Ohio | Environmental Protection Agency

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

Re: Defiance County Landfill
April 2011 Ground Water
Monitoring System Inspection

May 4, 2011

Defiance County Commissioners
500 Court Street
Defiance, Ohio 43512

Dear Commissioners:

On April 11, 2011, Ken Brock, representing the Ohio Environmental Protection Agency (Ohio EPA), completed an Operating Facility Ground Water Inspection (OFGWI) at the Defiance County Landfill (facility). Previous OFGWIs were performed at the facility in October 1997, October 2000, September 2004 and March 2008.

Ground water sampling activities were performed by representatives of Eagon & Associates, Inc. (Eagon). This inspection included the following:

- Observation of Eagon's sampling procedures; and
- Observation of the surficial construction of on-site monitoring wells.

This letter documents the results of the inspection. Enclosed is a copy of the inspection form. This form summarizes the inspection of the surficial well construction of the on-site monitoring wells and also summarizes the inspection of the equipment and procedures used during the sampling event.

COMMENTS

Violations

1. **The owner/operator is in violation of OAC Rule 3745-27-10(B)(3)(e), regarding the maintenance of the ground water monitoring wells and piezometers. During the April 11, 2011, inspection, maintenance issues were noted at the MW-6 nest, the MW-8 nest, MW-9, MW-15A, the MW-25 nest and P-4B and P-4C. To regain compliance with the requirements of this rule, the owner/operator needs to respond accordingly.**

OAC Rule 3745-27-10(B)(3)(e) states, *"The monitoring wells, piezometers, and other measurement, sampling, and analytical devices shall be operated and maintained to perform to design specifications throughout the life of the monitoring program."*

During the inspection, the following maintenance issues were noted for the monitoring wells/piezometers.

- MW-8/MW-8A: The soil around the concrete pads has eroded.
- MW-15A: Standing water was noted around the well.
- MW-25 nest: Excessive standing water was noted around the entire well nest area (3 inches deep on the concrete pads for the wells).
- MW-6/MW-6D: The PVC risers are bent below ground to the degree that bailers are stuck inside the piezometers (leaving them unusable).
- MW-9/MW-9A: The PVC riser at MW-9 is bent below ground to the degree that a bailer is stuck inside the piezometer (leaving it unusable). The concrete pad at MW-9A is badly cracked.
- P-4B/P-4C: The main haul road has been moved very close to these piezometers, such that the road berm covers the concrete pads and the bed of the road is within 1 foot of the piezometers.

To regain compliance with the requirements of OAC Rule 3745-27-10(B)(3)(e), the owner/operator needs to adequately address each of the issues above and submit appropriate documentation of the work performed to Ohio EPA.

Recommendations

2. **Ohio EPA recommends that piezometers P-4B, P-4C, MW-6, MW-6D, MW-9 and MW-9A be properly abandoned. If these piezometers are not properly abandoned, they would need to be repaired or replaced.**

As noted in Comment No. 1 above, the current conditions of P-4B, P-4C, MW-6, MW-6D, MW-9 and MW-9A do not currently meet design specifications.

Piezometers P-4B and P-4C are located in the berm of the main haul road. These piezometers are screened in clayey lake and till deposits and are not essential to the ground water monitoring network.

Piezometers MW-6, MW-6D, MW-9 and MW-9A are located in the northern half of the old city landfill (north of the facility). Given the presence of P-14 in the southern portion of the old city landfill and the historical information regarding the potentiometric surface beneath the old city landfill, these piezometers are not essential to the ground water monitoring network for the facility.

If the piezometers above are not properly abandoned, they would need to be repaired or replaced.

3. **Ohio EPA recommends that the Sampling & Analysis Plan (SAP) portions of the Ground Water Detection Monitoring Plan (GWDMP) and the Compliance Monitoring Plan (CMonP) be revised to document that the sampling crew will have a copy of the SAP with them in the field.**

   For this sampling event, the sampling crew brought a copy of the SAP with them. Ohio EPA concurs with this practice as the SAP is to serve as a manual for the sampling crew for ground water sampling events. However, the SAP portions of the GWDMP and CMonP do not document that this practice will be observed.

4. **Ohio EPA recommends that the SAP portions of the GWDMP and the CMonP be revised to document that care will be taken to avoid placing clean sampling equipment on the ground or other potentially contaminated surfaces.**

   During the inspection, care was taken to avoid placing clean sampling equipment on the ground or other potentially contaminated surfaces. Ohio EPA concurs with this procedure as it should reduce the possibility of contaminating the ground water samples. However, the SAP portions of the GWDMP and CMonP do not document that this procedure will be followed.

5. **Ohio EPA recommends that the SAP portion of the GWDMP be revised to document that purge water from the detection monitoring wells will be disposed of on the ground away from the well.**

During the inspection, purge water from the detection monitoring wells was disposed of on the ground away from the well. Ohio EPA concurs with this procedure. However, the SAP portion of the GWDMP does not document that this procedure will be followed.

6. **Ohio EPA recommends that the SAP portions of the GWDMP and the CMonP be revised to document that necessary deviations from the SAP or equipment malfunctions will be specifically documented on the field forms.**

During the inspection, deviations from the SAP were not necessary and no equipment malfunctions occurred. The field data form that the field crew uses has a place to document "Notes/Comments" which Ohio EPA assumes would be the likely place to document deviations from the SAP or equipment malfunctions. However, the SAP portions of the GWDMP and CMonP do not document that deviations from the SAP or equipment malfunctions will be documented on the field forms.

If you have any questions please feel free to contact Ken Brock at the Ohio EPA Northwest District Office (419-373-3143). Any written correspondence should be sent to the attention of Brent Goetz, Division of Materials and Waste Management, Ohio EPA Northwest District Office, 347 N. Dunbridge Road, Bowling Green, Ohio 43402.

Sincerely,

Brent M. Goetz, R.S.
Environmental Specialist
Division of Materials and Waste Management

/cs
pc: Tim Houck, Defiance County Landfill
Beth Brown, Eagon & Associates, Inc.
~~File: DMWM-SW, Defiance County, Defiance County Landfill, Ground~~Water
ec: Ken Brock, DDAGW, NWDO
Jack Leow, DDAGW, NWDO
Mike Reiser, DMWM, NWDO
Brent Goetz, DMWM, NWDO
id: 5-10382

GROUND WATER INSPECTION CHECKLIST

Site/Facility Name: **Defiance County Landfill**	Inspection Date: **April 11, 2011**
Site/Facility Address: **13207 Canal Road, Defiance** Site/Facility Status (circle one): **Operating** Closed	Ohio EPA ID#: **20-00-01** District: **NWDO**

Client Division/Program (check applicable)

DSIWM	DHWM	DERR	DSW
MSW__X_____ Ind_____ Res_____ CDD	Interim Standards (65-90 to 94) Final Standards (54-90 to 100) CA/IGWMP (54-101)_____	Remedial Response_____ VAP_____	

Site/Facility Contact, Name & Title: **Tim Houck / Landfill Manager**

Client Division Contact: **Brent Goetz**	DDAGW Geologist: **Ken Brock**

Names and company affiliations of facility or consulting personnel performing field monitoring and sampling activities:
1. **Nelson Novak - Eagon**
2. **Dan O'Connell - Eagon**

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: **August 2006** Approval date (if applicable):
2. The current SAP is : (circle one)	a stand alone document?	If another document, specify: **GWDMP & CMonP**

	included in another document?	

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 theregulated entity, please list in the space below, the dates of the correspondence and the modifications that weredocumented and approved.

August 2006 version: Numerous revisions too complex to list herein

Other Sources of Documentation

The key document for review prior to observing field activities is the Sampling and Analysis Plan; 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?		X		If yes, date approved:
2. Approved Closure Plan?		X		If yes, date approved:
3. Final enforcement actions between AGO/Ohio EPA and facility?		X		If yes, date signed:
4. Current Ground Water Detection Monitoring Plan (GWDMP)?	X			If yes, document date: **August 2006**
5. Current Ground Water Quality Assessment Monitoring Plan (GWQAP)?			X	If yes, document date: **January 2008**
6. Current Ground Water Compliance Monitoring Plan (GWCMP)?	X			If yes, document date: **August 23, 2010**
7. Previous Ohio EPA inspection? 8. Other? Please specify_____	X			If yes, inspection date: **10/97, 10/00, 9/04, 3/08**

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?	X			
2. Are the wells maintained properly? (Please refer to the attached *Ground Water Monitoring Well Inspection Form*)		X		**See Comment No. 1**
3. Are there bumper guards around the wells ?	X	X		At some wells in higher traffic areas
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?	X			
a) If so, were they also inspected during this visit?	X			
b) If inspected, are they constructed/maintained properly? If inspected, please include these wells on the attached *Ground Water Monitoring Well Inspection Form.* If not inspected, please indicate why in the Comments column.		X		**See Comments No. 1 and 2**
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 ASAP 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 Arecommendations@.

Well Identification: Specify well numbers where ground water purging and sampling procedures were observed by Ohio EPA.	**Wells:** MW-26, MW-26A, MW-24

	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?		X		X			**See Comment No. 3**
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?	X			X			
b) Measuringground water levels prior to purging and sampling?	X			X			
c) Measuring ground water levels (and if applicable, surface water levels) to an accuracy of at least 0.01 ft?	X			X			
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?	X			X			

	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 documenting and measuring both dense non-aqueous phase liquid (DNAPL) and light non-aqueous phase liquid (LNAPL)?	X		X	X		X	Field crew looks for sheen on purge water. However, unless significant VOCs are detected in wells, additional checks for NAPLs will not be performed.
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?	X				X		Annually, but not during this event
g) Type(s) of device(s) used to measure water levels and total depths?	**SAP:** Elec. Meter			**Field:** Elec. Meter			
h) Are water levels used for determining ground water flow direction recorded on the field form with well purging and sampling information or on a separate field form?	**SAP:** Both			**Field:** Both			
3. Well Purging (Generic to all methods): a) Specify purging method(s) used for each well observed	**SAP:** Bail			**Field:** Bail			
(1) Volumetric Purge?	Yes			Yes			
(2) Low Flow?	No			No			
(3) Minimum/No Purge?	No			No			
(4) Purge to Dryness	Yes			Yes			
(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:** Dedicated bailers			**Field:** Dedicated bailers			

	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?	X			X			
d) If equipment is not dedicated, was the equipment properly decontaminated?			X			X	
e) If bailers are used, specify the type of cord used with the bailer.	**SAP:** Nylon			**Field:** Nylon			
4. For Volumetric Purging: a) Was the volume of water in the well column determined?	X			X			
b) Was the purging performed in a manner that minimizes mixing and aeration of the water column?	X			X			
c) Were all SAP field stabilization parameters obtained to properly determine when purging is adequate?	X			X			
(1) List stabilization parameters obtained:	**SAP:** pH, temp, cond.			**Field:** pH, temp, cond.			
(2) Were stabilization parameters taken every 1 to 1/2 well volumes?	X			X			Every ½ volume after first volume
(3) Was it demonstrated that three consecutive measurements were within their respective stabilization criteria?	X			X			
d) Were samples obtained immediately after purging?	X	X		X	X		Can go up to 24 hours for wells that go dry
5. For Low-Flow Purging: a) Was water level drawdown measured during purging?			X			X	

	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. : **b)** Was it demonstrated that drawdown stabilized?			X			X	
c) Specify location of pump.	**SAP:** NA			**Field:** NA			
d) What was the purging rate?	**SAP:** NA			**Field:** NA			
e) Were all SAP field stabilization parameters obtained to properly determine when purging is adequate?						X	
(1) List stabilization parameters obtained:	**SAP:** NA			**Field:** NA			
(2) Were stabilization parameters taken every 3 to 5 minutes?			X			X	
(3) Was it demonstrated that three consecutive measurements were within their respective stabilization criteria?			X			X	
f) Were samples obtained immediately after purging?			X			X	
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?			X			X	
b) Specify the location of the pump.	**SAP:** NA			**Field:** NA			
c) Were steps taken to prevent stagnant water from entering the well?			X			X	
(1) Was drawdown measured during purging?			X			X	

	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?			X			X	
(3) If other, specify .	**SAP:** NA			**Field:** NA			
7. For Purging to Dryness: Were samples taken as soon as sufficient water was available?	X			X			Within 24 hours
8. Field parameters for ground water, surface water, and/or leachate, including: a) Are field analyses of temperature, pH, and specific conductance performed?	X			X			
b) Are field parameters checked after purging and before sampling?	X			X			
9. Ground water (and if applicable, surface water or leachate) sample collection, including: a) Specify sample collection methods and equipment used:	**SAP:** See above			**Field:** See above			
b) Is the ground water sampling equipment dedicated?	X			X			
c) If applicable, is the well sampling order from least to most contaminated?			X			X	All dedicated equipment

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
9. Ground water sample collection, con=t. : **d)** Are sample containers filled in order of parameter volatilization sensitivity, *e.g.*,VOCs, SVOCs, total metals?	X			X			
e) If bailers are used, are samples collected in a manner which minimizes mixing and aeration of the well water column?	X			X			
f) Specify type of cord or wire used with sampling bailers:	**SAP:** Nylon			**Field:** Nylon			
g) If used, are bladder pumps operated in a manner that prevents sample aeration and minimizes sample turbidity?			X			X	
h) Are pumps (all types) operated at a rate low enough to prevent sample aeration and minimize sample turbidity?			X			X	
10. Calibration of field monitoring and analytical equipment: **a)** Is each device calibrated to its manufacturer's specifications?	X			X			
b) Is each device calibrated prior to use in accordance with the SAP?				X			
c) Are all calibration procedures and/or equipment maintenance (and the date(s) performed) documented on field forms or in a field log book?	X			X			
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?						X	

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
11. Equipment decontamination, including, cont. : **b)** Is clean or decontaminated sampling equipment placed on the ground or in other potentially contaminated areas prior to use?		X			X		**See Comment No. 4**
c) Are all decontamination fluids contained and disposed in accordance with the SAP?			X			X	
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?		X		X			**See Comment No. 5**
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, stored, transported, and disposed per applicable federal, state, and local laws?	X			X			
13. Field sample preparation, including: **a)** <u>Sample containers and handling</u> *(1)* Are all sample containers pre-cleaned and provided by the laboratory?	X			X			
(2) Are any samples field filtered prior to being transferred to their appropriate containers?		X			X		
(3) Are samples transferred directly from the sampling device to their appropriate containers in a manner that minimizes agitation and aeration?	X			X			

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
13. a) Sample containers and handling, cont.: *(4)* Are VOC sample containers completely filled to form a meniscus and capped in a prompt manner to minimize volatilization?	X			X			
(5) Are VOC containers checked for air bubbles after filling and capping?	X			X			
b) Sample preservation (per SW-846, Revision 1, 12/96, Chapter 2, Table 2-36): *(1)* To the extent applicable, are samples for all organic parameters, PCBs, chromium VI, phenols, coliform bacteria, oil and grease, pesticides, specific conductance, alkalinity, COD, cyanide, nitrate/nitrite, phosphorous, sulfate, sulfide, TDS, TOC, and/or turbidity immediately placed in a cooler with ice for preservation at 4° C?	X			X			
(2) Are VOC samples field-acidified to pH < 2 with HCl?	X			X			
(3) To the extent applicable, are samples for metals and/or radiological parameters (gross alpha, gross beta, radium); endrin; lindane; methoxychlor; toxaphene; 2,4-D; and/or 2,4,5-TP Silvex field-acidified to pH < 2 with HNO_3?	X			X			
(4) To the extent applicable, are samples for phenols, oil and grease, ammonia, COD, nitrate/nitrite, phosphorous, TOX, and/or TOC field-acidified to pH < 2 with H_2SO_4?	X			X			
(5) Are CN samples field-preserved pH>12/50% w/NaOH?			X			X	

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
13. Field Sample Preparation, cont. : c) Sample labeling: *(1)* Unique sample (field) identification number that clearly associates the sample and the sampling location?	X			X			
(2) Facility/site name?	X			X			
(3) Sample type (matrix) and date and time of collection?		X		X			
(4) Parameters and analyses requested?		X		X			
(5) Sample preservatives?	X			X			
(6) Name or initials of sampler and company affiliation?	X			X			
(7) Is an indelible pen or marker used to complete sample labels?		X					Unable to determine indelibility
(8) Are sample labels secured and protected to ensure legibility when delivered to the laboratory?	X	X		X	X		Secured, but not protected. That is the standard practice in the profession.
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?	X	X		X	X		Documented throughout this form.
b) Documentation of all deviations from SAP-required procedures?		X				X	**See Comment No. 6**

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
14. Field QA/QC, cont.: c) Collection of the following QA/QC samples in accordance with the SAP: *(1)* Duplicate samples?	X			X			
(2) Field blanks?	X			X			
(3) Equipment blanks?		X			X		
(4) Trip blanks?	X			X			
d) Collection of all necessary laboratory QA/QC samples (*e.g.*, matrix spike, matrix spike duplicate)?		X			X		
15. Chain-of-Custody (COC) procedures, including: a) Are all SAP-required COC procedures followed? (If not, explain why.)				X			
b) Are standardized COC forms used to establish a complete custody record from the field to the laboratory for all samples?	X			X			
c) Is the following field and laboratory information properly documented on the COC form to provide effective sample tracking and to ensure that samples are not misidentified; are properly preserved; and are properly analyzed?							
(1) Address and contact information for the site/facility, laboratory, and, if applicable, all consulting firms performing sampling?	X			X			

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
15. Chain-of-Custody (COC) procedures, cont. : *c) (2)* Unique sample (field) identification numbers that clearly associate the sampling location and sample?	X			X			
(3) Sample type (matrix) and date and time of collection?	X			X			
(4) Requested parameters, or a reference for the requested parameters?	X			X			
(5) Requested analytical methods, or a reference for the requested analytical methods?	X			X			
(6) Types of sampling containers used, or a reference for the types of sampling containers used?	X			X			
(7) Types of sample preservatives used, or a reference for the types of sample preservatives used?	X			X			
(8) Sample shipping information, including but not limited to the transporter(s), tracking #(s), and delivery time frame(s)?	X			X			
(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.)	X			X			
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?		X			X		Either hand-delivered or picked up by lab

	SAP Requirement?			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? **a)** Monitoring program (detection, assessment, or compliance) identified?		X			X		Not documented on field forms, but doesn't need to be.
b) Correct reference to well identification number or specific well location?	X			X			
c) Static ground water level (elevation), associated measurement technique, date, and time?	X			X			
d) Surface water level (elevation), associated measurement technique, date, and time?			X			X	
e) Total depth and associated measurement technique for each well?	X			X	X		Space on form for this, but not done during this event.
f) Presence and thickness of immiscible layers and associated measurement technique?			X			X	
g) Well purging procedures and all associated SAP-required information?	X			X			
h) Field analyses procedures and all associated SAP-required information?	X			X			
i) Sampling procedures and all associated SAP-required information?	X			X			
j) Field observations, including but not limited to unusual sample characteristics (appearance, odor, *etc.*), unusual well recharge rates, apparent well damage, potential contamination sources, and unusual climatic conditions?	X			X			

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
16. Field Log Forms/Log Book, cont. : k) Equipment malfunction(s)?		X		X	X		**See Comment No. 6**
l) Any deviations from the SAP and explanation of why such modifications were necessary?		X		X	X		**See Comment No. 6**
m) Sampling team personnel and company affiliation?	X			X			
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?		X		X	X		Once report submitted.

Have all discrepancies between the SAP and the field implementation been described in the ÁComment@ 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

Defiance County Landfill
April 11, 2011

Well identification number:	MW-1A	MW-2A	MW-8	MW-8A	MW-11	MW-15A	MW-24	MW-25A
Correct location?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clearly and correctly labeled?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Locked prior to arrival at well location?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ground water depth:	40.79	36.72	34.52	39.70	38.58	40.95	30.68	24.98
Well total depth:	Not meas.	Not meas.	Not meas.	Not meas.	Not meas.	Not meas.	Not meas.	Not meas.
For above ground completions: a) Protective outer casing present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(1) Condition?	Good	Good	Good	Good	Good	Good	Good	Good
(2) Locking cap? Condition?	Good	Good	Good	Good	Good	Good	Good	Good
(3) Weep hole present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(4) Standing water between protective casing & well casing?	No	No	No	No	No	No	No	No
b) Surface seal/apron present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(1) Condition?	Good	Good	Eroded	Eroded	Good	Good	Good	Good
(2) Ponded surface water?	No	No	No	No	No	Yes – in level, low area	No	Yes – 3 inches of standing water

Well identification number:	MW-1A	MW-2A	MW-8	MW-8A	MW-11	MW-15A	MW-24	MW-25A
For flush mount completions:								
a) Well vault present?	NA	NA	NA	NA	NA	NA	NA	NA
(1) Condition?	NA	NA	NA	NA	NA	NA	NA	NA
(2) Covered with bolted vault lid?	NA	NA	NA	NA	NA	NA	NA	NA
(3) Standing water in vault? Covering top of inner casing?	NA	NA	NA	NA	NA	NA	NA	NA
b) Surface seal/apron present?	NA	NA	NA	NA	NA	NA	NA	NA
(1) Condition?	NA	NA	NA	NA	NA	NA	NA	NA
(2) Raised at least slightly above grade and sloped away from the top of the vault?	NA	NA	NA	NA	NA	NA	NA	NA
(3) Ponded surface water on top of vault lid?	NA	NA	NA	NA	NA	NA	NA	NA
Well (inner) Inner well casing condition?	Good	Good	Good	Good	Good	Good	Good	Good
a) Material?	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC
b) Survey reference mark?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
c) Cap present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
d) If the completion is flush mount, is the cap expandable and locking?	NA	NA	NA	NA	NA	NA	NA	NA
e) Condition of casing and cap?	Good	Good	Good	Good	Good	Good	Good	Good

Additional Comments: The soil around the concrete pads at MW-8 and MW-8A have eroded. Standing water was noted around MW-15A. Excessive standing water was noted around the entire area of the MW-25 well nest (3 inches deep above the concrete pads of the MW-25 wells).

GROUND WATER MONITORING WELL FIELD INSPECTION FORM

Defiance County Landfill
April 11, 2011

Well identification number:	MW-26	MW-26A	MW-32A	MW-36SR	MW-39	MW-40	P-2S	P-11S
Correct location?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clearly and correctly labeled?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Locked prior to arrival at well location?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ground water depth:	22.05	22.12	44.81	39.47	21.76	23.02	31.87	38.94
Well total depth:	Not meas.	Not meas.	Not meas.	Not meas.	Not meas.	Not meas.	Not meas.	Not meas.
For above ground completions: a) Protective outer casing present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(1) Condition?	Good	Good	Good	Good	Good	Good	Good	Good
(2) Locking cap? Condition?	Good	Good	Good	Good	Good	Good	Good	Good
(3) Weep hole present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(4) Standing water between protective casing & well casing?	No	No	No	No	No	No	No	No
b) Surface seal/apron present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(1) Condition?	Good	Good	Good	Good	Good	Good	Good	Good
(2) Ponded surface water?	No	No	No	No	No	No	No	No

Well identification number:	MW-26	MW-26A	MW-32A	MW-36SR	MW-39	MW-40	P-2S	P-11S
For flush mount completions:								
a) Well vault present?	NA	NA	NA	NA	NA	NA	NA	NA
(1) Condition?	NA	NA	NA	NA	NA	NA	NA	NA
(2) Covered with bolted vault lid?	NA	NA	NA	NA	NA	NA	NA	NA
(3) Standing water in vault? Covering top of inner casing?	NA	NA	NA	NA	NA	NA	NA	NA
b) Surface seal/apron present?	NA	NA	NA	NA	NA	NA	NA	NA
(1) Condition?	NA	NA	NA	NA	NA	NA	NA	NA
(2) Raised at least slightly above grade and sloped away from the top of the vault?	NA	NA	NA	NA	NA	NA	NA	NA
(3) Ponded surface water on top of vault lid?	NA	NA	NA	NA	NA	NA	NA	NA
Well (inner) Inner well casing condition?	Good	Good	Good	Good	Good	Good	Good	Good
a) Material?	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC
b) Survey reference mark?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
c) Cap present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
d) If the completion is flush mount, is the cap expandable and locking?	NA	NA	NA	NA	NA	NA	NA	NA
e) Condition of casing and cap?	Good	Good	Good	Good	Good	Good	Good	Good

Additional Comments:

GROUND WATER MONITORING WELL FIELD INSPECTION FORM

Piezometers

Defiance County Landfill
April 11, 2011

Well identification number:	MW-6	MW-6A	MW-9	MW-9A	P-4B	P-4C	P-14	
Correct location?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Clearly and correctly labeled?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Locked prior to arrival at well location?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Ground water depth:	Not Record.	Not Record	Not Record.	Not Record.	Not Record.	Not Record.	Not Record.	
Well total depth:	Not meas.	Not meas.	Not meas.	Not meas.	Not meas.	Not meas.	Not meas.	
For above ground completions: a) Protective outer casing present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
(1) Condition?	Good	Good	Good	Good	Good	Good	Good	
(2) Locking cap? Condition?	Good	Good	Good	Good	Good	Good	Good	
(3) Weep hole present?	Yes	Yes	Yes	Yes	Buried ?	Buried ?	Yes	
(4) Standing water between protective casing & well casing?	No	No	No	No	No	No	No	
b) Surface seal/apron present?	Yes	Yes	Yes	Yes	Buried ?	Buried ?	Yes	
(1) Condition?	Good	Good	Good	Cracked	Good	Good	Good	
(2) Ponded surface water?	No	No	No	No	No	No	No	

Well identification number:	MW-6	MW-6A	MW-9	MW-9A	P-4B	P-4C	P-14	
For flush mount completions:								
a) Well vault present?	NA	NA	NA	NA	NA	NA	NA	
(1) Condition?	NA	NA	NA	NA	NA	NA	NA	
(2) Covered with bolted vault lid?	NA	NA	NA	NA	NA	NA	NA	
(3) Standing water in vault? Covering top of inner casing?	NA	NA	NA	NA	NA	NA	NA	
b) Surface seal/apron present?	NA	NA	NA	NA	NA	NA	NA	
(1) Condition?	NA	NA	NA	NA	NA	NA	NA	
(2) Raised at least slightly above grade and sloped away from the top of the vault?	NA	NA	NA	NA	NA	NA	NA	
(3) Ponded surface water on top of vault lid?	NA	NA	NA	NA	NA	NA	NA	
Well (inner) Inner well casing condition?	Bent	Bent	Bent	Good	Good	Good	Good	
a) Material?	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	
b) Survey reference mark?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
c) Cap present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
d) If the completion is flush mount, is the cap expandable and locking?	NA	NA	NA	NA	NA	NA	NA	
e) Condition of casing and cap?	Good	Good	Good	Good	Good	Good	Good	

Additional Comments: The PVC risers at MW-6, MW-6A and MW-9 are bent below ground to the degree that bailers are stuck inside the piezometers (leaving the piezometers unusable). The concrete pad at MW-9A is badly cracked. The main haul road has been moved very close to P-4B and P-4C so that the berm of the road covers the concrete pads of these piezometers and the road bed is within 1 foot of the piezometers.