Environmental
Protection Agency
John R. Kasich, **Governor**
Mary Taylor, **Lt. Governor**
Scott J. Nally, **Director**

Re: Marion City Landfill
Groundwater
Notice of Violation

June 6, 2012

Mr. Jay Shoup, Service Director
233 West Center Street
Marion, Ohio 43302

Dear Mr. Shoup:

The owner/operator is currently required to perform corrective measures activities at the Marion City Landfill (facility). This letter documents the results of the April 25-26, 2012, Closed Facility Ground Water Inspection (CFGWI) at the facility. This represents the sixth ground water inspection performed at the facility. Previous ground water inspections were performed in October 1997, April 2000, April 2003, April 2006, and April 2009.

A representative from the Division of Drinking and Ground Water (DDAGW) was present during the inspection. Ground water sampling activities were performed by representatives of CEC, Inc. of Columbus, Ohio. This inspection included the observation of CEC's sampling procedures and surficial construction of all of ground water monitoring wells and some of the ground water piezometers in the ground water monitoring network.

Attached to this letter is the inspection form. This form summarizes the inspection of the surficial well construction of the observed monitoring wells and piezometers and also summarizes the inspection of the equipment and procedures used during the sampling event.

COMMENTS

Violations

1. **The owner/operator is in violation of OAC Rule 3745-27-10(B)(3)(e) [effective March 1, 1990], regarding the maintenance of the ground water piezometers. During the April 25-26, 2012, inspection, maintenance issues were noted at piezometers P-1, P-3, OB-1 and OB-2. To regain compliance with the requirements of this rule, the owner/operator needs to respond accordingly.**

Northwest District Office
347 North Dunbridge Road
Bowling Green, OH 43402-9398

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

During the inspection, the following maintenance issues were noted for the following ground water piezometers.

P-1:	No concrete pad and the protective casing is badly dented.
P-3:	No concrete pad and no protective casing. Piezometer is not lockable.
OB-1:	Concrete pad is badly cracked.
OB-2:	Concrete pad is crumbled.

To regain compliance with the requirements of OAC Rule 3745-27-10(B)(3)(e), the owner/operator needs to either perform the necessary repair/maintenance for the piezometers or properly abandon them and submit appropriate documentation of the work performed to Ohio EPA.

More Information Needed to Determine Compliance

2. **Compliance with the requirements of OAC Rule 3745-27-10(C)(1)(c) cannot be determined at this time. To assure compliance with the requirements of this rule, the Sampling & Analysis Plan (SAP) needs to be revised to clearly document the placement of the pump intake for low-flow purging and sampling.**

   OAC Rule 3745-27-10(C)(1)(c) requires that the SAP document the procedures and techniques for well purging and sampling.

   Most of the monitoring wells at the facility are purged and sampled using a non-dedicated pump and low-flow techniques. In using a non-dedicated pump to perform low-flow purging and sampling, an important practice in assuring the collection of representative ground water samples is that the pump intake be placed within the well screen interval. However, while the sampling crew practiced this procedure during the inspection, this procedure is not specified within the SAP.

   Therefore, to assure compliance with the requirements of OAC Rule 3745-27-10(C)(1)(c), the SAP needs to be revised to clearly document the placement of the pump intake within the well screen interval for low-flow purging and sampling.

3. **To assure compliance with the requirements of OAC Rule 3745-27-10(C)(1), the SAP needs to be revised to document the recent inclusion of P-47 in the down-gradient monitoring network.**

   P-47 was recently added to the ground water monitoring program as a down-gradient monitoring well. However, the SAP has not yet been updated to document the inclusion of P-47 in the down-gradient monitoring network.

Recommendations

4. **Ohio EPA recommends that the Sampling & Analysis Plan (SAP) be revised to state that a copy of the SAP will be taken in the field during ground water sampling events.**

   It is generally good practice to take a copy of the SAP in the field during ground water sampling events as the field crew did for this sampling event. However, the SAP does not state that this practice will be followed.

5. **Ohio EPA recommends that the SAP be revised to state that for bailed wells with turbidity issues, the metals bottles can be filled immediately after the bottles for VOC analysis.**

   The SAP lists the order in which the sample bottles will be filled as *"VOCs, SVOCs, Cyanide, Inorganics, Other General Chemistry (non-preserved), and metals."*.

   However, for wells with turbidity issues (such as wells that purge dry and recover slowly), it may be best to collect the sample for metals analysis immediately after the VOC samples. This is because, for slow-recovering wells, the top of the water column often has the lowest turbidity with turbidity increasing with depth in the water column. Further, it typically requires several full bailers to collect the sample volume for a well. Therefore, as the SAP specifies that the bottles for metals analysis be filled last, the turbidity of the samples for metals analysis from slow-recovering bailed wells might be unnecessarily high and potentially not representative.

   Therefore, to help ensure representative low-turbidity samples for metals analysis, Ohio EPA recommends that the SAP be revised to state that for bailed wells with turbidity issues, the metals bottles can be filled immediately after the bottles for VOC analysis.

The owner/ operator 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 owner/operator is requested to provide documentation to this office including the steps taken to abate the violation 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 tyler.madeker@epa.ohio.gov.

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

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

Sincerely,

Tyler Madeker, R.S.
Environmental Specialist
Division of Materials and Waste Management

/llr

Attachment

pc: Jared Boger, Marion County Health Department - w/ attachment
John DiNunzio, CEC Inc. - w/ attachment
File: DMWM-SW; Marion County, Marion City Landfill, Groundwater - w/ attachment

ec: Ken Brock, DDAGW-NWDO
Tim Fishbaugh, DDAGW-NWDO
Andy Drumm, DMWM-NWDO
Mike Reiser, DMWM-NWDO
5-11520

GROUND WATER INSPECTION CHECKLIST

Site/Facility Name: **Marion City Landfill**	Inspection Date: **April 25-26, 2012**
Site/Facility Address: **State Route 95, Marion, Ohio** Site/Facility Status (circle one): Operating (Closed)	Ohio EPA ID#: **51-00-01** District: **NW**
Client Division/Program (check applicable) DSIWM DHWM MSW__X_____ Interim Standards (65-90 to 94) Ind_____ Final Standards (54-90 to 100) Res_____ CA/IGWMP (54-01)_____ CDD	 DERR DSW Remedial Response_____ VAP
Site/Facility Contact, Name & Title:	
Client Division Contact: **Tyler Madeker**	DDAGW Geologist: **Ken Brock**
Names and company affiliations of facility or consulting personnel performing field monitoring and sampling activities: 1. **Dave Benecke, Nick Bohland, Chelsea F., Inc.** 2.	

Documentation Reviewed Prior to Field Inspection

Ground Water Sampling and Analysis Plan

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

1. Has the current SAP been formally reviewed by DDAGW?	Yes X No	If yes, document date: **September 2010** Approval date (if applicable):
2. The current SAP is: (circle one)	(a stand alone document?) included in another document?	If another document, specify:

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

September 2010: Multiple revisions with modifications too complex to list herein

Other Sources of Documentation

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

Document:	Yes	No	N/A	Comments:
1. Approved Permit?			X	If yes, date approved:
2. Approved Closure Plan?		X		If yes, date approved:
3. Final enforcement actions between AGO/Ohio EPA and facility?			X	If yes, date signed:
4. Current GWDMP?			X	If yes, document date:
5. Current GWQAP?			X	If yes, document date:
6. Current GWCMP?	X			If yes, document date: **September 2010**
7. Previous Ohio EPA inspection?	X			If yes, inspection date: **10/97, 4/00, 4/03, 4/06, 4/09**

Monitoring Well System

Maintenance & Sampling Information:	Yes	No	NA	Comments:
1. Do the actual number, locations, and depths of the wells sampled correspond to the SAP or other governing document?	X			See Comment No. 2
2. Are the wells maintained properly? (Please refer to the attached *Ground Water Monitoring Well Inspection Form*)	X			
3. Are there bumper guards around the wells ?	X	X		Some yes – some no
4. Are there additional monitoring wells or piezometers present at the site that are not currently used as part of the ground water monitoring program?	X			
a) If so, were they also inspected during this visit?	X			
b) If inspected, are they constructed/maintained properly? If inspected, please include these wells on the attached *Ground Water Monitoring Well Inspection Form.* If not inspected, please indicate why in the Comments column.		X		See Comment No. 1
5. Additional comments				

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

Sampling & Analysis Plan Requirements and Field Procedures

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

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

Well Identification: Specify well numbers where ground water purging and sampling procedures were observed by Ohio EPA.	**Wells:** W-40, W-45R, P-47						
	SAP Requirement?			**Field Instrumentation**			**Comments:**
	Yes	**No**	**N/A**	**Yes**	**No**	**N/A**	
1. Does the person performing the sampling have a copy of the most current SAP with him/her in the field or is one available at the site?		X		X			See Comment No. 4
2. Measuring ground water levels/elevations (and surface water levels/elevations, if applicable), including:							
a) Measuring ground water levels (and if applicable, surface water levels) within a 24-hour period?	X			X			
b) Measuring ground water levels prior to purging and sampling?	X			X			
c) Measuring ground water levels (and if applicable, surface water levels) to an accuracy of at least 0.01 ft?	X			X			

	SAP Requirement?			Field Instrumentation			Comments:
	Yes	No	N/A	Yes	No	N/A	
2. Measuring ground water levels/elevations, cont. : **d)** Using a reference point established at the top of each well casing (and at each surface water sampling point, if applicable) to measure each water level?	X			X			
e) Procedures for documenting and measuring both dense non-aqueous phase liquid (DNAPL) and light non-aqueous phase liquid (LNAPL)?	X					X	If VOCs become an issue
f) Is the total depth for each well measured? If so, does it match the total depth of the well documented on the well log? If not, what is the facility's schedule for measuring and evaluating total depths?	X	X		X			Annually – measured this event
g) Type(s) of device(s) used to measure water levels and total depths?	**SAP:** Elec. Meter			**Field:** Elec. Meter			
h) Are water levels used for determining ground water flow direction recorded on the field form with well purging and sampling information or on a separate field form?	**SAP:** Same Form			**Field:** Same Form			
3. Well Purging (Generic to all methods): **a)** Specify purging method(s) used for each well observed.	**SAP:** Sub/bladder pump or bailer			**Field:** Bladder pump or bailer			
(1) Volumetric Purge?	Yes			Yes			
(2) Low Flow?	NA			Yes			
(3) Minimum/No Purge?	NA			No			
(4) Purge to Dryness	Yes			Yes			
(5) Other: _____	NA			N/A			
b) Type of equipment used to purge each well observed. (Type /material) (Note: Specify particular type of pump or bailer)	**SAP:** Sub/bladder pump or bailer			**Field:** Bladder pump or bailer			
c) Is purging equipment dedicated?	X	X		X	X		Bailers yes – pump no
d) If equipment is not dedicated, was the equipment properly decontaminated?	X			X			
e) If bailers are used, specify the type of cord used with the bailer.	**SAP:** Disposable			**Field:** Polyprop.			
4. For Volumetric Purging: **a)** Was the volume of water in the well column determined?	X			X			
b) Was the purging performed in a manner that minimizes mixing and aeration of the water column?	X			X			
c) Were all SAP field stabilization parameters obtained to properly determine when purging is adequate?				X			
(1) List stabilization parameters obtained:	**SAP:** pH, temp, cond.			**Field:** pH, temp, cond.			
(2) Were stabilization parameters taken every 1 to 1/2 well volumes?	X					X	Volumetric purge wells bail dry quickly
(3) Was it demonstrated that three consecutive measurements were within their respective stabilization criteria?	X					X	Volumetric purge wells bail dry quickly
d) Were samples obtained immediately after purging?	X				X		After water level recovers

	SAP Requirement?			Field Instrumentation			Comments:
	Yes	No	N/A	Yes	No	N/A	
5. For Low-Flow Purging:							
a) Was water level drawdown measured during purging?	X			X			
b) Was it demonstrated that drawdown stabilized?	X			X			
c) Specify location of pump.	**SAP:** Doesn't say			**Field:** In screen			**See Comment No. 2**
d) What was the purging rate?	**SAP:** 100-1000 ml			**Field:** <1000 ml			
e) Were all SAP field stabilization parameters obtained to properly determine when purging is adequate?	X			X			
(1) List stabilization parameters obtained:	**SAP:** pH, Temp., cond, Turb.			**Field:** pH, Temp., cond, Turb.			
(2) Were stabilization parameters taken every 3 to 5 minutes?	X			X			
(3) Was it demonstrated that three consecutive measurements were within their respective stabilization criteria?	X			X			
f) Were samples obtained immediately after purging?	X			X			
6. For Minimum/No Purge:							
a) If the pump was not dedicated, was the pump placed far enough in advance so that the effect of the pump installation has completely dissipated?			X			X	
b) Specify the location of the pump.	**SAP:** NA			**Field:** NA			
c) Were steps taken to prevent stagnant water from entering the well?			X			X	
(1) Was drawdown measured during purging?			X			X	
(2) Was the amount of drawdown no more than the distance from the top of the screen and the position of the pump intake within the screen, minus a 2 foot safety margin maintained?			X			X	
(3) If other, specify .	**SAP:** NA			**Field:** NA			
7. For Purging to Dryness: Were samples taken as soon as sufficient water was available?	X			X			
8. Field parameters for ground water, surface water, and/or leachate, including:							
a) Are field analyses of temperature, pH, and specific conductance performed?	X			X			
b) Are field parameters checked after purging and before sampling?	X			X			
9. Ground water (and if applicable, surface water or leachate) sample collection, including:	**SAP:** See above			**Field:** See above			
a) Specify sample collection methods and equipment used:							
b) Is the ground water sampling equipment dedicated?	X	X		X	X		Bailers yes – pump no
c) If applicable, is the well sampling order from least to most contaminated?	X			X			
d) Are sample containers filled in order of parameter volatilization sensitivity, *e.g.*, VOCs, SVOCs, total metals?	X			X			**See Comment No. 5**
e) If bailers are used, samples collected in a manner that minimizes aeration of the well water column?	X			X			

	SAP Requirement?			Field Instrumentation			Comments:
	Yes	No	N/A	Yes	No	N/A	
9. Ground water sample collection, cont. : **f)** Specify type of cord or wire used with sampling bailers:	**SAP:** Disposable			**Field:** Polyprop.			
g) If used, are bladder pumps operated in a manner that prevents sample aeration and minimizes sample turbidity?	X			X			
h) Are pumps (all types) operated at a rate low enough to prevent sample aeration and minimize sample turbidity?	X			X			
10. Calibration of field monitoring and analytical equipment: **a)** Is each device calibrated to its manufacturer's specifications?	X			X			
b) Is each device calibrated prior to use in accordance with the SAP?				X			
c) Are all calibration procedures and/or equipment maintenance (and the date(s) performed) documented on field forms or in a field log book?	X			X			
11. Equipment decontamination, including: **a)** If applicable, is all non-dedicated monitoring, purging, and sampling equipment decontaminated between sampling locations in accordance with the SAP?				X			
b) Is clean or decontaminated sampling equipment placed on the ground or in other potentially contaminated areas prior to use?		X			X		
c) Are all decontamination fluids contained and disposed in accordance with the SAP?				X			SAP doesn't specify, but none are required
12. Purge water disposal, including: **a)** If previous monitoring results indicate that a well has not been contaminated, is all purge water disposed in an area where it cannot affect purging or sampling activities at any sampling location during the ongoing event?	X			X			
b) If previous monitoring results indicate that a well has been contaminated, or if the ground water is known to be contaminated, is all purge water properly contained, stored, transported, and disposed per applicable federal, state, and local laws?	X	X		X			Dumped on ground if below MCLs
13. Field sample preparation, including: **a)** Sample containers and handling: *(1)* Are all sample containers pre-cleaned and provided by the laboratory?	X			X			
(2) Are any samples field filtered prior to being transferred to their appropriate containers?		X			X		
(3) Are samples transferred directly from the sampling device to their appropriate containers in a manner that minimizes agitation and aeration?	X			X			

	SAP Requirement?			Field Instrumentation			Comments:
	Yes	No	N/A	Yes	No	N/A	
13. Field sample preparation, cont. :							
(4) Are VOC sample containers completely filled to form a meniscus and capped in a prompt manner to minimize volatilization?	X			X			
(5) Are VOC containers checked for air bubbles after filling and capping?	X			X			
b) Sample preservation (per SW-846, Revision 1, 12/96, Chapter 2, Table 2-36):							
(1) To the extent applicable, are samples for all organic parameters, PCBs, chromium VI, phenols, coliform bacteria, oil and grease, pesticides, specific conductance, **alkalinity**, COD, cyanide, **nitrate/nitrite**, phosphorous, **sulfate**, sulfide, **TDS**, TOC, and/or turbidity immediately placed in a cooler with ice for preservation at 4° C?	X	X		X	X		Acid-preserved, but not in-field
(2) Are VOC samples field-acidified to pH < 2 with HCl?	X	X		X	X		Acid-preserved, but not in-field
(3) To the extent applicable, are samples for **metals** and/or radiological parameters (gross alpha, gross beta, radium); endrin; lindane; methoxychlor; toxaphene; 2,4-D; and/or 2,4,5-TP Silvex field-acidified to pH < 2 with HNO_3?	X	X		X	X		Acid-preserved, but not in-field
(4) To the extent applicable, are samples for phenols,oil and grease, **ammonia**, COD, **nitrate/nitrite**,phosphorous, TOX, and/or TOC field-acidified to pH <2 with H_2SO_4?	X	X		X	X		Acid-preserved, but not in-field
(5) Are CN samples field-preserved pH>12/50% w/NaOH?			X			X	
c) Sample labeling:							
(1) Unique sample (field) identification number that clearly associates the sample and the sampling location?	X			X			
(2) Facility/site name?	X			X			
(3) Sample type (matrix) and date and time of collection?	X			X			
(4) Parameters and analyses requested?	X			X			
(5) Sample preservatives?	X			X			
(6) Name or initials of sampler and company affiliation?	X			X			
(7) Is an indelible pen or marker used to complete sample labels?		X		X			
(8) Are sample labels secured and protected to ensure legibility when delivered to the laboratory?	X	X		X	X		Secured, but not protected
14. Field Quality Assurance/Quality Control (QA/QC), including:							
a) Use of standard procedures that ensure the validity and reliability of field and laboratory data, as well as representative analytical results?	X			X			

	SAP Requirement?			Field Instrumentation			Comments:
	Yes	No	N/A	Yes	No	N/A	
14. Field Quality Assurance/Quality Control, cont. :							
b) Documentation of all deviations from SAP-required procedures?	X			X			
c) Collection of the following QA/QC samples in accordance with the SAP:							
(1) Duplicate samples?	X			X			
(2) Field blanks?	X						Not observed
(3) Equipment blanks?	X						Not observed
(4) Trip blanks?	X			X			
d) Collection of all necessary laboratory QA/QC samples (*e.g.*, matrix spike, matrix spike duplicate)?			X			X	Lab does not require additional volume/samples
15. Chain-of-Custody (COC) procedures, including:				X			
a) Are all SAP-required COC procedures followed? (If not, explain why.)							
b) Are standardized COC forms used to establish a complete custody record from the field to the laboratory for all samples?	X			X			
c) Is the following field and laboratory information properly documented on the COC form to provide effective sample tracking and to ensure that samples are not misidentified; are properly preserved; and are properly analyzed?							
(1) Address and contact information for the site/facility, laboratory, and, if applicable, all consulting firms performing sampling?	X			X			
(2) Unique sample (field) identification numbers that clearly associate the sampling location and sample?	X			X			
(3) Sample type (matrix) and date and time of collection?	X			X			
(4) Requested parameters, or a reference for the requested parameters?	X			X			
(5) Requested analytical methods, or a reference for the requested analytical methods?	X			X			
(6) Types of sampling containers used, or a reference for the types of sampling containers used?	X			X			
(7) Types of sample preservatives used, or a reference for the types of sample preservatives used?	X			X			
(8) Sample shipping information, including but not limited to the transporter(s), tracking #(s), and delivery time frame(s)?	X			X			
(9) Legible names (printed) and signatures of all field and laboratory personnel relinquishing and/or receiving the samples and inclusive dates and times of possession that provide a complete record of sample custody? (Names and signatures of commercial shipping personnel are not required.)	X			X			
d) Are custody seals (signed by the sampler) placed on sample coolers prior to shipment to indicate if the cooler has been opened or tampered with during shipment?	X			X			

	SAP Requirement?			Field Instrumentation			Comments:
	Yes	No	N/A	Yes	No	N/A	
16. Is the following sampling and water level elevation information properly documented on field forms or in a field log book for each well, surface water, or leachate sampling location observed?							
a) Monitoring program (detection, assessment, or compliance) identified?		X			X		
b) Correct reference to well identification number or specific well location?	X			X			
c) Static ground water level (elevation), associated measurement technique, date, and time?	X			X			
d) Surface water level (elevation), associated measurement technique, date, and time?			X			X	
e) Total depth and associated measurement technique for each well?	X			X			
f) Presence and thickness of immiscible layers and associated measurement technique?	X					X	
g) Well purging procedures and all associated SAP-required information?							SAP-required info documented throughout this form
h) Field analyses procedures and all associated SAP-required information?							SAP-required info documented throughout this form
i) Sampling procedures and all associated SAP-required information?							SAP-required info documented throughout this form
j) Field observations, including but not limited to unusual sample characteristics (appearance, odor, *etc.*), unusual well recharge rates, apparent well damage, potential contamination sources, and unusual climatic conditions?	X			X			
k) Equipment malfunction(s)?	X					X	
l) Any deviations from the SAP and explanation of why such modifications were necessary?	X					X	
m) Sampling team personnel and company affiliation?	X			X			
17. Are copies of all field forms (and/or field log book), COC forms, and sample shipping documents stored at the site/facility as part of the operating record?		X				X	Closed facility

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

Additional Comments & Notes:

GROUND WATER MONITORING WELL FIELD INSPECTION FORM

Monitoring Wells

Marion City Landfill

April 25-26, 2012

Well Identification Number:	W-27	W-40	W-13	W-25	W-28	W-33	W-39	W-45
Correct location?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clearly and correctly labeled?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Locked prior to arrival at well location?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ground water depth:	16.17	-	19.04	19.82	16.80	18.91	21.91	-
Well total depth:	34.15	-	34.15	26.83	31.28	35.52	38.43	-
For above ground completions: a) Protective outer casing present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(1) Condition?	Good	Good	Good	Good	Good	Good	Good	Good
(2) Locking cap? Condition?	Good	Good	Good	Good	Good	Good	Good	Good
(3) Weep hole present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(4) Standing water between protective casing & well casing?	No	No	No	No	No	No	No	No
b) Surface seal/apron present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(1) Condition?	Good	Good	Good	Good	Good	Good	Good	Good
(2) Ponded surface water?	No	No	No	No	No	No	No	No
For flush mount completions: a) Well vault present?	NA	NA	NA	NA	NA	NA	NA	NA
(1) Condition?	NA	NA	NA	NA	NA	NA	NA	NA
(2) Covered with bolted vault lid?	NA	NA	NA	NA	NA	NA	NA	NA
(3) Standing water in vault? Covering top of inner casing?	NA	NA	NA	NA	NA	NA	NA	NA
b) Surface seal/apron present?	NA	NA	NA	NA	NA	NA	NA	NA
(1) Condition?	NA	NA	NA	NA	NA	NA	NA	NA
(2) Raised at least slightly above grade and sloped away from the top of the vault?	NA	NA	NA	NA	NA	NA	NA	NA
(3) Ponded surface water on top of vault lid?	NA	NA	NA	NA	NA	NA	NA	NA
Well (inner) Inner well casing condition?	Good	Good	Good	Good	Good	Good	Good	Good
a) Material?	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC
b) Survey reference mark?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
c) Cap present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
d) If the completion is flush mount, is the cap expandable and locking?	NA	NA	NA	NA	NA	NA	NA	NA
e) Condition of casing and cap?	Good	Good	Good	Good	Good	Good	Good	Good

Additional Comments:

GROUND WATER MONITORING WELL FIELD INSPECTION FORM

Monitoring Wells

Marion City Landfill

April 25-26, 2012

Well Identification Number:	W-46	P-47						
Correct location?	Yes	Yes						
Clearly and correctly labeled?	Yes	Yes						
Locked prior to arrival at well location?	Yes	Yes						
Ground water depth:	18.23	-						
Well total depth:	29.12	-						
For above ground completions: a) Protective outer casing present?	Yes	Yes						
(1) Condition?	Good	Good						
(2) Locking cap? Condition?	Good	Good						
(3) Weep hole present?	Yes	Yes						
(4) Standing water between protective casing & well casing?	No	No						
b) Surface seal/apron present?	Yes	Yes						
(1) Condition?	Good	Good						
(2) Ponded surface water?	No	No						
For flush mount completions: a) Well vault present?	NA	NA						
(1) Condition?	NA	NA						
(2) Covered with bolted vault lid?	NA	NA						
(3) Standing water in vault? Covering top of inner casing?	NA	NA						
b) Surface seal/apron present?	NA	NA						
(1) Condition?	NA	NA						
(2) Raised at least slightly above grade and sloped away from the top of the vault?	NA	NA						
(3) Ponded surface water on top of vault lid?	NA	NA						
Well (inner) Inner well casing condition?	Good	Good						
a) Material?	2" PVC	2" PVC						
b) Survey reference mark?	Yes	Yes						
c) Cap present?	Yes	Yes						
d) If the completion is flush mount, is the cap expandable and locking?	NA	NA						
e) Condition of casing and cap?	Good	Good						

Additional Comments:

GROUND WATER MONITORING WELL FIELD INSPECTION FORM

Piezometers

Marion City Landfill

April 25-26, 2012

Well Identification Number:	P-1	P-3	OB-1	OB-2	W-7	W-13	W-16	W-18
Correct location?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clearly and correctly labeled?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Locked prior to arrival at well location?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ground water depth:	-	-	-	-	-	-	-	-
Well total depth:	-	-	-	-	-	-	-	-
For above ground completions: a) Protective outer casing present?	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
(1) Condition?	Dented	N/A	Good	Good	Good	Good	Good	Good
(2) Locking cap? Condition?	Good	No	Good	Good	Good	Good	Good	Good
(3) Weep hole present?	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes
(4) Standing water between protective casing & well casing?	No	N/A	No	No	No	No	No	No
b) Surface seal/apron present?	No	No	Yes	Yes	Yes	Yes	Yes	Yes
(1) Condition?	N/A	N/A	Cracked	Crumbled	Good	Good	Good	Good
(2) Ponded surface water?	No	No	No	No	No	No	No	No
For flush mount completions: a) Well vault present?	NA	NA	NA	NA	NA	NA	NA	NA
(1) Condition?	NA	NA	NA	NA	NA	NA	NA	NA
(2) Covered with bolted vault lid?	NA	NA	NA	NA	NA	NA	NA	NA
(3) Standing water in vault? Covering top of inner casing?	NA	NA	NA	NA	NA	NA	NA	NA
b) Surface seal/apron present?	NA	NA	NA	NA	NA	NA	NA	NA
(1) Condition?	NA	NA	NA	NA	NA	NA	NA	NA
(2) Raised at least slightly above grade and sloped away from the top of the vault?	NA	NA	NA	NA	NA	NA	NA	NA
(3) Ponded surface water on top of vault lid?	NA	NA	NA	NA	NA	NA	NA	NA
Well (inner) Inner well casing condition?	Good	Good	Good	Good	Good	Good	Good	Good
a) Material?	4" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC
b) Survey reference mark?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
c) Cap present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
d) If the completion is flush mount, is the cap expandable and locking?	NA	NA	NA	NA	NA	NA	NA	NA
e) Condition of casing and cap?	Good	Good	Good	Good	Good	Good	Good	Good

Additional Comments: Concrete pads were absent at P-1 and P-3 and damaged at OB-1 and OB-2. Outer protective casings were absent at P-3 and damaged at P-1.

GROUND WATER MONITORING WELL FIELD INSPECTION FORM

Piezometers

Marion City Landfill

April 25-26, 2012

Well Identification Number:	W-21	W-22	W-24	W-29	W-30	W-31	W-33	W-34
Correct location?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clearly and correctly labeled?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Locked prior to arrival at well location?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ground water depth:	-	-	-	-	-	-	-	-
Well total depth:	-	-	-	-	-	-	-	-
For above ground completions: a) Protective outer casing present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(1) Condition?	Good	Good	Good	Good	Good	Good	Good	Good
(2) Locking cap? Condition?	Good	Good	Good	Good	Good	Good	Good	Good
(3) Weep hole present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(4) Standing water between protective casing & well casing?	No	No	No	No	No	No	No	No
b) Surface seal/apron present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
(1) Condition?	Good	Good	Good	Good	Good	Good	Good	Good
(2) Ponded surface water?	No	No	No	No	No	No	No	No
For flush mount completions: a) Well vault present?	NA	NA	NA	NA	NA	NA	NA	NA
(1) Condition?	NA	NA	NA	NA	NA	NA	NA	NA
(2) Covered with bolted vault lid?	NA	NA	NA	NA	NA	NA	NA	NA
(3) Standing water in vault? Covering top of inner casing?	NA	NA	NA	NA	NA	NA	NA	NA
b) Surface seal/apron present?	NA	NA	NA	NA	NA	NA	NA	NA
(1) Condition?	NA	NA	NA	NA	NA	NA	NA	NA
(2) Raised at least slightly above grade and sloped away from the top of the vault?	NA	NA	NA	NA	NA	NA	NA	NA
(3) Ponded surface water on top of vault lid?	NA	NA	NA	NA	NA	NA	NA	NA
Well (inner) Inner well casing condition?	Good	Good	Good	Good	Good	Good	Good	Good
a) Material?	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC	2" PVC
b) Survey reference mark?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
c) Cap present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
d) If the completion is flush mount, is the cap expandable and locking?	NA	NA	NA	NA	NA	NA	NA	NA
e) Condition of casing and cap?	Good	Good	Good	Good	Good	Good	Good	Good

Additional Comments:

GROUND WATER MONITORING WELL FIELD INSPECTION FORM

Piezometers

Marion City Landfill

April 25-26, 2012

Well Identification Number:	**W-37**	**W-39**						
Correct location?	Yes	Yes						
Clearly and correctly labeled?	Yes	Yes						
Locked prior to arrival at well location?	Yes	Yes						
Ground water depth:	-	-						
Well total depth:	-	-						
For above ground completions:	Yes	Yes						
a) Protective outer casing present?								
(1) Condition?	Good	Good						
(2) Locking cap? Condition?	Good	Good						
(3) Weep hole present?	Yes	Yes						
(4) Standing water between protective casing & well casing?	No	No						
b) Surface seal/apron present?	Yes	Yes						
(1) Condition?	Good	Good						
(2) Ponded surface water?	No	No						
For flush mount completions:	NA	NA						
a) Well vault present?								
(1) Condition?	NA	NA						
(2) Covered with bolted vault lid?	NA	NA						
(3) Standing water in vault? Covering top of inner casing?	NA	NA						
b) Surface seal/apron present?	NA	NA						
(1) Condition?	NA	NA						
(2) Raised at least slightly above grade and sloped away from the top of the vault?	NA	NA						
(3) Ponded surface water on top of vault lid?	NA	NA						
Well (inner) Inner well casing condition?	Good	Good						
a) Material?	2" PVC	2" PVC						
b) Survey reference mark?	Yes	Yes						
c) Cap present?	Yes	Yes						
d) If the completion is flush mount, is the cap expandable and locking?	NA	NA						
e) Condition of casing and cap?	Good	Good						

Additional Comments: