



**Environmental  
Protection Agency**

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

Re: St. Marys Landfill, Auglaize County  
Groundwater  
Notice of Violation

March 6, 2012

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

Dear Mr. Moeller,

The Ohio Environmental Protection Agency (Ohio EPA) has reviewed "Statistical Report of Groundwater Quality for the Detection Monitoring Program and Notification of Constituents Detected in Assessment Monitoring Wells at the St. Marys Landfill (AUG007.100.0009.DOC)". The report was submitted by Hull & Associates on behalf of the owner/operator of the closed St. Marys Landfill (facility). The report is dated January 16, 2012 and documents the November 2 through November 4, 2011 sampling event.

The facility is currently operating under the detection monitoring plan as required by OAC Rule 3745-27-10 (D) for the uppermost aquifer system, and under the assessment monitoring plan as required by OAC Rule 3745-27-10 (E) for the stated significant zone of saturation. A revised corrective measures plan has been submitted to Ohio EPA for the stated significant zone of saturation, but has been found to be inadequate. Based upon Ohio EPA's evaluation, the well systems are not adequate for the significant zones of saturation. The owner or operator should move toward implementation of an effective corrective measure. The following are Ohio EPA comments relating to the current submittal.

### COMMENTS

### VIOLATIONS

- 1. The owner/operator continues to be in violation of OAC Rule 3745-27-10 (C)(1) and (C)(1)(a) which require that the ground water monitoring program include consistent sampling and analysis procedures and statistical methods that are protective of human health and the environment and that are designed to ensure monitoring results that provide an accurate representation of ground water quality at the background and downgradient wells; and that the owner or operator use the procedures documented within the sampling and analysis plan. The owner/operator needs to sample wells that purge dry as soon as enough water is available. Other wells should be sampled immediately after purging to ensure that representative samples are collected.**

The sampling and analysis plan, revised April 2009, states on page 22, "If a sample cannot be obtained after the initial purging, multiple trips to the well with less than 24 hours between trips will be made in accordance with the Ohio EPA Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring (February 1995)." This manual indicates that for wells that purge dry the samples should be collected as soon as sufficient water is available.

This is because extended recovery times after purging allow the ground water to equilibrate with atmospheric conditions thereby changing ground water chemistry.

A review of the field data sheets in the submittal indicates that wells: MW-1 (not dry), MW-2 (not dry), MW-3 (dry), MW-4 (not dry), MW-5 (not dry), MW-6 (dry), MW-8 (dry), AW-1 (not dry), AW-2 (not dry), AW-3 (dry), AW-4 (dry), BW-5 (dry), whether purged dry or not, were purged on November 2, 2011, but not sampled until November 3, 2011. Some of these wells recharge quickly enough to collect samples immediately after purging. Other wells recharge quickly enough to collect samples in much less than 24 hours. Only 6 of the site's 19 wells (MW-3, MW-6, MW-8, AW-3, AW-4, and BW-5) were purged dry. The ability for some of the wells to be sampled on the same day has been established during previous sampling events.

In addition, some of the wells which should have been sampled shortly after purging display changes in field parameters between the end of purging on November 2, 2011 and sampling on November 3, 2011. Following is a table indicating the change in field parameter values from purging on November 2, 2011 to sampling on November 3, 2011 for wells which were not bailed dry and displayed a significant change in ground water chemistry between purging and sampling. (It should be noted that the typical wait time between purging and sampling is about 22 hours.) This change in field parameter values may be due to stagnation of the water in the well between purging and sampling. The values which appear to show a significant change are in **bold**. These differences in values exceed the 10% value specified by the City in SOP No. F3007 included in their sampling and analysis plan. The values marked with an asterisk are those which exceed the current Ohio EPA standards (pH  $\pm 0.2$  S.U., conductance  $\pm 3\%$ , temperature  $\pm 0.5^\circ\text{C}$ ). While the owner/operator is displaying continued progress on this issue (The UAS wells that do not purge dry (BW-1, BW-2, BW-3, BW-4, and BW-5), and SZS wells MW-7 and MW-9 were sampled immediately after purging.), there are some wells that do not purge dry and are not sampled immediately after purging. Four of these wells display instability as noted below. The owner/operator is encouraged to review procedures on the wells which do not purge dry and sample them as soon as enough water is available (MW-1, MW-2, MW-4, MW-5, AW-1, and AW-2).

WELL	11/02/11 pH	11/03/11 pH	11/02/11 Temp.	11/03/11 Temp.	11/02/11 Cond.	11/03/11 Cond.
MW-1	7.16	7.24	<b>12.7*</b>	<b>14.0*</b>	2000	1960
WELL	11/02/11 pH	11/03/11 pH	11/02/11 Temp.	11/03/11 Temp.	11/02/11 Cond.	11/03/11 Cond.
MW-2	6.97*	7.36*	12.3	12.7	<b>1490*</b>	<b>1150*</b>
MW-4	6.63	6.63	14.6*	15.2*	2000	1970
MW-5	7.21	7.18	13.1*	13.7*	1390	1390

2. **The City of St. Marys continues to be in violation of OAC Rule 3745-27-10 (C)(3)(b) which requires that the ground water flow direction be determined for all**

**significant zones of saturation monitored. Maps for all significant zones of saturation need to be provided.**

Based on cross sections provided by the owner/operator in April 2009, there are two, and perhaps three separate significant zones of saturation. (AW-3 and AW-4 are screened in a separate zone from the other SZS wells based on the most recent cross sections.) The owner/operator submitted one map for the "Significant Saturated Units", indicating flow direction; however, since there are two (2) or three (3) significant zones of saturation, there should be a map for each of these zones.

3. **The City of St. Marys continues to be in violation of OAC Rule 3745-27-10 (B)(1)(b) which requires that the ground water monitoring system consist of a sufficient number of wells in significant zones of saturation that represent the quality of the ground water downgradient of the limits of solid waste placement. Additional wells need to be added to the monitoring system for each of the significant zones of saturation.**

Based on cross sections provided by the owner/operator in April 2009, there are two (or three) separate significant zones of saturation. As of yet, and based on the cross sections, the two thicker zones (typically occurring at about 825' and 835') are not properly monitored and additional wells are needed in each of these zones as documented by Ohio EPA in a letter to the owner/operator dated

September 27, 2004. In addition, the need for additional wells and the potential locations of these wells was discussed with the owner/operator in a meeting held in the City of St. Marys on September 16, 2004. Based on the recent cross sections and maps there are at least six (6) more monitoring wells that are needed at the site in the two thicker zones.

4. **The City of St. Marys continues to be in violation of: OAC Rule 3745-27-10(D)(7)(c)(ii), which requires the owner/operator, who has not obtained approval to remain in detection monitoring under this rule, to comply with the provisions of OAC Rule 3745-27-10 (D)(7)(c)(ii) within two hundred and ten days from initial sampling; OAC Rule 3745-27-10(E)(1) which requires the owner/operator, who has not obtained approval to remain in detection monitoring under OAC Rule 3745-27-10(D)(7)(c)(ii), to implement a ground water quality assessment plan capable of determining the concentration, rate and extent of migration of waste-derived constituents; and OAC Rule 3745-27-10(E)(3) which requires the owner/operator, who has not obtained approval to remain in detection monitoring under OAC Rule 3745-27-10(D)(7)(c)(ii), to submit to Ohio EPA a ground water quality assessment plan within one hundred and thirty-five days of notifying the agency of a statistically significant increase over background. The owner/operator needs to comply with the requirements of these rules and provide and implement a ground water quality assessment plan.**

On April 27, 2009 Ohio EPA received the statistical report of ground water quality for the February 11, 2009 sampling event. On page 5 of this report the owner/operator indicates, "This report serves as formal notification to Ohio EPA that the chloride values reported for detection monitoring wells BW-5 and BW-6 during the February 2009 sampling event demonstrate statistically significant increases over their statistical

backgrounds. An Alternate Source Demonstration will be submitted separately to provide supporting evidence that the statistical significances are false positives and not the result of a leachate release to groundwater." The two hundred and ten day period from initial sampling ended September 10, 2009. No demonstration for chloride at wells BW-5 or BW-6 has been provided to Ohio EPA and no approval has been granted. These wells have, by rule, been in the assessment program since September 10, 2009. Also, the owner/operator has not provided nor implemented a ground water quality assessment plan.

5. **The City of St. Marys continues to be in violation of: OAC Rule 3745-27-10(C)(1), which requires that consistent sampling and analysis procedures and statistical methods that are protective of human health and the**

**environment and that are designed to ensure monitoring results that provide an accurate representation of groundwater quality are utilized and in the plan. The owner/operator needs to ensure that all compliance data are retained in the data base and that all of these data are properly utilized in the determination of statistically significant increases over background. Specifically all of the compliance chloride data for wells BW-5 and BW-6 should be retained in the data base. This means that the compliance data for chloride data collected June 2003 for BW-5 and February 2007 for BW-6 should be returned to the data base.**

As discussed in comment 4 above, compliance data for chloride at well BW-6 resulted in a statistically significant increase for chloride at this well. An alternate source demonstration was neither provided to Ohio EPA nor approved by the director. Also no assessment plan was provided. This well is now in assessment. The situation for well BW-5 is similar in that it also is in assessment for chloride.

Recently, the owner/operator indicated that they removed data from the compliance data set. Near the top of page 4 of the report for the February 2010 sampling event, the owner/operator stated, Additionally, the results of outlier tests completed for chloride in monitoring wells BW-5 and BW-6 indicate that the June 2003 chloride value reported for monitoring well BW-5 and the February 2007 chloride value reported for monitoring well BW-6

are statistical outliers and are not representative of other chloride values reported for these respective monitoring wells." The removed values are not in the background data set, but are in the compliance data set. Compliance data should not be removed especially in control charts, since the removal of such data can have an effect on the statistical analyses. Conversely, if the data was the result of field or laboratory error, it is not representative of ground water of the site and may be removed following proper demonstration (e.g., a demonstration consistent with OAC Rule 3745-27-10 (E)(9)(b)). In general, compliance data should not be removed merely because it is a calculated outlier. Compliance data may be removed if the data is the result of errors in field or laboratory procedures.

6. **The City of St. Marys is in violation of OAC Rule 3745-27-10 (C)(3)(b) which requires that the ground water flow direction be determined for all significant zones of saturation monitored at least semiannually each time ground water elevations are determined involving more than half of the wells. The Potentiometric Surface Map for the Significant Saturated Units does not properly utilize the collected ground water elevation data and does not provide an accurate**

**flow direction or gradient in the general area between wells MW-3 and MW-4. This map must be corrected and resubmitted.**

Several errors in the map are displayed. Following is a table of those errors. If the errors are corrected the flow direction and the ground water gradient will change significantly.

Well Area	Error	Comments
AW-4	AW-4 displays a value of 836.22', but is located downgradient of the 836' contour line near a position of about 835.90'.	Correction will cause the contour line to be located between AW-4 and MW-7 making the ground water high located northwest of AW-4 more pronounced.
MW-4	MW-4 displays a value of 837.70', but is located downgradient of the 836' contour line near a position of about 835.90'.	Correction will cause a decrease in the ground water gradient in flood plain area near MW-4 and also change flow direction in the area of MW-4 from northeast to northwest.
MW-3	MW-3 displays a value of 834.57', but is located upgradient of the 835' contour line near a position of about 835.20'.	Correction will cause a decrease in ground water gradient near MW-3 and a change in flow direction of from northeast to east.
MW-2	MW-2 displays a value of 835.19, but is located in a position of about 835.50'	Correction will slightly modify ground water gradient and flow direction in the MW-2 area.
MW-5	MW-5 displays a value of 837.64', but is located in a position of about 837.90'	

**MORE INFORMATION NEEDED TO DETERMINE COMPLIANCE**

- Compliance with OAC Rule 3745-27-10 (C)(1), requiring that procedures be used that ensure that consistent and representative samples are collected and representative results are produced, cannot be determined at this time. The City of St. Marys needs to indicate how the collection of excessively turbid samples provides results which are representative of the ground water of the site and ensure that low turbidity samples are collected from the site's wells. Results from samples collected with excessive turbidities should not be used in background. In addition, the owner/operator needs to describe any changes in purging, sampling or analytical procedures which might affect the turbidity of these samples.**

A review of the laboratory turbidity and total suspended solids (TSS) data for the well samples included in the submittal indicates that several wells continue to demonstrate excessive turbidity/TSS values. Following is a list of the wells which display significantly excessive values (bold) as observed from the results for the November 2011 sampling event.

Over the past few sampling events, the owner/operator appears to have modified the purging and sampling procedures, reduced the time between purging and sampling, and

reduced the turbidity of the samples collected on some of the wells. Ohio EPA appreciates and supports this effort. A few of the wells, however, appear to not have responded to these changes and still produce higher turbidity readings in general and, in some instances, higher turbidity readings than the historical low values.

The agency suggests redevelopment as a possible option to improve these wells. This redevelopment might include the removal of any sediment in the wells and subsequent use of a surge block and continued removal of sediment. This procedure could also be tried on well BW-3. While turbidity in this well was relatively low during the November 2011 sampling event, this well has displayed anomalously high turbidity values in the past and has displayed anomalously high metals values in both the past and in recent sampling events. Redevelopment might reduce the concentrations of these metals.

WELL	LATEST LAB TURBIDITY (NTU)	LOWEST HISTORICAL REPORTED TURBIDITY (NTU)	SAMPLE DATE OF LOWEST	LATEST TSS (MG/L)	TIME BETWEEN PURGE & SAMPLE (hr:min)
MW-1	95	25	04/02/96	88	22:50
MW-2	18	9.8	07/14/10	28	19:52
MW-3	140	50	06/24/97	215	Dry 22:05
MW-4	200	54	07/28/09	176	22:17
MW-5	38	23	06/25/97	32.5	22:55
MW-6	11	6.25	07/28/05	26.5	Dry 22:40
MW-7	260	18.5	07/29/05	266	Immediate
MW-8	36	15.1	07/31/07	15.5	Dry 22:07
MW-9	24	9.2	07/14/10	17	Immediate
AW-1	40	10.2	01/18/06	21.5	21:39
AW-2	35	7.4	09/19/96	45	21:50
AW-3	40	28.8	07/28/05	33	Dry 21:59
AW-4	95	13.4	06/15/00	205	Dry 22:59
BW-1	19	5.55	07/29/09	16.5	Immediate
BW-2	40	14	06/20/01	32.5	Immediate
BW-3	34	4	07/02/98	44	Immediate
BW-4	30	<0.005	06/19/03	12	Immediate
BW-5	11	7.34	06/19/03	9	Dry 23:15
BW-6	36	4.64	07/29/09	45.5	Immediate

8. **Compliance with OAC Rule 3745-27-10(B)(3)(e), which requires that monitoring wells be operated and maintained to perform to design specifications cannot be determined at this time. The City of St. Marys needs to describe any changes in well conditions which occurred at the site and if any of the wells were damaged.**

During the March 2011 sampling event, the wells noted in bold in comment 6 above displayed excessive turbidity or TSS values. OAC Rule 3745-27-10 (B)(3)(e) requires that the wells be maintained to perform to design specifications and OAC Rule 3745-27-10 (C)(1) requires that procedures be used which will result in data which is representative of the ground water of the site. This excessive turbidity may be the result of sampling procedures or may be due to damage to the wells. Since the site's wells have been installed and sampled for some time and the conditions in most of the wells have stabilized at lower turbidity values, it would not be expected that turbidity values would rise due to natural conditions.

To further the understanding of the high turbidity values in some of the wells, Ohio EPA analyzed the TSS readings at well MW-3 for trends. The earliest data, typically collected between 1994 and 1997, display a decreasing trend. This is common with new wells which, in effect, are developed over time. The data collected from January 1997 to the present show an increasing trend.

This increasing trend is troublesome in that it might be due to damage to the well (In April 1998, for example the TSS was 30 mg/L, but the current value is 215 mg/L.). This well, and perhaps others, need to be refurbished.

9. **Compliance with OAC Rule 3745-27-10 (C)(1) cannot be determined at this time. For rule citation see comment number 1 above. The City needs to carefully review and explain all laboratory procedures relative to the detection of a significant number of parameters in the field blanks. In addition the owner/operator needs to explain how the presence and detections of these parameters impacts the analyses in the field samples. The owner/operator also needs to list all necessary changes to procedures to ensure that representative results are provided.**

A review of the QA/QC portion of the TestAmerica analytical report indicates a significant number of inorganic detections in the field blanks. Field blanks are typically prepared with analyte-free water and should result in no detections if field QA/QC procedures are effective. While the report contained case narratives, these case narratives did not describe this problem and did not describe procedures for correcting these problems. Often data associated with questionable QC data should not be used in the background.

10. **Compliance with OAC Rule 3745-27-10 (C)(7)(e), which requires that if a PQL is used it must be the lowest concentration level that can be reliably achieved within the specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility, cannot be determined at this time. In order to determine compliance with OAC Rule 3745-27-10 (C)(7)(e) the owner/operator needs to utilize the lower PQLs noted in the table below or demonstrate how the use of their original PQLs are protective of human health and the environment, are the lowest reliably achievable and will provide an accurate representation of the ground water of the site.**

A review of the analytical results indicates some of the practical quantitation limits (PQLs) utilized by the owner/operator's laboratory were greater than those utilized by other laboratories in Ohio.

These lower values utilized by other laboratories have been achieved during routine laboratory operating conditions and have been determined to be reliably achievable. Following is a table of the parameters and PQL values utilized by the owner/operator's laboratory for which there are lower reliably achievable PQLs. These increased PQLs do not contain a qualifier indicating that the PQLs were increased due to matrix interference.

PARAMETER	TEST AMERICA PQL ( $\mu\text{g/L}$ )	TYPICAL PQL ( $\mu\text{g/L}$ )
Arsenic	4	3
Iron	100	50
Zinc	36	20

11. **Compliance with OAC Rule 3745-27-10 (C)(1) cannot be determined at this time. For rule citation see comment number 1 above. The City needs to ensure that temporary PQL increases are not utilized in the statistical background. In addition, the City needs**

**to implement a procedure that will ensure that these PQL increases, which are said to be due to matrix interference, do not continue. This might include changes to analytical methods or sampling procedures.**

In the second paragraph in the Data Review section on page 2 the owner/operator states, "As the result of matrix interferences and/or dilutions, PQLs for several parameters were slightly elevated above the prior analytical PQLs for several monitoring well/parameter combinations as indicated on the laboratory analytical report." Some of these PQLs have only increased recently suggesting the matrix of the ground water samples has changed resulting in a need for an increase in PQL. If the matrix conditions are changing, the procedures employed might also not be consistent as required by this rule.

12. **Compliance with OAC Rule 3745-27-10 (C)(1) cannot be determined at this time. For rule citation see comment number 1 above. The City needs to confirm which values are the correct and representative field parameter results for well BW-5.**

The field data sheet for well BW-5 indicates this well was purged dry with a monsoon pump. The final field results, recorded for the November 2, 2011 purging, are different from the values reported for the November 3, 2011 sampling, which are different from the TestAmerica analytical reported "Client Supplied Field Data". No conductivity value was reported for the November 3, 2011 sampling event. It is unclear what the appropriate representative values are and how they were derived since there is inconsistency in the values. Following is a table which summarizes the values.

	Purge Values (11/02/2011)	Sample Values (11/03/2011)	Lab Report Values (11/07/2011) (Client- Supplied Field Data)
pH (S.U.)	7.45	7.33	7.33
Temperature (°C)	13.2	13.8	14.0
Conductivity (µmohs/cm)	960	Not Reported	926

13. **Compliance with OAC Rule 3745-27-10 (C)(1) cannot be determined at this time. For rule citation see comment number 1 above. The City needs investigate the presence of a large number of parameters in the field blanks. The owner/operator also needs to clearly explain how the use of procedures that result in a large number of detections in the field blanks will provide representative results for the ground water samples. In addition, the owner/operator needs to provide a procedure which will ensure that field blanks are properly prepared and analyzed in a manner which will result in representative results.**

The field blanks for the sampling event, FB-1 and FB-2, display a number of "present" parameters (between the PQL and MDL) including sulfide, ammonia, nitrate/nitrite, total alkalinity, arsenic, barium, calcium, chromium, copper, iron, magnesium, nickel, potassium, and sodium. Typically field blanks are prepared with analyte-free water. The presence of any analyte in the field blank results should be cause for concern as they may be the result of field or laboratory errors. The presence of these parameters and the field procedures should be completely reviewed.

## STATEMENTS

14. **Several parameters display exceedances in MW-2, MW-3, and MW-4. While statistical analyses is not necessary to be performed on assessment wells, the owner/operator notes several exceedances for chloride, sodium, ammonia, and potassium as well as several volatile organic compounds (VOCs) in the assessment wells. It should be noted that several other parameters appear to display exceedances compared to upgradient well MW-1 including, but not limited to, arsenic in MW-4, barium in MW-3, MW-4, and MW-5 and iron in MW-4. Also, wells AW-1, AW-2, AW-3, MW-7, and MW-8 display chloride levels significantly above upgradient background, and well AW-4 displays a sodium level above upgradient background values.**
15. **A letter dated June 13, 2008 (5-7702) sent by Ohio EPA to the City of Saint Marys provided thirty one comments related to violations, requests for more information and statements. No response has yet been received by Ohio EPA relative to these requests. More recently, a letter dated December 1, 2008 (5-8055) provided 11 comments. Also, a letter dated July 17, 2009 (5-8504) contained 18 comments; a letter dated February 8, 2010 (5-8901) contained 26 comments; a letter dated July 14, 2010 (5-9362) contained 25 comments, a letter dated December 22, 2010 (5-9773) contained 25 comments, also a letter dated November 18, 2011 (5-10577). No responses have been received from the City. It is important that the owner/operator respond to the agency requests for information and violations.**
16. **Wells MW-2, MW-3, MW-4, and MW-5 are affected and in the assessment program. In the second paragraph on page 1 of the submittal the City states, "As part of the**

detection monitoring program and in accordance with the facility's Revised Detection Monitoring Sampling and Analysis Plan (DMSAP, last revised April 2009), monitoring wells MW-1 through MW-6 are used to evaluate groundwater quality in the significant saturated units, and monitoring wells BW-1 through BW-6 are used to evaluate groundwater quality in the uppermost aquifer. In accordance with the facility's Groundwater Quality Assessment Plan (GWQAP), last revised April 2009), monitoring wells MW-1 through MW-5 and AW-1 through AW-4 are used to evaluate groundwater quality in the significant saturated units as part of the assessment monitoring program." While well MW-1 is used as a background well and is considered a detection well, wells MW-2 through MW-5 are affected based on OAC Rule 3745-27-10 (D) and are in the assessment program based on OAC Rule 3745-27-10 (E). If these wells are returned to the detection monitoring program by OAC Rule 3745-27-10 (E)(9), they will then be considered to be in the detection program.

17. **It is important that apparently non-representative data not be removed from the data set, but it should not be used in background.** At the base of the first paragraph in the "Data Review" section on page 2 of the submittal the owner/operator states, "In a letter dated March 18, 2004 from Ben Smith of Ohio EPA to Mike Mackenzie of the City, Ohio EPA states that the low flow data does not appear to be an accurate representation of groundwater quality and requested it be removed from the statistical dataset. Note that this data was not used in the statistical evaluation and has been excluded from the facility's statistical dataset, but this data is still provided on the summary tables provided in Appendix B."

Ohio EPA did not say to exclude the data from the dataset, but indicated that it not be used in background. In the March 2004 letter, Ohio EPA stated, "The analytical results determined from low flow samples should not be utilized in the background data set until they can be shown to be representative of the ground water of the site." It is important to retain the data, but not use it in background for several reasons including the situation where, in the future, it can be shown to be representative of the ground water of the site.

18. **A review of the historical data for the wells at the site indicates that some of the wells display an apparent increasing trend for non-statistical parameters and perhaps a few statistical parameters. This information is shown on the following table.**

WELL	PARAMETERS	APPARENT INCREASING TREND?
MW-6	nitrate/nitrite, conductance	yes
MW-1	Conductance	yes
AW-1	Conductance	yes
AW-3	nitrate/nitrite, conductance, chloride, sodium	yes
AW-4	Conductance	yes
BW-1	Conductance	yes
BW-2	nitrate/nitrite	yes
BW-3	nitrate/nitrite, conductance	yes
BW-4	nitrate/nitrite, conductance	yes
BW-6	nitrate/nitrite, conductance	yes

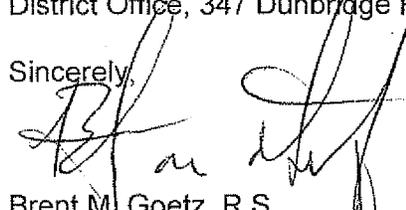
19. **A review of "Figure 1 Potentiometric Surface Map for the Significant Saturated Units" indicates the values at several pairs of wells, which are located relatively close to each other, cause unusual changes in ground water gradient in their immediate area.** In the immediate area of wells MW-4 and AW-3 the data causes potential contours to constrict indicating an anomalous increase in gradient. In the immediate area of AW-4 and MW-7, the data indicates a local change in gradient from east to west at these wells. This information suggests that the two wells are completed in separate zones. It appears from the ground water data and the boring log/cross section data, that AW-4 is completed in a different zone than either MW-7 (deeper zone typically observed at about 825') or MW-4 (shallower zone typically observed at about 835').
20. **Results that are impacted by matrix interferences are typically not appropriate for use in statistical analyses and should not be considered valid data unless the laboratory states that these results are valid.** In the second paragraph in the Data Review section on page 2 the owner/operator states, "As the result of matrix interferences and/or dilutions, PQLs for several parameters were slightly elevated above the prior analytical PQLs for several monitoring well/parameter combinations as indicated on the laboratory analytical report." Temporarily increased PQLs should not be used in background. Also, continued matrix interferences should be discussed with the laboratory and method changes should be made to eliminate these impacts.
21. **Sodium in assessment well AW-4 appears to display an increasing trend over time. The earliest sodium results, collected beginning in December 1995, are in the range of 37 to 54 mg/L. The latest data, collected in the last 6 years, are in the range of 70 to 88 mg/L (87.8 mg/L in November 2011). Well AW-4 is completed in an intermediate zone.**
22. **The presence (identified between the MDL and PQL, but not quantifiable) of volatile organic compounds (VOC) in several downgradient wells may be cause for concern.** Bis(2-ethylhexyl) phthalate, butyl benzyl phthalate, and di-n-butyl phthalate are present in well AW-4. Acetone, m,p-xylene, and total xylenes are present in well BW-3. Well BW-3 also displayed a concentration of 4-methyl-2-pentaonon (MIBK) and is in assessment. While the presence of these VOCs could be the result of laboratory error, their presence should be carefully monitored.
23. **While the presence of an increase in sodium in the sample collected from SZS well MW-1 and chloride and copper in a sample collected from UAS well BW-1 may be indicative of natural variability, it might also be indicative of radial flow from the landfill, errors in sampling or analysis, or damage to the well.** In the third paragraph on page 3 the owner/operator states, "A statistical significance was identified for sodium in upgradient monitoring well MW-1 for both chloride and copper in upgradient monitoring well BW-1 during this sampling event. These statistical significances are the result of either natural variation in groundwater quality that occurs over time, or unfavorable field and/or laboratory conditions at the time of sample collection and/or analysis, and do not require notification to Ohio EPA as it was calculated for an upgradient well." The previous ground water report for the spring 2011 event also indicated statistical significance for chloride at well BW-1.

Mr. Craig Moeller  
March 6, 2012  
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The City of St. Marys needs to immediately take the necessary measures to return to compliance with Ohio's environmental laws. Within 14 days of receipt of this letter, The City of St. Marys is requested to provide documentation to this office including the steps that will be taken to abate the violations cited above. Documentation of steps taken to return to compliance includes written correspondence, updated policies, and photographs, as appropriate, and may be submitted via the postal service or electronically to [Brent.Goetz@epa.ohio.gov](mailto:Brent.Goetz@epa.ohio.gov).

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 Materials and Waste Management, Ohio EPA Northwest District Office, 347 Dunbridge Road, Bowling Green, Ohio 43402.

Sincerely,



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

/cg

pc: Auglaize County Commissioners  
Bill Petruzzi, Hull & Associates, Inc.  
DMWM-SW, Auglaize County, St. Marys Landfill, Groundwater

ec: Mike Reiser, DMWM, NWDO  
Tim Fishbaugh, DDAGW, NWDO  
Randy Skrzyniecki, DDAGW, NWDO

i.d.: 5-11196

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