



State of Ohio Environmental Protection Agency

**Northwest District Office**

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Bowling Green, OH 43402-9398

TELE: (419) 352-8461 FAX: (419) 352-8468  
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Ted Strickland, Governor  
Lee Fisher, Lieutenant Governor  
Chris Korleski, Director

Re: Closed Facility Groundwater Inspection  
Wapakoneta Landfill, Auglaize County  
Notice of Violation

January 9, 2009

Mr. Rex A. Kattereinrich, P.E.  
Director of Public Service and Safety  
City Hall  
P.O. Box 269  
Wapakoneta, Ohio 45895-0269

Dear Mr. Kattereinrich:

A Closed Facility Ground Water Inspection (CFGWI) was performed on November 18, 2008 by Ohio EPA. In association with the field inspection, a review of the facility's Ground Water Monitoring Plan was performed by Ohio EPA personnel and a Closed Facility Ground Water Inspection Checklist, (Attachment I), including comments, was completed for the Ground Water Monitoring Plan related items. During the inspection the rest of the checklist, including comments, along with a Ground Water Monitoring Well Field Inspection Form (Attachment II) were completed. These forms are attached for reference.

The following Comments and Conclusions include those related to both the CFGWI Attachment I and CFGWI Attachment II, and give details of observations made during the inspection at the facility. Comment numbers are those referenced in Attachment I.

**COMMENTS**

**VIOLATIONS**

- 1. The owner/operator is in violation of Ohio Administrative Code (OAC) Rule 3745-27-10 (B)(3)(e) which requires that, monitoring wells, piezometers... be operated and maintained to perform to design specifications throughout the life of the monitoring program. The owner/operator needs to make all repairs immediately.**

During the inspection, it was discovered that a number of wells or piezometers were not being maintained to perform to design specifications. Wells MW-6, MW-9, and SW-3 represent continuing problems. Following is a table of the wells and their problems. The owner/operator is in violation of OAC Rule 3745-27-10 (B)(3)(e) by not maintaining these wells to perform to design specifications.

WELL	MAINTENANCE PROBLEM
MW-6	Well was not properly labeled. There was no protective casing on the well. There was no surface seal present. The casing was broken below ground level. Well displayed no apparent survey reference mark.
MW-9	Well is leaning toward the east.
MW-10	Not clearly labeled.
P-1	Not clearly labeled.
SW-3	There was no protective casing on the well. There was no surface seal on the well. Well was said to be damaged below ground level.
SW-11 through SW-16	No survey mark.

- The owner/operator is in violation of OAC Rule 3745-27-10 (C)(1)(b) which requires that the ground-water monitoring program include consistent sampling and analysis procedures that are protective of human health and the environment... and that the plan include a detailed description of the equipment, procedures, and techniques to be used for detection of immiscible layers. To return to compliance the owner/operator needs to measure for immiscible layers as required by the plan and modify the sampling and analysis plan (SAP) to include sufficient detail on how to measure for immiscible layers.**

On page 12, the SAP states in part, "Trigger mechanisms for use of the immiscible layer indicator will be... the presence of VOCs in the groundwater samples." Wells SW-2, SW-7 and SW-3R require the use of an immiscible layer indicator since these wells, and others, reported the presence of VOCs. This instrument was not used on this site.

### **MORE INFORMATION NEEDED TO DETERMINE COMPLIANCE**

3. **Compliance with OAC Rule 3745-27-10 (C)(1)(c)(iii), which requires that the sampling and analysis plan include, a detailed description of the... techniques to be used for collection of ground-water samples, including... sample... handling, cannot be determined at this time. The SAP does not provide the necessary procedures to ensure consistent and proper filling of VOC sample containers. The SAP should be revised to require that VOC sample containers will be filled in a manner which minimizes agitation and aeration including being filled to form a meniscus prior to capping and checking the bottles for bubbles.**
4. **Compliance with OAC Rule 3745-27-10 (C)(1)(a), which requires that the sampling and analysis plan contain procedures for the measurement of ground water elevations, cannot be determined at this time. The owner/operator needs to include SOP No. F3005 in the plan.**

On page 14 of the SAP the owner/operator states, "The collection of groundwater elevation data will be completed in accordance with Hull's Standard Operating Procedure (SOP) No. F3005 included in Appendix C." A review of Appendix C indicates that there is no SOP No. F3005.

5. **Compliance with OAC Rule 3745-27-10 (C)(1)(g)(i) requiring that the sampling and analysis plan include a detailed description of the chain of custody control, including standardized field tracking reporting forms to record sample custody in the field prior to and during shipment, cannot be determined at this time. The SAP should be revised to specifically require the listing of the requested methods or a reference for the requested methods on the COC form; also, the SAP should be revised to specifically require the person relinquishing samples print and sign their name.**

While the chain-of-custody form is completed using a reference for the requested analytical methods the SAP does not specifically require this. Also the name of the person relinquishing samples on the COC has, at times, been illegible. The SAP does not require the person's name to be printed.

6. **Compliance with OAC Rule 3745-27-10(C)(1)(d) which requires that the sampling and analysis plan include a detailed description of the equipment, procedures, and techniques to be used for performance of field analysis, cannot be determined at this time. To assure**

**compliance with OAC Rules 3745-27-10(C)(1)(d) in the future, the owner/operator needs to revise the Groundwater Detection Monitoring Sampling and Analysis Plan to document the new field parameter stabilization criteria noted below, followed by field implementation; or, demonstrate to Ohio EPA how the current field parameter stabilization criteria in the Groundwater Detection Monitoring Sampling and Analysis Plan meet the requirements of OAC Rule 3745-27-10(C)(1)(d).**

Hull's SOP 3008 provided in Appendix C of the plan states in part on page 4 of 7, "The temperature, pH, and conductivity will be measured initially, as well as after each well volume is purged. The last two values obtained must be within 10 percent of one another." Based on review of current technical literature, Ohio EPA now considers the criteria for stabilization of these field parameters to be  $\pm 0.1$  S.U. for pH,  $\pm 3\%$  for conductivity,  $\pm 0.5^\circ\text{C}$  for temperature and  $\pm 10\%$  for turbidity (when turbidity is  $>10$  NTU). Also, a parameter can be considered stable when at least three consecutive readings have stabilized.

7. **Compliance with OAC Rule 3745-27-10(C)(1)(c)(iv) which requires that the sampling and analysis plan include a detailed description of the equipment, procedures, and techniques to be used for collection of ground-water samples, including sample preservation, cannot be determined at this time. In order to determine compliance with OAC Rule 3745-27-10(C)(1)(c)(iv) the owner/operator needs to correct the plan relative to preservation methods for samples to be analyzed for cyanide.**

Table 2 of the SAP [June 1993 (Rev. March 2008)] indicates total cyanide analysis requires the sample be preserved by "Cool  $4^\circ\text{C}$ ,  $\text{H}_2\text{SO}_4$  to  $\text{pH} < 2$ ", however, USEPA SW 846 Chapter 3 Table 3-2 indicates a sample preservation of  $<6^\circ\text{C}$ ,  $\text{NaOH}$  to  $\text{pH} < 2$ . The owner/operator is requested to correct the plan.

## **RECOMMENDATIONS**

8. During the inspection Ohio EPA made several observations relative to field methods. The SAP does not specifically require certain field procedures, but Ohio EPA believes that changes to the plan would be beneficial. The agency makes the following recommendations:
  - a. While the field personnel indicated that the decontamination liquids are disposed of with the leachate, the SAP does not specify how to dispose of decontamination liquids. It is recommended that the

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SAP be revised to provide details which require that decontamination liquids be properly disposed.

- b. It is recommended that the SAP be revised to provide details which require the documentation of all deviations from SAP-required procedures.
- c. It is recommended that the SAP be revised to provide details which require that the chain of custody forms contain documentation of the types of sampling containers used or a reference for the types of containers used.
- d. It is recommended that all monitoring wells display an elevation point surveyed by a licensed surveyor. An appropriately-placed mark on the outside of the well casing made by a three-cornered file would be permanent.
- e. It is recommended that the SAP include the requirement to include the sample matrix on the label.
- f. It is recommended that the SAP include the requirement that a statement be included on the COC form noting if ice is present in the sample cooler upon arrival at the laboratory.
- g. It is recommended that the staff gauges in the surface water features be repaired.
- h. It is recommended the SAP be changed to include a guide for the types of field observations which should be included on the field form.
- i. It is recommended the SAP be changed to specifically require that information relative to equipment malfunctions or deviations from the SAP be noted on the field form.
- j. It is recommended that information relating to the address or contact information for the laboratory and courier information, including the tracking number, be added to the chain of custody form and that the SAP require it's presence on the form.

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If you have any questions please feel free to contact Randy Skrzyniecki at the Ohio EPA Northwest District Office (419-373-3149). Any written correspondence should be sent to the attention of Brent Goetz, Division of Solid and Infectious Waste Management, Ohio EPA Northwest District Office, 347 Dunbridge Road, Bowling Green, Ohio 43402.

Sincerely,



Brent M. Goetz, SIT  
Environmental Specialist  
Division of Solid and Infectious Waste Management

/lb

pc: Bill Petruzzi, Hull & Associates, Inc.  
Randy Skrzyniecki, DDAGW, NWDO

~~DSWIM\NWDO\Files\Auglaize County\Wapakoneta Landfill Groundwater~~

ec: Mike Reiser, DSIWM, NWDO  
Jack Leow, DDAGW, NWDO

i.d.: 5-8158

**ATTACHMENT I**

## DSIWM FACILITY GROUND WATER INSPECTION CHECKLIST

Facility Name: <b>WAPAKONETA SANITARY LANDFILL</b>	Inspection Date: <b>NOVEMBER 18, 2008</b>
Facility Address: <b>510 NORTH WATER STREET, WAPAKONETA, OHIO 45895</b>	Ohio EPA ID#: <b>06-00-02</b> District: <b>NWDO</b>
Facility Type (circle one): <u>MSW</u> Ind. Res. C&DD If applicable, Residual Facility Class:	Facility Status (circle one): Operating <u>CLOSED</u>
Facility Contact, Name & Title: <b>REX KATTERHEINRICH, Director Department of Public Services and Safety</b>	
DSIWM Inspector: <b>BRENT GOETZ</b>	DDAGW Hydrogeologist: <b>RANDY SKRZYNIECKI</b>

Names and company affiliations of facility or consulting personnel performing field monitoring and sampling activities:  
 1. **MIKE CHARCHOL, Hull and Associates, Inc.**  
 2. **JAMES CARLSON, Hull and Associates, Inc.**

### Documentation Reviewed Prior to Field Inspection

Before observing field activities, 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?			NA	If yes, date approved:
2. Approved Closure Plan?		N		If yes, date approved:
3. Final enforcement actions between AGO/Ohio EPA and facility?		N		If yes, date signed:
4. Current Ground Water Detection Monitoring Plan (GWDMP)?	Y			If yes, document date: <b>MARCH 2008.</b>
5. Current Ground Water Quality Assessment Monitoring Plan (GWQAP)?	Y			If yes, document date: <b>MARCH 2008.</b>
6. Current Ground Water Compliance Monitoring Plan (GWCMP)?		N		If yes, document date:
7. Current Sampling & Analysis Plan (SAP)?	Y			If yes, document date: <b>MARCH 2008.</b>
a) Are copies of the most current SAP, GWDMP, GWQAP, GWCMP, and/or Closure Plan always available at the facility for review?		N		<b>AT CITY HALL</b>
b) If the facility has entered into assessment monitoring, has the SAP been revised to reflect all necessary changes (e.g., updated constituent list)?		N		
8. Previous Ohio EPA inspection?	Y			If yes, inspection date: <b>AUGUST 22 &amp; 23, 2006</b>



### Monitoring Well System

Construction, Maintenance, & Sampling Information:	Yes	No	N/A	Comments:
1. Do the actual number, locations, and depths of the wells sampled correspond to the SAP, GWDMP, GWQAP, GWCMP, and/or Closure Plan?	Y			
2. Are the wells maintained properly? (Please refer to the attached <i>Ground Water Monitoring Well Inspection Form</i> )		N		COMMENT 1
3. Have samples previously been collected and analyzed from all wells in the ground water monitoring system?	Y			

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, GWDMP, GWQAP, GWCMP, and/or Closure Plan.

### Sampling & Analysis Plan Requirements and Field Procedures

Were the following step-by-step procedures and techniques required by the SAP properly implemented in the field? In answering the following questions, evaluate if the described procedures and methods are technically adequate to ensure collection of representative groundwater samples and protection of human health and the environment. Please provide written comments on any inadequate procedures or methods. Although this checklist utilizes Ohio EPA's *Technical Guidance Manual (TGM) Chapter 10* as guidance for ground water sampling, procedures and methods not described in the TGM may be acceptable. At a minimum, any procedures or methods not included in the TGM must ensure collection of representative ground water samples and protection human health and the environment as required by the applicable rules. Note that this section of the checklist incorporates reviews of both the SAP and field activities. Review and comment of the SAP should be completed prior to observing field activities.

Additional Comments & Notes:

1. Measuring ground water levels/elevations (and surface water levels/elevations, if applicable), including:	SAP Requirement?			Field Implementation			Comments:
	Yes	No	N/A	Yes	No	N/A	
a) Measuring all ground water levels (and if applicable, surface water levels) within a 24-hour period?	Y			Y			COMMENT 4.
b) Measuring all ground water levels prior to purging and sampling?	Y			Y			
c) Measuring all ground water levels (and surface water levels, if applicable) to an accuracy of at least 0.01 ft?	Y			Y			



	SAP Requirement?			Field Implementation			Comments:
	Yes	No	N/A	Yes	No	N/A	
d) Using a reference point established by a licensed surveyor at the top of each well casing (and at each surface water sampling point, if applicable) to measure each water level?		N		Y			COMMENT 8d
e) Procedures for documenting and measuring both dense non-aqueous phase liquid (DNAPL) and light non-aqueous phase liquid (LNAPL)?	Y					NA	COMMENT 2.
f) Is the total depth for each well measured? If not, what is the facility's schedule for measuring and evaluating total depths?	Y					NA	ANNUAL
g) Type(s) of device(s) used to measure water levels and total depths?	SAP: Samplepro 6000 or equivalent.			Field: SOLINST			
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: On field form with well purging and sampling info.			Field: FIELD BOOK AND FIELD DATA SHEET			
<b>2. Well purging (evacuation), including:</b>							
a) Purging method(s) and equipment used:	SAP: Various			Field: BAILER			SOME PUMPS FOR DETECTION
b) Is purging equipment dedicated?		N			N		
c) Purge volumes for each well correctly calculated?	Y			Y			
d) Purging an adequate water volume from each well?	Y			Y			
e) Are all SAP-required water stabilization indicator parameters properly measured to determine when purging is adequate?		N		Y			COMMENT 6.
f) If bailers are used, is purging performed in a manner which minimizes mixing and aeration of the well water column?	Y			Y			
g) Type of cord or wire used to purge with bailers:	SAP: Rope/Cord			Field: POLYROPE			
h) Purging low-yielding wells completely dry unless a passive sampling technique is being used?	Y			Y			
i) If using a passive sampling technique for low-yielding wells, is the purge volume equal to or greater than the volume of the pump and discharge tubing and less than the volume of the screened interval?			NA			NA	
<b>j) If purging for low-flow sampling:</b>							
(1) Is the pump intake placed at or slightly above the center of the well screen?	Y					NA	NOT DURING THIS EVENT



	SAP Requirement?			Field Implementation			Comments:
	Yes	No	N/A	Yes	No	N/A	
(2) Do ground water levels measured during purging indicate that minimal drawdown ( <i>i.e.</i> , < 0.3 ft) is present in the well?	Y					NA	
(3) Is the <u>minimum</u> time interval between measuring successive water stabilization indicator parameters at least 3 to 5 minutes?	Y					NA	
<b>3. Field parameters for ground water, surface water, and/or leachate, including:</b>							
a) Are field analyses of temperature, pH, and specific conductance performed as required by rule?	Y			Y			
b) Are field parameters checked after purging and before sampling?	Y			Y			
<b>4. Ground water (and if applicable, surface water or leachate) sample collection, including:</b>							
a) Sample collection methods and equipment used:	SAP: pump/bailer			Field: pump/bailer			BAILER ONLY THIS EVENT
b) Is the ground water sampling equipment dedicated?		N			N		DISPOSABLE
c) If applicable, is the well sampling order from least to most contaminated?	Y					NA	NOT OBSERVED
d) Are sample containers filled in order of parameter volatilization sensitivity, <i>e.g.</i> , VOCs, SVOCs, total metals?	Y					NA	NOT OBSERVED
e) If bailers are used, are samples collected in a manner which minimizes mixing and aeration of the well water column?	Y					NA	NOT OBSERVED
f) Type of cord or wire used with sampling bailers:	SAP: Rope/cord			Field: NA			NOT OBSERVED
g) If used, are bladder pumps operated in a manner that prevents sample aeration and minimizes sample turbidity?	Y					NA	NOT AT THIS EVENT
h) Are pumps (all types) operated at a rate low enough to prevent sample aeration and minimize sample turbidity?	Y					NA	NOT AT THIS EVENT
i) If a low-flow ground water sampling technique is used, do ground water levels measured during sampling indicate that minimal drawdown ( <i>i.e.</i> , < 1.0 ft) is present in the well?	Y					NA	NOT AT THIS EVENT
j) Wells where ground water purging and sampling procedures were observed by Ohio EPA:	Well Numbers: SW-4, MW-8, SW-8, SW-5, SW-14, P-1, MW-5, MW-1, SW-13.						OBSERVED PURGE, BUT NOT SAMPLING.
<b>5. Calibration of field monitoring and analytical equipment, including:</b>							
a) Is each device calibrated to its manufacturer's specifications?	Y			Y			
b) Is each device calibrated prior to use in accordance with the SAP?	Y			Y			



	SAP Requirement?			Field Implementation			Comments:
	Yes	No	N/A	Yes	No	N/A	
c) Are all calibration procedures and/or equipment maintenance (and the date(s) performed) documented on field forms or in a field log book?	Y			Y			
<b>6. Equipment decontamination, including:</b>							
a) If applicable, is all non-dedicated monitoring, purging, and sampling equipment decontaminated between sampling locations in accordance with the SAP?	Y			Y			
b) Is clean or decontaminated sampling equipment placed on the ground or in other potentially contaminated areas prior to use?		N			N		
c) Are all decontamination fluids contained and disposed in accordance with the SAP?		N		Y			COMMENT 8a
<b>7. Purge water disposal, including:</b>							
a) If previous monitoring results indicate that a well has not been impacted by the landfill, is all purge water disposed in an area where it cannot affect purging or sampling activities at any sampling location during the ongoing event?	Y			Y			
b) If previous monitoring results indicate that a well has been impacted by the landfill, 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?	Y			Y			
<b>8. Field sample preparation, including:</b>							
<b>a) Sample containers and handling:</b>							
(1) Are all sample containers pre-cleaned and provided by the laboratory?	Y					NA	NOT OBSERVED
(2) Are any samples field filtered prior to being transferred to their appropriate containers?	Y					NA	NOT OBSERVED
(3) Are samples transferred directly from the sampling device to their appropriate containers in a manner that minimizes agitation and aeration?	Y					NA	NOT OBSERVED.
(4) Are VOC sample containers completely filled to form a meniscus and capped in a prompt manner to minimize volatilization?		N				NA	COMMENT 3. NOT OBSERVED.
(5) Are VOC containers checked for air bubbles after filling and capping?		N				NA	COMMENT 3. NOT OBSERVED.



	SAP Requirement?			Field Implementation			Comments:
	Yes	No	N/A	Yes	No	N/A	
<b>b) Sample Preservation</b>							
(1) Are samples for all organic parameters, 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?	Y					NA	NOT OBSERVED
(2) Are VOC samples field-acidified to pH < 2 with HCl?	Y					NA	NOT OBSERVED
(3) Are samples for metals and/or radiological parameters (gross alpha, gross beta, radium) field-acidified to pH < 2 with HNO <sub>3</sub> ?	Y					NA	NOT OBSERVED
(4) Are samples for ammonia, COD, nitrate/nitrite, phosphorous, and/or TOC field-acidified to pH < 2 with H <sub>2</sub> SO <sub>4</sub> ?	Y					NA	NOT OBSERVED
(5) Are cyanide samples field-preserved at pH > 12 with 50% NaOH?		N				NA	COMMENT 7, NOT OBSERVED
<b>c) Sample labeling:</b>							
(1) Unique sample (field) identification number that clearly associates the sample and the sampling location?	Y					NA	NOT OBSERVED
(2) Facility name?	Y					NA	NOT OBSERVED
(3) Sample type (matrix) and date and time of collection?		N				NA	COMMENT 8c. NOT OBSERVED
(4) Parameters and analyses requested?	Y					NA	NOT OBSERVED
(5) Sample preservatives?	Y					NA	NOT OBSERVED
(6) Name or initials of sampler and company affiliation?	Y					NA	NOT OBSERVED
<b>9. Field Quality Assurance/Quality Control (QA/QC), including:</b>							
(a) Use of standard procedures that ensure the validity and reliability of field and laboratory data, as well as representative analytical results?	Y			Y			AS OBSERVED
(b) Documentation of all deviations from SAP-required procedures?		N				NA	COMMENT 8b
<b>(c) Collection of the following QA/QC samples in accordance with the SAP:</b>							
(1) Duplicate samples?	Y					NA	NOT OBSERVED
(2) Field blanks?	Y					NA	NOT OBSERVED
(3) Equipment blanks?	Y					NA	NOT OBSERVED
(4) Trip blanks?	Y					NA	NOT OBSERVED
(d) Collection of all necessary laboratory QA/QC samples (e.g., matrix spike, matrix spike duplicate)?	Y					NA	NOT OBSERVED



	SAP Requirement?			Field Implementation			Comments:
	Yes	No	N/A	Yes	No	N/A	
<b>10. Chain-of-Custody (COC) procedures, including:</b>							
(a) Are all SAP-required COC procedures followed? (If not, explain why.)				Y			
(b) Are standardized COC forms used to establish a complete custody record from the field to the laboratory for all samples?	Y			Y			
(1) Address and contact information for the landfill facility, laboratory, and, if applicable, all consulting firms performing sampling?	Y					N	COMMENT 8j
(2) Unique sample (field) identification numbers that clearly associate the sampling location and sample?	Y			Y			
(3) Sample type (matrix) and date and time of collection?	Y			Y			
(4) Requested parameters, or a reference for the requested parameters?	Y			Y			
(5) Requested analytical methods, or a reference for the requested analytical methods?		N		Y	N		COMMENT 5
(6) Types of sampling containers used, or a reference for the types of sampling containers used?		N			N		COMMENT 8c
(7) Types of sample preservatives used, or a reference for the types of sample preservatives used?	Y			Y			
(8) Sample shipping information, including but not limited to the transporter(s), tracking number(s), and delivery time frame(s)?	Y				N		COMMENT 8j
(9) Temperature of the samples when received by the laboratory?	Y			Y			
(10) Whether or not ice is present in the shipping cooler when received by the laboratory?		N		Y			COMMENT 8f
(11) Legible names (printed) and signatures of all field and laboratory personnel relinquishing and/or receiving the samples which provide a complete record of sample custody? (Names and signatures of commercial shipping personnel are not required.)		N		Y	N		COMMENT 5
(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?	Y			Y			NOT OBSERVED. SAMPLER INDICATED THEY WOULD BE USED.
<b>11. 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?</b>							
(a) Monitoring program (detection, assessment, or compliance) identified?	Y			Y			



	SAP Requirement?			Field Implementation			Comments:
	Yes	No	N/A	Yes	No	N/A	
(b) Correct reference to well identification number or specific well location?	Y			Y			
(c) Static ground water level (elevation), associated measurement technique, date, and time?	Y			Y			
(d) Surface water level (elevation), associated measurement technique, date, and time?		N			N		SURFACE WATER ELEVATIONS NOT DETERMINED. COMMENT 8g
(e) Total depth and associated measurement technique for each well?	Y					NA	TOTAL DEPTH NOT MEASURED THIS EVENT
(f) Presence and thickness of immiscible layers and associated measurement technique?			NA			NA	
(g) Well purging procedures and all associated SAP-required information?	Y			Y			
(h) Field analyses procedures and all associated SAP-required information?	Y			Y			
(i) Sampling procedures and all associated SAP-required information?	Y			Y			
(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 climatic conditions (approximate temperature, precipitation conditions, and wind speed/direction when sampling)?		N		Y			COMMENT 8h
(k) Equipment malfunction(s)?		N				NA	COMMENT 8i
(l) Any deviations from the SAP and explanation of why such modifications were necessary?	Y					NA	
(m) Sampling team personnel and company affiliation?	Y			Y			
12. Are copies of all field forms (and/or field log book), COC forms, and sample shipping documents stored at the landfill facility as part of the owner/operator's operating record?			NA			NA	
Additional Comments & Notes:							



**ATTACHMENT II**



**GROUND WATER MONITORING WELL FIELD INSPECTION FORM**  
**DSIWM Facility Ground Water Inspection Checklist**

**Wapakoneta Landfill, ID# 06-00-02, November 18, 2008**

Well identification number:	AW-1	AW-2	AW-5	AW-7	AW-8	AW-9	DAW-1
Correct location?	Y	Y	Y	Y	Y	Y	Y
Clearly and correctly labeled?	Y	Y	Y	Y	Y	Y	Y
Locked prior to arrival at well location?	Y	Y	Y	Y	Y	Y	Y
Ground water depth:	27.82	23.25	23.88	20.59	22.80	25.21	NI
Well total depth:	--	--	--	--	--	--	--
Protective casing present?	Y	Y	Y	Y	Y	Y	Y
(a) Condition?	G	G	G	G	G	G	G
(b) Locking cap? Condition?	Y/G						
(c) Weep hole present?	Y	Y	Y	Y	Y	Y	Y
(d) Standing water between protective casing & well casing?	N	N	N	N	N	N	N
Surface seal present?	Y	Y	Y	Y	Y	Y	Y
(a) Condition?	G	G	G	G	G	G	G
(b) Poned surface water?	N	N	N	N	N	N	N
Well (inner) casing condition?	G	G	G	G	G	G	G
(a) Material?	2" PVC						
(b) Survey reference mark?	Y	Y	Y	Y	Y	Y	Y
(c) Cap present?	Y	Y	Y	Y	Y	Y	Y
STICK-UP	--	--	--	--	--	--	--

**Additional Comments:** Y - YES,  
N - NO  
NA - NOT APPLICABLE  
NI - NOT INSPECTED  
**COMMENTS IN BOLD REFER TO PROBLEMS WITH WELLS**



**GROUND WATER MONITORING WELL FIELD INSPECTION FORM**  
**DSIWM Facility Ground Water Inspection Checklist**

**Wapakoneta Landfill, ID# 06-00-02, November 18, 2008**

Well identification number:	DAW-2	DAW-3	IAW-1	IAW-2	IAW-3	IAW-4	IAW-5
Correct location?	Y	Y	Y	Y	Y	Y	Y
Clearly and correctly labeled?	Y	Y	Y	Y	Y	Y	Y
Locked prior to arrival at well location?	Y	Y	Y	Y	Y	Y	Y
Ground water depth:	NI	NI	10.85	9.27	6.60	16.87	7.38
Well total depth:	--	--	--	--	--	--	--
Protective casing present?	Y	Y	Y	Y	Y	Y	Y
(a) Condition?	G	G	G	G	G	G	G
(b) Locking cap? Condition?	Y/G						
(c) Weep hole present?	Y	Y	Y	Y	Y	Y	Y
(d) Standing water between protective casing & well casing?	N	N	N	N	N	N	N
Surface seal present?	Y	Y	Y	Y	Y	Y	Y
(a) Condition?	G	G	G	G	G	G	G
(b) Ponded surface water?	N	N	N	N	N	N	N
Well (inner) casing condition?	G	G	G	G	G	G	G
(a) Material?	2" PVC						
(b) Survey reference mark?	Y	Y	Y	Y	Y	Y	Y
(c) Cap present?	Y	Y	Y	Y	Y	Y	Y
STICK-UP	--	--	--	--	--	--	--

**Additional Comments:** Y - YES,  
N - NO  
NA - NOT APPLICABLE  
NI - NOT INSPECTED  
COMMENTS IN BOLD REFER TO PROBLEMS WITH WELLS  
**LOOSE - PROTECTIVE CASING AND CONCRETE PAD MOVE AND ALLOW SURFACE**



**GROUND WATER MONITORING WELL FIELD INSPECTION FORM**  
**DSIWM Facility Ground Water Inspection Checklist**

**Wapakoneta Landfill, ID# 06-00-02, November 18, 2008**

Well identification number:	IAW-6	IAW-7	IAW-8	MW-5	MW-6	MW-6R	MW-7
Correct location?	Y	Y	Y	Y	Y	Y	Y
Clearly and correctly labeled?	Y	Y	Y	Y	NO	Y	Y
Locked prior to arrival at well location?	Y	Y	Y	Y	Y	Y	Y
Ground water depth:	6.80	6.17	8.27	NI	NI	29.38	20.42
Well total depth:	--	--	--	--	--	--	--
Protective casing present?	Y	Y	Y	Y	NO	Y	Y
(a) Condition?	G	G	G	G	NA	G	G
(b) Locking cap? Condition?	Y/G	Y/G	Y/G	Y/G	Y/G	Y/G	Y/G
(c) Weep hole present?	Y	Y	Y	Y	NA	Y	Y
(d) Standing water between protective casing & well casing?	N	N	N	N	NA	N	N
Surface seal present?	Y	Y	Y	Y	NO	Y	Y
(a) Condition?	G	G	G	G	NA	G	G
(b) Ponded surface water?	N	N	N	N	NA	N	N
Well (inner) casing condition?	G	G	G	G	<b>BROKEN</b>	G	G
(a) Material?	2" PVC	2" PVC	2" PVC				
(b) Survey reference mark?	Y	Y	Y	Y	NO	Y	Y
(c) Cap present?	Y	Y	Y	Y	Y	Y	Y
STICK-UP	--	--	--	--	--	--	--

Additional Comments: Y - YES,  
N - NO  
NA - NOT APPLICABLE  
NI - NOT INSPECTED  
COMMENTS IN BOLD REFER TO PROBLEMS WITH WELLS  
**LOOSE - PROTECTIVE CASING AND CONCRETE PAD MOVE AND ALLOW SURFACE**



**GROUND WATER MONITORING WELL FIELD INSPECTION FORM**  
**DSIWM Facility Ground Water Inspection Checklist**

**Wapakoneta Landfill, ID# 06-00-02, November 18, 2008**

Well identification number:	MW-8	MW-9	MW-10	P-1	SAW-1	SAW-2	SAW-3
Correct location?	Y	Y	Y	Y	Y	Y	Y
Clearly and correctly labeled?	Y	Y	NO	NO	Y	Y	Y
Locked prior to arrival at well location?	Y	Y	Y	Y	Y	Y	Y
Ground water depth:	44.78	34.62	28.40	35.12	7.44	6.82	5.83
Well total depth:	--	--	--	--	--	--	--
Protective casing present?	Y	Y	Y	Y	Y	Y	Y
(a) Condition?	G	<b>LEANING</b>	G	G	G	G	G
(b) Locking cap? Condition?	Y/G	Y/G	Y/G	Y/G	Y/G	Y/G	Y/G
(c) Weep hole present?	Y	Y	Y	Y	Y	Y	Y
(d) Standing water between protective casing & well casing?	N	N	N	N	N	N	N
Surface seal present?	Y	Y	Y	Y	Y	Y	Y
(a) Condition?	G	G	G	G	G	G	G
(b) Ponded surface water?	N	N	N	N	N	N	N
Well (inner) casing condition?	G	G	G	G	G	G	G
(a) Material?	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC
(b) Survey reference mark?	Y	Y	Y	Y	Y	Y	Y
(c) Cap present?	Y	Y	Y	Y	Y	Y	Y
STICK-UP	--	--	--	--	--	--	--

**Additional Comments:** Y - YES,  
N - NO  
NA - NOT APPLICABLE  
NI - NOT INSPECTED  
**COMMENTS IN BOLD REFER TO PROBLEMS WITH WELLS**



**GROUND WATER MONITORING WELL FIELD INSPECTION FORM**  
**DSIWM Facility Ground Water Inspection Checklist**

**Wapakoneta Landfill, ID# 06-00-02, November 18, 2008**

Well identification number:	SAW-4	SAW-5	SAW-6	SAW-7	SAW-8	SAW-9	SW-1
Correct location?	Y	Y	Y	Y	Y	Y	Y
Clearly and correctly labeled?	Y	Y	Y	Y	Y	Y	Y
Locked prior to arrival at well location?	Y	Y	Y	Y	Y	Y	Y
Ground water depth:	5.73	6.55	6.25	6.85	6.12	6.40	22.58
Well total depth:	--	--	--	--	--	--	--
Protective casing present?	Y	Y	Y	Y	Y	Y	Y
(a) Condition?	G	G	G	G	G	G	G
(b) Locking cap? Condition?	Y/G	Y/G	Y/G	Y/G	Y/G	Y/G	Y/G
(c) Weep hole present?	Y	Y	Y	Y	Y	Y	Y
(d) Standing water between protective casing & well casing?	N	N	N	N	N	N	N
Surface seal present?	Y	Y	Y	Y	Y	Y	Y
(a) Condition?	G	G	G	G	G	G	G
(b) Ponded surface water?	N	N	N	N	N	N	N
Well (inner) casing condition?	G	G	G	G	G	G	G
(a) Material?	2" PVC	2" SS					
(b) Survey reference mark?	Y	Y	Y	Y	Y	Y	Y
(c) Cap present?	Y	Y	Y	Y	Y	Y	Y
STICK-UP	--	--	--	--	--	--	--

**Additional Comments:** Y - YES,  
N - NO  
NA - NOT APPLICABLE  
NI - NOT INSPECTED  
**COMMENTS IN BOLD REFER TO PROBLEMS WITH WELLS**  
**LOOSE - PROTECTIVE CASING AND CONCRETE PAD MOVE AND ALLOW SURFACE**



**GROUND WATER MONITORING WELL FIELD INSPECTION FORM**  
**DSIWM Facility Ground Water Inspection Checklist**

**Wapakoneta Landfill, ID# 06-00-02, November 18, 2008**

Well identification number:	SW-2	SW-3R	SW-4	SW-5	SW-6	SW-7	SW-8
Correct location?	Y	Y	Y	Y	Y	Y	Y
Clearly and correctly labeled?	Y	Y	Y	Y	Y	Y	Y
Locked prior to arrival at well location?	Y	Y	Y	Y	Y	Y	Y
Ground water depth:	15.33	27.58	28.29	40.97	34.34	8.09	33.11
Well total depth:	--	--	--	--	--	-	--
Protective casing present?	Y	Y	Y	Y	Y	Y	Y
(a) Condition?	G	G	Y	G	G	G	G
(b) Locking cap? Condition?	Y/G	Y/G	Y/G	Y/G	Y/G	Y/G	Y/G
(c) Weep hole present?	Y	Y	Y	Y	Y	NO	Y
(d) Standing water between protective casing & well casing?	N	N	Y	N	N	N	N
Surface seal present?	Y	Y	Y	Y	Y	Y	Y
(a) Condition?	G	G	G	G	G	G	G
(b) Poned surface water?	N	N	N	N	N	N	N
Well (inner) casing condition?	G	G	G	G	G	G	G
(a) Material?	2" SS	2" PVC	2" SS	2" PVC	2" PVC	2" PVC	2" PVC
(b) Survey reference mark?	Y	Y	Y	Y	Y	Y	Y
(c) Cap present?	Y	Y	Y	Y	Y	Y	Y
STICK-UP	--	--	--	--	--	-	--

**Additional Comments:** Y - YES,  
N - NO  
NA - NOT APPLICABLE  
NI - NOT INSPECTED  
**COMMENTS IN BOLD REFER TO PROBLEMS WITH WELLS**  
**LOOSE - PROTECTIVE CASING AND CONCRETE PAD MOVE AND ALLOW SURFACE WATER TO ANNULUS.**



**GROUND WATER MONITORING WELL FIELD INSPECTION FORM**  
**DSIWM Facility Ground Water Inspection Checklist**

**Wapakoneta Landfill, ID# 06-00-02, November 18, 2008**

Well identification number:	SW-3	SW-11	SW-12	SW-13	SW-14	SW-15	SW-16
Correct location?	Y	Y	Y	Y	Y	Y	Y
Clearly and correctly labeled?	NO	Y	Y	Y	Y	Y	Y
Locked prior to arrival at well location?	Y	Y	Y	Y	Y	Y	Y
Ground water depth:	NI	Dry	19.68	20.41	13.33	NI	35.24
Well total depth:	--	--	--	--	--	--	--
Protective casing present?	NO	Y	Y	Y	Y	Y	Y
(a) Condition?	NA	G	G	G	G	G	G
(b) Locking cap? Condition?	Y/G	Y/G	Y/G	Y/G	Y/G	Y/G	Y/G
(c) Weep hole present?	NA	Y	Y	Y	Y	<b>NO</b>	Y
(d) Standing water between protective casing & well casing?	NA	N	N	N	N	N	N
Surface seal present?	NO	Y	Y	Y	Y	Y	Y
(a) Condition?	NA	G	G	G	G	G	G
(b) Ponded surface water?	N	N	N	N	N	N	N
Well (inner) casing condition?	G						
(a) Material?	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC
(b) Survey reference mark?	NI	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>
(c) Cap present?	Y	Y	Y	Y	Y	Y	Y
STICK-UP	--						

Additional Comments: Y - YES,

N - NO

NA - NOT APPLICABLE

NI - NOT INSPECTED

**COMMENTS IN BOLD REFER TO PROBLEMS WITH WELLS**

**SW-14 - Weep hole is very high. 1 to 1.5 feet of water may collect below weep hole.**

**SW-11 - Gas present.**



**GROUND WATER MONITORING WELL FIELD INSPECTION FORM**  
**DSIWM Facility Ground Water Inspection Checklist**

**Wapakoneta Landfill, ID# 06-00-02, November 18, 2008**

<b>Well identification number:</b>							
Correct location?							
Clearly and correctly labeled?							
Locked prior to arrival at well location?							
Ground water depth:							
Well total depth:							
Protective casing present?							
(a) Condition?							
(b) Locking cap? Condition?							
(c) Weep hole present?							
(d) Standing water between protective casing & well casing?							
Surface seal present?							
(a) Condition?							
(b) Poned surface water?							
Well (inner) casing condition?							
(a) Material?							
(b) Survey reference mark?							
(c) Cap present?							
STICK-UP							

**Additional Comments:** Y - YES,  
N - NO  
NA - NOT APPLICABLE  
NI - NOT INSPECTED  
**COMMENTS IN BOLD REFER TO PROBLEMS WITH WELLS**

