OhioEPA

State of Ohio Environmental Protection Agency

Northwest District Office

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Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

Re: Closed Facility Groundwater Inspection
St. Marys Landfill, Auglaize County

September 25, 2007

Mr. Thomas Hitchcock
Director of Public Service and Safety
City of St. Marys
101 East Spring Street
St. Marys, Ohio 45885

Dear Mr. Hitchcock:

Ohio Environmental Protection Agency (Ohio EPA) personnel performed a Closed Facility Ground Water Inspection (CFGWI) on July 30 and 31, 2007, at the City of St. Marys Landfill. Samples were split at monitoring well MW-2. The results will be reviewed and compared to the facility data when all of the data analyses are received.

Prior to the CFGWI, a review of the facility's Ground Water Monitoring Plan was performed by Ohio EPA personnel and a Closed Facility Ground Water Inspection Checklist, including comments, was completed for the Ground Water Monitoring Plan (Plan) related items. During the site inspection the rest of the checklist, including comments, along with a Ground Water Monitoring Well Field Inspection Form were completed. The comments included in the attachments which relate to the Ground Water Monitoring Plan and to the inspection items are located below. Annotation corresponds to the respective numbered comments in the Closed Facility Ground Water Inspection Checklist.

The following Comments include those related to both the CFGWI Attachment I and CFGWI Attachment II and give details of facility observations.

COMMENTS

Violations

1. **The City of St. Marys is in violation of Ohio Administrative Code (OAC) Rule 3745-27-10 (B)(3)(e) which requires that the monitoring wells be maintained to perform to design specifications. Monitoring wells BW-5, MW-4, BW-4, MW-6, BW-6, MW-7, MW-8, and MW-9 need repair/maintenance as noted below. The City needs to provide the needed repair/maintenance and submit documentation of the repair/maintenance to Ohio EPA.**

It was observed that several wells need maintenance. During the site visit the monitoring wells, which are currently included in the ground water monitoring plan, were inspected and CFGWI Attachment I was completed for each of these wells. At the time of the inspection, maintenance problems were noted. Following is a discussion of the problems associated with each well. For reference, the completed Attachment I is included with this document. The owner/operator should provide maintenance for the site's monitoring wells, piezometers and other measurement, sampling and analytical devices listed below. Following is a description of the problems and necessary actions.

a. As in previous inspections well BW-5 was observed to display a covered or partially covered pad. The presence of this soil appears to indicate a low area near the wells where sediments could collect. The owner/operator should clear the soil from the pads and ensure proper drainage away from the wells.

b. As in previous inspections, it was noted that the protective casings for wells MW-4 and BW-4 appear to be leaning. This might be the result of slumping of the hill on which these wells are located. Although the wells themselves may not display significant damage by the leaning of the protective casings, continued movement might impact the integrity of the well in the future. The facility should straighten the protective casings if well damage is imminent and ensure that the protective casings on these wells will not damage the well casings in the future.

c. During the inspection it could not be determined if the original protective casing on wells MW-6 and BW-6 possessed weep holes to allow for drainage of collected water from between the protective casings and the well casings. These wells possess an additional protective casing installed around the original protective casings. The owner/operator should inspect the wells and document that a weep hole exists in the protective casing. If there is no weep hole, one should be installed.

d. Wells MW-7, MW-8, and MW-9 were installed recently and do not possess weep holes to drain liquids between the protective casing and the well casing. Weep holes should be installed.

More Information Needed to Determine Compliance

2. Compliance with OAC Rule 3745-27-10 (C)(2)(a) and (C)(3)(c), which require that the sampling and analysis plan include a detailed description of the equipment, procedures, and technique to be used for the measurement of ground water elevations and that the wells be measured within a period of time short enough to avoid temporal variations in water level, but not to exceed 24 hours, cannot be determined at this time. The City of St. Marys needs to fully explain how the monitoring plan meets the requirements of this rule. Alternatively, the City may modify the plan to require that all wells are measured in a 24 hour period.

Although all wells in the plan were measured within a 24 hour period, the plan does not specify that measurements will take place in this period of time.

3. Compliance with OAC Rule 3745-27-10 (C)(1), which requires that the monitoring program utilized procedures that will provide representative samples, cannot be determined at this time. The City of St. Marys should explain how the collection of turbid samples meets the requirements of this rule. Alternatively the City may make proper and necessary changes which will assure in the collection of representative samples.

   Even though the wells were purged until field parameter stabilization occurred, some of the samples were still very turbid. For example, visually turbid samples were observed at wells MW-9 and MW-8. Turbid samples may not be representative of the ground water of the site as required by OAC Rule 3745-27-10 (C)(1). These wells may require additional development or a change in purging and sampling techniques. Also, see comment 16 below for recommended procedures.

4. Compliance with OAC Rule 3745-27-10 (C)(1), which requires that the monitoring program utilized procedures that will provide representative samples, cannot be determined at this time. In order to determine compliance the owner/operator should clearly explain how the collection of samples which have sat in the well over night meets the requirements of this rule. Alternatively, the City may modify their procedures and ensure that samples are collected as soon as enough water is available to sample.

   During the inspection, it was observed that all wells were purged on July 30, 2007. On July 31, 2007, all of the wells were sampled. It is understood that several wells recharge slowly and it might take several hours before enough water is available for sampling. However, most of the wells cannot be purged dry and enough water is available for sampling immediately following purging. OAC Rule 3745-27-10 (C)(1) requires that procedures be used which will produce representative samples. Samples need to be collected as soon as enough water is available for sampling. Waiting 24 hours to sample a well which had recharged immediately following purging could result in samples of "stagnant" water and would not result in representative samples.

5. Compliance with OAC Rule 3745-27-10 (C)(1)(a), which requires that the procedures expressed in the monitoring plan be followed, cannot be determined at this time. The City of St. Marys should clearly explain how the utilized procedure meets the requirements of the sampling and analysis plan. In addition the City needs to utilize the procedure as stated in the plan.

   The procedure used to decontaminate the "Keck" pump might not be consistent with the sampling and analysis plan. During inspection of the well purging techniques it was observed that the "Keck" pump was decontaminated by allowing the pump to move some soap and water solution into the pump and hose.

The pump was then reversed to remove this solution from the pump and hose. The same procedure was utilized for rinsing with clean water. The owner/operator's sampling and analysis plan requires that, "If the tubing on the pump is to be reused, the pump will be turned on to circulate the solution through the pump and tubing." The plan continues, "If the tubing on the pump is to be reused then the pump will be turned on until the internal portions of the pump and tubing are free of cleaning solution." The procedure utilized did not appear to meet the requirements of the plan in that the soap solution and the rinse water were not allowed to circulate through the entire length of the tubing.

6. Compliance with OAC Rule 3745-27-10 (C)(2)(c), which requires that the sampling and analysis plan include a detailed description of the equipment, procedures, and technique to be used for the collection of ground water samples, cannot be determined at this time. The City of St. Marys needs to fully explain how the monitoring plan meets the requirements of this rule. Alternatively the City may change the SAP to indicate that the samples collected for VOC analyses will be transferred to containers and capped in a timely manner to prevent aeration.

   During the July 2007, sampling event, it was noted that VOC samples were transferred to containers and capped in a timely manner. The facility SAP, however, does not indicate that the samples for VOC analyses will be transferred to containers and capped in a timely manner to prevent aeration.

7. Compliance with OAC Rule 3745-27-10 (C)(1)(a), which requires that the procedures expressed in the monitoring plan be followed, cannot be determined at this time. The City of St. Marys needs to explain how the use of this procedure meets the requirements of the plan and of this rule. In addition, the owner/operator should accurately follow the procedures as required by the plan.

   The City might have used improper labeling for volatile organic compound bottles. Regarding the labeling of sample containers the City's sampling and analysis plan states, "The label used on the sample bottles will be provided by the laboratory selected. These labels will be waterproof and will be properly attached to the sample containers in order to prevent improper identification of samples." During the inspection it was observed that the sample bottles for the volatile organic compounds were stored in a plastic bag on a well-by-well basis. The plastic bag contained a label, but the bottles inside were not labeled. This procedure, labeling the bag and not the bottles, is inconsistent with that required by the sampling and analysis plan. If the bag and the bottles become separated the samples cannot be tracked.

8. Compliance with OAC Rule 3745-27-10 (C)(2)(g), which requires that the sampling and analysis plan include a detailed description of field quality assurance and quality control cannot be determined at this time. The City of St. Marys should clearly explain how not requiring the documentation of deviations from the SAP meets the requirements of this rule.

Alternatively, the City should change the SAP to indicate that deviations be documented and that the field data sheets include an indication of whether there were deviations from SAP-required procedures. This is very important if there is a change in personnel in the sampling crew or at the site. The SAP does not require that deviations from the SAP along with explanations why such modifications were necessary be noted on the field form.

9. Compliance with OAC Rule 3745-27-10 (C)(2)(c)(iii), which requires that the sampling and analysis plan include a detailed description the sample containers and handling, cannot be determined at this time. The City of St. Marys needs to clearly explain how not including the types of sample containers on the COC meets the requirements of this rule. Alternatively the City may change the SAP to indicate that the types of sample containers be noted on the COC form. The SAP does not require the container type be noted on the chain-of-custody form.

10. Compliance with OAC Rule 3745-27-10 (C)(2)(f)(i) and, OAC Rule 3745-27-10 (C)(2)(c)(iv) which require that the sampling and analysis plan include a detailed description of the equipment, procedures, and technique to be used for chain of custody control, including standardized field tracking reporting forms to record sample custody in the field prior to and during shipment, and sample preservation, cannot be determined at this time. The City of St. Marys should explain how using a form which is different than that in the plan meets the requirements of these rules. Alternatively, the City may add this form to the current plan. While the current submittals contain a chain of custody (COC) form which specifically notes the temperature of the cooler upon arrival at the laboratory, the plan does not contain a copy of this new form.

11. Compliance with OAC Rule 3745-27-10 (C)(2)(f)(i), which requires that the sampling and analysis plan include a detailed description of the procedures to be used for completing the standardized field tracking reporting forms to record sample custody in the field prior to and during shipment, cannot be determined at this time. The City of St. Marys should explain how not requiring printed or otherwise legible names of the samplers meets the requirements of this rule. Alternatively the City may change the SAP to require that the person relinquishing samples print and sign their name.

    The name/signature of the person relinquishing samples on the COC may be illegible. The SAP does not require the person's name to be printed.

12. Compliance with OAC Rule 3745-27-10 (C)(1)(a), which requires that the procedures expressed in the monitoring plan be followed, cannot be determined at this time. The City of St. Marys should explain how the use of a form which is inconsistent with the plan meets the requirements of this rule. Alternatively the City may add the new form to the current plan. While the current submittals contain a field data sheet which specifically notes the monitoring program, the plan does not contain a copy of this new form.

13. Compliance with OAC Rule 3745-27-10 (C)(2)(a), and OAC Rule 3745-27-10 (C)(2)(d)(i), which requires that the sampling and analysis plan include a detailed description of the equipment, procedures, and technique to be used for measurement of ground water elevations and performance of field analysis including procedures and forms for recording raw data and the exact location, time and facility-specific conditions associated with the data acquisition, cannot be determined at this time. The City of St. Marys should clearly explain how not requiring this information on the field forms meets the requirements of these rules. Alternatively, the City should change the SAP to require that this information be collected and included on the field form.

    The SAP does not specify that the surface water level (elevation), date, and time be noted on the field form. The SAP does not provide a list of specific field observations which should be noted on the field form; however, there is room in the "Notes" section of the form for observations to be made. The SAP does not require that equipment malfunctions or deviations from the SAP be noted on the field form.

14. Compliance with OAC Rule 3745-27-10 (C)(10), which requires that the ground water results generated from the sampling be placed in the operating record in accordance with OAC Rule 3745-27-09, cannot be determined at this time. The City of St. Marys needs to explain how not requiring the results to be kept at the facility meets the requirements of this rule. Alternatively the City may change the SAP to specifically require this procedure.

    OAC Rule 3745-27-09 (C) requires that the operating record be located at the facility unless an alternate location is approved by the director. The sampling and analysis plan does not require that field forms and other sampling information be stored at the facility office.

15. Compliance with OAC Rule 3745-27-10 (C)(2)(c)(iii), which requires that the sampling and analysis plan include a detailed description the sample preservation, cannot be determined at this time. The City of St. Marys needs to clearly explain how samples which require preservation at 4°C will be properly and immediately placed on ice after sample collection. Alternatively the City may change the SAP to indicate that the samples which require preservation at 4°C will immediately be placed in a cooler with ice after collection. The SAP only indicates that the samples be placed on ice as soon as possible after collection. This could mean that the samples may not be placed on ice for some time. An excessive amount of time without preservation may result in non-representative samples being analyzed. Therefore, samples need to be immediately preserved.

Recommendations

16. Ohio EPA recommends that a procedure for the handling of liquids produced during decontamination of sampling equipment be included in the plan.

The plan provides no details regarding the liquids produced during decontamination of sampling equipment. While the small amounts of wash water and rinse water may have been disposed of on the ground during the decontamination procedure, there is no mention of the required procedure in the plan.

17. Ohio EPA provides the following general recommendations relating to the development of wells which produce turbid samples. Many of the wells on the site provide samples with excess turbidity. These samples may not be representative of the ground water of the site. For this reason it is important that several development and/or redevelopment methods be attempted on these wells. The owner/operator is encouraged to redevelop all wells which display high turbidity values in final purge samples. Samples should then be collected as soon as enough water is available.

- Develop at a rate greater than purging or sampling. Well development requires that the producing formation be stressed. Increased velocities will allow for the movement of fine particles from the interstices for removal from the well. If properly developed, the well should produce visibly clear water at the end of development. When purging, the rate should be less than the rate during well development. Purging and sampling at a lower rate will ensure that interstitial velocities will not exceed those applied during development and, therefore, will ensure that fine particles of clay and silt are not mobilized. As an example, field personnel indicated that well MW-9 was developed using a Waterra device with an estimated rate of about one half gallon per minute. Purging before sampling was performed using a Keck pump at a rate of about one gallon per minute. Purge samples were cloudy to muddy. It is possible development at a greater rate would have provided better fines removal from interstitial spaces. Subsequent purging at a lesser rate would then provide lower turbidity samples.

- Development may require both surging techniques (moving water rapidly in and out of the screen and sand pack) and stress pumping (purging to move water from the formation through the sand pack and screen and then out of the well.

- Proper, complete well development may take from several hours to several days.

- Development may require several independent episodes. Many wells in northwest Ohio appear to "develop over time" during multiple sampling events. It is common for well turbidity values to decrease over ten or more purging and sampling events. Applying this information to a new well, it might be effective to develop and redevelop the well every several days for a week or two allowing the well to "rest" between development episodes.

- It is helpful to measure and record turbidity values throughout development episodes. A reduction in turbidity may not be noticeable without a turbidity meter. It is also helpful to measure and record turbidity values during purging events. The goal is to collect samples with low turbidity values as soon as enough water is available in the well. Sometimes it is difficult to determine a low turbidity value in the field without a meter.

- Older problematic wells may require several episodes of redevelopment including periods of surging and periods of higher rate stress pumping (purging).

- Formations with very fine grain sizes may not respond well to surging. It may be necessary to using constant rate pumping alone.

- If a well is pumped dry, the recharge rate should be determined. This can be used to establish a constant rate pumping volume that will stress the well, but will not empty the well.

- Use of a variable speed pump is recommended. This will provide flexibility to adjust to the requirements of almost any well. The pump can be used for development at a high rate, purging at a slower rate and sampling at an even slower rate.

- Allowing an excessive amount of time between purging and sampling when enough water is available immediately after purging may produce non-representative samples. Wells should be properly and completely developed prior to initiating sampling under the various programs.

- It may take some time to properly and completely develop a well at the outset, however, in the long run, these wells will tend to produce more representative samples over the life of the well reducing the risk of collecting non-representative samples and the need for resampling.

Statements

18. During the visit it was observed that wells/piezometers P-2, located on the west side of Area 4, and P-3, located on the south side of Area 3 were still not being utilized. Comment has been made regarding the use, inspection and condition of these wells since at least 1999. In 1999 well P-3 was noted to be in need of maintenance. During the 2007 CFGWI, well P-3 was again observed and appeared to be in need of care. No lock, no pad and no weep hole were observed on the well. Both of these wells appear to be in an upgradient position. Boring logs for these two wells indicate that they are screened in the significant zones of saturation. If these wells are not being properly maintained a violation of OAC Rule 3745-27-10 (B)(3)(e) potentially could be cited. It would be appropriate to inspect the wells, make any necessary repairs and measure the wells as part of the semiannual events.

The owner/operator has invested in these wells and they could provide additional information relative to the hydrogeology of the site with little or no additional cost to the owner/operator other than the time spent to measure water levels semiannually.

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 needs to be sent to the attention of Mike Reiser, Division of Solid and Infectious Waste Management, Ohio EPA Northwest District Office, 347 Dunbridge Road, Bowling Green, Ohio 43402.

Sincerely,

Michael A. Reiser

Michael A. Reiser, R.S.
Environmental Supervisor
Division of Solid and Infectious Waste Management

/llr

pc: Kelly Bensman, Hull & Associates, Inc.
Todd Flagle, City of St. Marys
Randy Skrzyniecki, DDAGW, NWDO
Jack Leow, DDAGW, NWDO
File: Auglaize County, St. Marys Landfill, Ground Water
id: 5-7091

ATTACHMENT I

DSIWM FACILITY GROUND WATER INSPECTION CHECKLIST

Facility Name: **SAINT MARYS LANDFILL**	Inspection Date: **JULY 30, 31, 2007**
Facility Address: **15500 RIVER ROAD, SAINT MARYS, OHIO 45885** (OFFICE - 101 EAST SPRING STREET)	Ohio EPA ID#: **06-00-01** District: **NWDO**
Facility Type (circle one): ***MSW*** Ind Res C&DD If applicable, Residual Facility Class:	Facility Status (circle one): Operating ***CLOSED***
Facility Contact, Name & Title: **TODD FLEAGLE**, Manager of Industrial and Community Development	
DSIWM Inspector: **MIKE REISER**	DDAGW Hydrogeologist: **RANDY SKRZYNIECKI**
Names and company affiliations of facility or consulting personnel performing field monitoring and sampling activities: **MIKE CHARCHOL and RYAN MURPHY from 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?		N		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: **Revised October 2003**
5. Current Ground Water Quality Assessment Monitoring Plan (GWQAP)?	Y			If yes, document date **Revised June 2003**
6. Current Ground Water Compliance Monitoring Plan (GWCMP)?		N		If yes, document date:
7. Current Sampling & Analysis Plan (SAP)?	Y			If yes, document date: **Revised October 2003**
a) Are copies of the most current SAP, GWDMP, GWQAP, GWCMP, and/or Closure Plan always available at the facility for review?	Y			
b) If the facility has entered into assessment monitoring, has the SAP been revised to reflect all necessary changes (*e.g.*, updated constituent list)?	Y			
8. Previous Ohio EPA inspection?	Y			If yes, inspection date: **July 27 & 28, 2005**

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			Well depths were not measured during this event.
2. Are the wells maintained properly? (Please refer to the attached *Ground Water Monitoring Well Inspection Form*)		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?		N		Y			Comment 2
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?	Y	N		Y			No mention of registered surveyor.
e) Procedures for documenting and measuring both dense non-aqueous phase liquid (DNAPL) and light non-aqueous phase liquid (LNAPL)?	Y					NA	
f) Is the total depth for each well measured? If not, what is the facility's schedule for measuring and evaluating total depths?	Y			Y			Annually if no pump in well. Every 2 years or when pump is serviced if dedicated pump.
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 note book then field form.			
2. Well purging (evacuation), including:							
a) Purging method(s) and equipment used:	**SAP:** Various			**Field:** Various			Keck Pump/Bailer
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			Comment 3
e) Are all SAP-required water stabilization indicator parameters properly measured to determine when purging is adequate?	Y			Y			
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:** Polyprop.			
h) Purging low-yielding wells completely dry unless a passive sampling technique is being used?	Y			Y			Comment 4
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			N/A	
j) If purging for low-flow sampling:							
(1) Is the pump intake placed at or slightly above the center of the well screen?	Y					NA	

	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.e.*, < 0.3 ft) is present in the well?	Y					NA	
(3) Is the minimum time interval between measuring successive water stabilization indicator parameters at least 3 to 5 minutes?	Y					NA	
3. Field parameters for ground water, surface water, and/or leachate, including:							
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			
4. Ground water (and if applicable, surface water or leachate) sample collection, including:							
a) Sample collection methods and equipment used:	**SAP:** pump/bailer			**Field:** bailer			
b) Is the ground water sampling equipment dedicated?		N			N		
c) If applicable, is the well sampling order from least to most contaminated?	Y			Y			
d) Are sample containers filled in order of parameter volatilization sensitivity, *e.g.*, VOCs, SVOCs, total metals?	Y			Y			
e) If bailers are used, are samples collected in a manner which minimizes mixing and aeration of the well water column?	Y			Y			
f) Type of cord or wire used with sampling bailers:	**SAP:** Rope/cord			**Field:** polyprop.			
g) If used, are bladder pumps operated in a manner that prevents sample aeration and minimizes sample turbidity?	Y					NA	
h) Are pumps (all types) operated at a rate low enough to prevent sample aeration and minimize sample turbidity?	Y					NA	
i) If a low-flow ground water sampling technique is used, do ground water levels measured during sampling indicate that minimal drawdown (*i.e.*, < 1.0 ft) is present in the well?	Y					NA	
j) Wells where ground water purging and sampling procedures were observed by Ohio EPA:	**Well Numbers:MW-1 through 6. BW-1 through 6, AW-1 through 4.**						
5. Calibration of field monitoring and analytical equipment, including:							
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			
6. Equipment decontamination, including:							
a) If applicable, is all non-dedicated monitoring, purging, and sampling equipment decontaminated between sampling locations in accordance with the SAP?	Y				N	NA	Comment 5
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?	Y			Y			Comment 16
7. Purge water disposal, including:							
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			
8. Field sample preparation, including:							
a) **Sample containers and handling:**							
(1) Are all sample containers pre-cleaned and provided by the laboratory?	Y			Y			
(2) Are any samples field filtered prior to being transferred to their appropriate containers?		N			N		
(3) Are samples transferred directly from the sampling device to their appropriate containers in a manner that minimizes agitation and aeration?	Y			Y			
(4) Are VOC sample containers completely filled to form a meniscus and capped in a prompt manner to minimize volatilization?	Y			Y			Comment 6
(5) Are VOC containers checked for air bubbles after filling and capping?	Y			Y			

	SAP Requirement?			Field Implementation			Comments:
	Yes	No	N/A	Yes	No	N/A	
b) Sample Preservation							
(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?		N		Y			Comment 15.
(2) Are VOC samples acidified to pH < 2 with HCl?	Y			Y			
(3) Are samples for metals and/or radiological parameters (gross alpha, gross beta, radium) acidified to pH<2 with HNO_3?	Y			Y			
(4) Are samples for ammonia, COD, nitrate/nitrite, phosphorous, and/or TOC acidified to pH<2 with H_2SO_4?	Y			Y			
(5) Are cyanide samples preserved at pH>12 with 50% NaOH?			N/A			NA	
c) Sample labeling:							
(1) Unique sample (field) identification number that clearly associates the sample and the sampling location?	Y			Y			Comment 7
(2) Facility name?	Y			Y			
(3) Sample type (matrix) and date and time of collection?	Y			Y			Matrix on COC.
(4) Parameters and analyses requested?	Y			Y			
(5) Sample preservatives?	Y			Y			
(6) Name or initials of sampler and company affiliation?	Y				N		Employee number.
9. 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?	Y			Y	N		Comment 3
(b) Documentation of all deviations from SAP-required procedures?		N		Y			Comment 8
(c) Collection of the following QA/QC samples in accordance with the SAP:							
(1) Duplicate samples?	Y			Y			
(2) Field blanks?	Y			Y			
(3) Equipment blanks?	Y			Y			
(4) Trip blanks?	Y			Y			
(d) Collection of all necessary laboratory QA/QC samples (*e.g.*, matrix spike, matrix spike duplicate)?	Y					NA	

	SAP Requirement?			Field Implementation			Comments:
	Yes	No	N/A	Yes	No	N/A	
10. Chain-of-Custody (COC) procedures, including:							
(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			Y			*No lab address*
(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?	Y			Y			
(6) Types of sampling containers used, or a reference for the types of sampling containers used?		N		Y			Comment 9
(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			Y			
(9) Temperature of the samples when received by the laboratory?		N		Y			Comment 10
(10) Whether or not ice is present in the shipping cooler when received by the laboratory?		N			N		Temperature is used.
(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			Comment 11
(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			
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?							
(a) Monitoring program (detection, assessment, or compliance) identified?		N		Y			Comment 12

	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), date, and time?	Y			Y			
(d) Surface water level (elevation), date, and time?		N				NA	Comment 13
(e) Total depth for each well?	Y			Y			
(f) Presence and thickness of immiscible layers?			NA			NA	
(g) Well purging and all associated SAP-required information?	Y			Y			
(h) Field analyses and all associated SAP-required information?	Y			Y			
(i) Sampling 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)?	Y			Y			Comment 13
(k) Equipment malfunction(s)?	Y					NA	Comment 13
(l) Any deviations from the SAP and explanation of why such modifications were necessary?	Y					NA	Comment 13
(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?		N		Y			Comment 14 Landfill office closed. Not inspected.

Additional Comments & Notes:

ATTACHMENT II

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

Saint Marys Landfill, ID# 06-00-01, July 27, 28, 2005

Well identification number:	**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	
Correct location?	Y	Y	Y	Y	Y	Y	
Clearly and correctly labeled?	Y	Y	Y	Y	Y	Y	
Locked prior to arrival at well location?	Y	Y	Y	Y	Y	Y	
Ground water depth:	27.65	13.40	12.20	14.81	15.39	11.52	
Well total depth:	N/M	N/M	N/M	N/M	N/M	N/M	
Protective casing present?	Y	Y	Y	Y	Y	Y	
(a) Condition?	G	G	G	**Leaning**	G	G	
(b) Locking cap? Condition?	YG	YG	YG	YG	YG	YG	
(c) Weep hole present?	Y	Y	Y	Y	Y	*	
(d) Standing water between protective casing & well casing?	N	N	N	N	N	N	
Surface seal present?	Y	Y	Y	Y	Y	Y	
(a) Condition?	G	G	G	G	G	G	
(b) Ponded surface water?	N	N	N	N	N	N	
Well (inner) casing condition?	G	G	G	G	G	G	
(a) Material?	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	
(b) Survey reference mark?	Y	Y	Y	Y	Y	Y	
(c) Cap present?	Y	Y	Y	Y	Y	Y	
STICK-UP							

Additional Comments: * -- MW-6 contains additional protective casing. Weep hole cannot be observed.
N/M – Well total depth not measured at this time.

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

Saint Marys Landfill, ID# 06-00-01, July 27,28, 2005

Well identification number:	**BW-1**	**BW-2**	**BW-3**	**BW-4**	**BW-5**	**BW-6**	
Correct location?	Y	Y	Y	Y	Y	Y	
Clearly and correctly labeled?	Y	Y	Y	Y	Y	Y	
Locked prior to arrival at well location?	Y	Y	Y	Y	Y	Y	
Ground water depth:	26.57	13.31	11.23	14.13	15.30	11.27	
Well total depth:							
Protective casing present?	Y	Y	Y	Y	Y	Y	
(a) Condition?	G	G	G	**Leaning**	G	G	
(b) Locking cap? Condition?	YG	YG	YG	YG	YG	YG	
(c) Weep hole present?	Y	Y	Y	Y	Y	*	
(d) Standing water between protective casing & well casing?	N	N	N	N	N	N	
Surface seal present?	Y	Y	Y	Y	Y	Y	
(a) Condition?	G	G	G	G	**Partially Covered**	G	
(b) Ponded surface water?	N	N	N	N	N	N	
Well (inner) casing condition?	G	G	G	G	G	G	
(a) Material?	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	
(b) Survey reference mark?	Y	Y	Y	Y	Y	Y	
(c) Cap present?	Y	Y	Y	Y	Y	Y	
STICK-UP							

Additional Comments: * -- BW-6 contains additional protective casing. Weep hole cannot be observed.
The top of the casing at well BW-2 appears to have been cut off. Recommend checking elevation of casing.

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

Saint Marys Landfill, ID# 06-00-01, July 27, 28, 2005

Well identification number:	**AW-1**	**AW-2**	**AW-3**	**AW-4**	**MW-7**	**MW-8**	**MW-9**	
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:	12.65	123.33	13.23	12.09	11.34	14.17	6.47	
Well total depth:					39.88	33.71	51.30	
Protective casing present?	Y	Y	Y	Y	Y	Y	Y	
(a) Condition?	G	G	G	G	G	G	G	
(b) Locking cap? Condition?	YG	YG	YG	YG	YG	YG	YG	
(c) Weep hole present?	Y	Y	Y	Y	**NO**	**NO**	**NO**	
(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: Wells MW-7, MW-8, and MW-9 were installed in the last few months. Weep holes will be insalled in the near future.