SAP-required information?	✓			✓			
<i>i)</i> Sampling procedures and all associated SAP-required information?	✓			✓			
<i>j)</i> Field observations, including but not limited to unusual sample characteristics (appearance, odor, <i>etc.</i>), unusual well recharge rates, apparent well damage, potential contamination sources, and unusual climatic conditions?	✓			✓			
<i>k)</i> Equipment malfunction(s)?	✓			✓			

	SAP Requirements			Field Implementation			
	Yes	No	N/A	Yes	No	N/A	
16. Field Log Forms/Log Book, cont.:							
l) Any deviations from the SAP and explanation of why such modifications were necessary?	✓			✓			
m) Sampling team personnel and company affiliation?	✓			✓			
17. Are copies of all field forms (and/or field log book), COC forms, and sample shipping documents stored at the site/facility as part of the operating record?							UNK

Sampling & Analysis Plan Requirements and Field Procedures, con't.

Have all discrepancies between the SAP and the field implementation been described in the "Comment" section? Comments should include specific monitoring well (or other sampling) locations where deviations from the SAP and/or other regulatory requirements were observed.

Additional Comments & Notes:

GROUND WATER MONITORING WELL FIELD INSPECTION FORM

Site/Facility Name, Ohio EPA ID#, & Inspection Date: *Diamond Hard Chrome; OHR 000-012-890; June 28, 2017*

Well identification number:	<i>mw-5</i>	<i>mw-6</i>	<i>mw-9b</i>	<i>mw-10</i>	<i>mw-11</i>			
Correct location?	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>			
Clearly and correctly labeled?	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>			
Locked prior to arrival at well location?	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>			
Ground water depth:	<i>12.20</i>	<i>22.78</i>	<i>32.54</i>	<i>21.64</i>	<i>23.16</i>			
Well total depth:	<i>17.24</i>	<i>25.94</i>	<i>58.45</i>	<i>30.40</i>	<i>30.10</i>			
For above ground completions:								
a) Protective outer casing present?	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>			
(1) Condition?	<i>Good</i>	<i>Good</i>	<i>Good</i>	<i>Good</i>	<i>Good</i>			
(2) Lockable lid and lock? Condition?	<i>Y Good</i>	<i>Y Good</i>	<i>Y Good</i>	<i>Y Good</i>	<i>Y Good</i>			
(3) Weep hole present?	<i>Y</i>	<i>Y</i>	<i>N</i>	<i>Y</i>	<i>Y</i>			
(4) Standing water between protective casing & well casing?	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>			
b) Surface seal/apron present?	<i>Note 1</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>			
(1) Condition?	<i>Note 2</i>	<i>Good</i>	<i>Good</i>	<i>Note 3</i>	<i>Note 3</i>			
(2) Ponded surface water?	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>			

Well identification number:	MW-5	MW-26	MW-90	MW-10	MW-11			
For flush mount completions:								
a) Well vault present?	NA	NA	NA	NA	NA			
(1) Condition?								
(2) Covered with bolted vault lid?								
(3) Standing water in vault? Covering top of inner casing?								
b) Surface seal/apron present?								
(1) Condition?								
(2) Raised at least slightly above grade and sloped away from the top of the vault?								
(3) Ponded surface water on top of vault lid?								
Inner well casing condition?								
a) Material?	2" PVC							
b) Survey reference mark?	Y	Y	Y	Y	Y			
c) Cap present?	Y	Y	Y	Y	Y			
d) If the completion is flush mount, is the cap expandable and locking?	NA	NA	NA	NA	NA			
e) Condition of casing and cap?	Note 1	Good	Good	Note	Note 2			

top of casing

Additional Comments:

Note 1 Apron was covered with a mound of dirt and could not be inspected.
 Note 2 The inner and outer casings could be moved back & forth, slightly.
 Note 3 MW-10 & MW-11 have heaved upward. The outer casing, annular seal, and apron have moved as a unit. It appears that the annular concrete has slid up along the inner PVC casing, leaving the top of the inner casing several inches below the top of the annular seal.

