ground water

OhioEPA

State of Ohio Environmental Protection Agency

Northwest District Office

347 North Dunbridge Road
Bowling Green, OH 43402-9398

TELE: (419) 352-8461 FAX: (419) 352-8468
www.epa.state.oh.us

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

August 8, 2007

Mr. Kenneth Humphrey
Environmental Director
Envirosafe Services of Ohio, Inc.
876 Otter Creek Road
Oregon, Ohio 43616-1200

Subject: **ESOI Otter Creek Road Facility**
2007 Ground Water O&M Inspection Report
Notice of Violation and Return to Compliance
RCRA Hazardous Waste
OHD 045 243 706 / 03-48-0092
Lucas County

Dear Mr. Humphrey:

Enclosed is the inspection checklist and field inspection forms for the 2007 Operation and Maintenance Inspection (O&M) that was conducted by Ohio EPA on April 2, 2007 (IGWMP bedrock well inspection), April 3, 2007 (IGWMP till well inspection), April 17, 2007 (investigation well inspection), March 29, 2007 and April 19, 2007 (IGWMP sampling observation), June 5, 2007 (IGWMP total well depth measurement observation), and July 11, 2007 (exit interview), at the Envirosafe Services of Ohio, Inc. (ESOI) Otter Creek Road facility in Oregon, Ohio. The site inspection was conducted by Mike Beal, Ohio EPA Division of Drinking and Ground Waters (DDAGW) and Chris Maslo, Ohio EPA Division of Hazardous Waste Management (DHWM). Sue Richards and Mike Styles represented ESOI during the inspection.

The objective of the O&M is to determine whether ESOI has operated and maintained its ground water monitoring system in accordance with the applicable portions of the Ohio Administrative Code (OAC), the terms and conditions of ESOI's Ohio Hazardous Waste Facility Installation and Operation Permit (number 03-48-0092), and whether the ground water monitoring system will ensure that representative ground water samples are obtained. The applicable portions of the OAC rules are chapters 3745-9-03, 3745-54-15, 3745-54-73, 3745-54-75, 3745-54-77 and 3745-54-90 through 3745-54-101.

During the 2007 O&M, Ohio EPA personnel observed and determined the adequacy of the ground water sampling procedures, obtained ground water surface elevations, verified the locations of monitoring wells, evaluated surficial monitoring well construction and integrity, and reviewed written records pertaining to the operation and maintenance of the ground water monitoring program. Split samples were collected for volatile organic compounds at monitoring wells M-19D, M-19S, R-6, R-8, R-23, and R-24. Split sample analytical results will be reviewed when Ohio EPA reviews ESOI's Preliminary Report of Groundwater Quality for the April 2007 sampling event.

The 2007 O&M inspection resulted in one violation and several recommendations.

Violation

1. **In accordance with Permit Condition I.2.(e)(iv),** "The Permittee must inspect the ground water monitoring wells on a weekly basis. All ground water monitoring wells must have locking caps and remain locked except when being sampled."

   Post-closure monitoring wells I-5SA, R-10, R-14 and DUG-1 were found unlocked during the April 2 and 3, 2007 well inspection.

   ESOI locked the wells at the time of the inspection. Therefore, ESOI has adequately abated the violation of Permit Condition I.2.(e)(iv).

Recommendations

2. The construction of monitoring wells must be designed and maintained to protect the annular seal and inner casing in order to prevent contamination of ground water. In addition, monitoring wells need to be labeled to ensure that fluid level measurements and analysis results are correlated to the correct well location.

   Ohio EPA recommends that ESOI conduct the following well maintenance to protect ground water quality, ensure ground water data is representative, ensure data is associated with the correct location, and allow for an accurate evaluation of the data. Ohio EPA also requests that ESOI include copies of completed monthly monitoring well inspection forms in all future final semiannual ground water data reports.

   (a) IGWMP Wells

      (i) The following wells need a casing cap/bag: R-1; R-6; R-7; R-8; R-10; R-11; R-12; R-13; R-16; R-19; R-20; R-22; R-24; F-1DA; F-1S; G-1S; G-2DA; G-3; G-4S; G-6; H-1D; H-2D; H-3D; H-4D; H-4S; I-3D; I-4D; I-5SA; I-8S; M-1D; M-2DM-2S M-4D; M-6D; M-9D; M-12D; M-12S; M-13D; M-13S; M-14D; M-16D; M-16S; M-17D; M-17S; M-18D; M-19D; M-20D; M-21D; M-21S; M-23-S; MR-3D; MR-3S; SW-1S; SW-2S; SW-3S; and SW-3D.

      (ii) Below grade wells M-5S and R-18 need sealing well caps.

      (iii) Chart recorder wells do not have casing sealing caps. A metal protective housing acts as the sealing well cap. At well DUG-1 the protective housing/lid was not sealing up the well and a mouse had built a nest inside the protective housing. At well DDG-3 the protective housing/lid was not sealing and wasps built a nest inside the well housing. Ohio EPA recommends that a casing cap be used inside the protective housing.

(iv) The following wells need the seal around the casing repaired: R-8; DUG-1; DUG-2; F-3S; and I-4S.

(v) Wells R-23 and R-24 need weep holes in the outer casings.

(vi) The following wells need relabeled: F-2D; G-1DA; G-7; M-2S; M-6D; M-8D; M-10S; M-14D; and MR-1DA.

(vii) The inner casing seal at well H-3S needs repaired. Grout came up through the sand, which could block weephole drainage.

(viii) Well M-5D was found with water between the casings. The inner casing seal and outer casing weephole should be designed and repaired to prevent the collection of water between the casings.

(ix) Well SW-3S needs the survey mark re-marked.

(x) The weep hole in protective vault at well M-9D needs to be unplugged.

(xi) The protective casing well lid at well MR-2S is damaged and needs to be repaired.

(xii) During split sampling at well R-8, it was noted that the well was spurting some air during the end of each pump cycle. The condition of the pump bladder should be checked.

(b) Investigation Wells

(i) One-inch Northern Sanitary Landfill RCRA Facility Investigation (RFI) wells do not have protective casings and there are no locks to limit access. Specifically, the casing for well QE-360CC is broken above ground and well QE-280BB has a protective casing but the lid is broken. It is recommended that these wells be plugged and abandoned or protective casings and locks be installed.

(ii) Many of the RFI wells were not labeled. ESOI labeled them during the inspection using maps from RFI reports. However, the following wells still need labels: QD-2D; QD-5S; QD-5D; T-205S; and T-204S.

(iii) The following wells do not have a lid or plastic bag to keep debris from falling in the well: QE-200CC; T-25S; and T-52S. Well caps or plastic bags should be installed.

(iv) Well GR-1 was found without a cap and the well was producing water. A riser pipe extension was found on the ground and placed on the well. This well should be abandoned.

(v) The following locked wells could not be opened during the inspection: QD-1S; MB-2S; MB-1S; QD-5D; T-16D; MR-7S; T-23W; and T-36W. ESOI should replace the locks on these wells.

(vi) ESOI should investigate and properly abandon the following wells which were not found during the inspection: QE-280B; QE-370; QE-360; QE-80B; QE-160C; QE-160B; QE-360D; QE-360C; QE-400; QD-9; QD-9C; GR-9; QD-7; GR-7; and QD-200B. Alternatively, ESOI could locate the wells and install protective casings and locks.

(vii) The following wells had erosion around the protective seal: BG-1S and T-203D. The eroded area should be repaired.

(viii) Wells BG-1D and H-8S have a cracked well seal/pad. The well seal/pads should be repaired.

(ix) The following wells were found to be loose and wobbly: T-37W; T-37S; and T-56S. The well seal/pads should be repaired.

(x) The following wells need locks: T-205S; T-20S(8); and T-204S.

(xi) At well QE-440C the casing is broken off, the well is open, and the cement seal is broken. This well should be abandoned or repaired.

(xii) The following wells need weepholes: T-205S; T-15D; T-203D; T-203S; T-20S(8); T-204S; and T-54S.

(xiii) The following wells were found with water between the casings: T-22W; T-37W; T-42S; and T-52S. The inner casing seal and outer casing weepholes should be designed and repaired to prevent the collection of water between the casings.

(xiv) The following wells have a broken hinge on the protective casing lid: T-42S; T-52S; T-53S; and T-54S. The protective casing lids should be repaired.

(xv) Well T-207 had been knocked over by a cement truck during the construction of the cement pad for the leachate collection tanks. ESOI provided documentation during the July 11 O&M exit meeting that the well has been properly abandoned.

During the July 11, 2007 O&M exit meeting, ESOI indicated that most if not all of the well maintenance issues have been addressed and repair actions are discussed in the Preliminary Data Report submitted to Ohio EPA on July 2, 2007. At this time, Ohio EPA has not completed a review of this report.

Please submit a written response to the comments above no later than **August 31, 2007.** ESOI's response should include a timeline for completing the recommended well maintenance. In addition, ESOI's response will be used to determine the facility's compliance with OAC rules and ESOI's permit.

If you have any questions, please contact me at (419)373-4113 or Mike Beal, Division of Drinking and Ground Waters, at (419)373-3093. Any written correspondence should be sent to my attention at Ohio EPA, Northwest District Office, Division of Hazardous Waste Management, 347 North Dunbridge Road, Bowling Green, Ohio 43402.

Sincerely,

Lynn Ackerson

Lynn Ackerson
Environmental Specialist
Division of Hazardous Waste Management

/cs
Enclosure
pc: Cindy Lohrbach, DHWM, NWDO
Darla Peelle, PIC (w/enc.)
Oregon Document Depository – Site Monitoring (w/enc.)
DHWM, NWDO File – Ground Water (w/enc.)
ec: Mike Beal, DDAGW, NWDO
Lynn Ackerson, DHWM, NWDO
Colleen Weaver, DHWM, NWDO
Gary Deutschman, DHWM, NWDO
Michael Terpinski, DHWM, NWDO
Chris Maslo, DHWM, NWDO
Sue Richards, ESOI

NOTICE: Ohio EPA's failure to list specific deficiencies or violations in this letter does not relieve your company from having to comply with all applicable regulations.

Sampling & Analysis Plan Requirements and Field Procedures

Completing the "SAP 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 "recommendations".

Well Identification: Specify well numbers where ground water purging and sampling procedures were observed by Ohio EPA.	**Wells:** M-19D, M-19S, R-6, R-8, R-23, and R-20.

	SAP Requirement?			**Field Implementation**			**Comments Regarding SAP Requirements and/or Field Implementation:**
	Yes	**No**	**N/A**	**Yes**	**No**	**N/A**	
1. Does the person performing the sampling have a copy of the most current SAP with him/her in the field or is one available at the site?	X			X			
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			
d) Using a reference point established at the top of each well casing (and at each surface water sampling point, if applicable) to measure each water level?	X			X			

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
2. Measuring ground water levels/elevations, cont. :							
e) Procedures for documenting and measuring both dense non-aqueous phase liquid (DNAPL) and light non-aqueous phase /liquid (LNAPL)?	Yes					NA	
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?	Yes			Yes		NA	Total depth of well is checked when the pump is pulled for pump or well maintenance. Total depth was verified at monitoring well G-3D on June 21, 2007.
g) Type(s) of device(s) used to measure water levels and total depths?	**SAP:** electric water level prob and tape			**Field:** electric water level prob and tape			
h) Are water levels used for determining ground water flow direction recorded on the field form with well purging and sampling information or on a separate field form?	**SAP:** Both			**Field:** Both			Fluid Levels for Potentiometric maps are recorded on a separate form. When the well is purged and sampled the fluid level is recorded again on the well sampling log.
3. Well Purging (Generic to all methods):	**SAP:**			**Field:**			
a) Specify purging method(s) used for each well observed							
(1) Volumetric Purge?		X			X		
(2) Low Flow?		X					
(3) Minimum/No Purge?							
(4) Purge to Dryness		X			X		
(5) Other: _____							
b) Type of equipment used to purge each well observed. (Type/material) (Note: Specify particular type of pump or bailer)	**SAP:** well wizard bladder pump			**Field:** well wizard bladder pump			

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
3. Well Purging (Generic), cont. :							
c) Is purging equipment dedicated?	Yes			Yes			
d) If equipment is not dedicated, was the equipment properly decontaminated?						NA	
e) If bailers are used, specify the type of cord used with the bailer.	**SAP:**			**Field:** NA			
4. For Volumetric Purging:							
a) Was the volume of water in the well column determined?	Yes			Yes			
b) Was the purging performed in a manner that minimizes mixing and aeration of the water column?	Yes			Yes			
c) Were all SAP field stabilization parameters obtained to properly determine when purging is adequate?	Yes			Yes			
(1) List stabilization parameters obtained:	**SAP:** pH, conductivity, temperature, turbidity			**Field:** pH, conductivity, temperature, turbidity			
(2) Were stabilization parameters taken every 1 to 1 ½ well volumes?	Yes			Yes			
(3) Was it demonstrated that three consecutive measurements were within their respective stabilization criteria?	Yes			Yes			
d) Were samples obtained immediately after purging?	Yes and	No		Yes	No		slow producing till wells are sampled the following day within 24 hours of purging.
5. For Low-Flow Purging:							Low flow purging was not conducted this sampling event.
a) Was water level drawdown measured during purging?	Yes					NA	

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
5. For Low-Flow Purging, cont. : **b)** Was it demonstrated that drawdown stabilized?							
c) Specify location of pump.	**SAP:**			**Field:**			
d) What was the purging rate?	**SAP:**			**Field:**			
e) Were all SAP field stabilization parameters obtained to properly determine when purging is adequate?							
(1) List stabilization parameters obtained:	**SAP:**			**Field:**			
(2) Were stabilization parameters taken every 3 to 5 minutes?							
(3) Was it demonstrated that three consecutive measurements were within their respective stabilization criteria?							
f) Were samples obtained immediately after purging?							
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?			NA			NA	
b) Specify the location of the pump.	**SAP:**			**Field:**			
c) Were steps taken to prevent stagnant water from entering the well?							
(1) Was drawdown measured during purging?							

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
6. For Minimum/No Purge, cont. : *c) (2)* Was the amount of drawdown no more than the distance from the top of the screen and the position of the pump intake within the screen, minus a 2 foot safety margin maintained?							
(3) If other, specify .	**SAP:**			**Field:**			
7. For Purging to Dryness: Were samples taken as soon as sufficient water was available?	Yes			Yes			
8. Field parameters for ground water, surface water, and/or leachate, including: **a)** Are field analyses of temperature, pH, and specific conductance performed?	Yes			Yes			
b) Are field parameters checked after purging and before sampling?	Yes			Yes			
9. Ground water (and if applicable, surface water or leachate) sample collection, including: **a)** Specify sample collection methods and equipment used:	**SAP:** dedicated well wizard pumps			**Field:** dedicated well wizard pumps			
b) Is the ground water sampling equipment dedicated?	Yes			Yes			
c) If applicable, is the well sampling order from least to most contaminated?	Yes			Yes			

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

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

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
13. a) Sample containers and handling, cont.:							
(4) Are VOC sample containers completely filled to form a meniscus and capped in a prompt manner to minimize volatilization?	Yes			Yes			
(5) Are VOC containers checked for air bubbles after filling and capping?	Yes			Yes			
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?	Yes			Yes			
(2) Are VOC samples field-acidified to pH < 2 with HCl?	Yes			Yes			
(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?	Yes			Yes			
(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?	Yes			Yes			
(5) Are CN samples field-preserved pH>12/50% w/NaOH?	Yes			Yes			

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
13. Field Sample Preparation, cont. : c) Sample labeling: *(1)* Unique sample (field) identification number that clearly associates the sample and the sampling location?	Yes			Yes			IGWMP wells that need re-labeled are F-2D, G-1DA, G-7, M-2S, M-6D, M-8D, M-10S, M-14D and Mr-1DA. Many of the NSL and Phase II RFI wells were not labeled. Wlls were labeled during the inspection using maps from RFI reports. The following wells still need labeled: QD-2D; QD-5S; QD-5D; T-20S; and T-204S.
(2) Facility/site name?	Yes			Yes			
(3) Sample type (matrix) and date and time of collection?	Yes			Yes			
(4) Parameters and analyses requested?	Yes			Yes			
(5) Sample preservatives?	Yes			Yes			
(6) Name or initials of sampler and company affiliation?	Yes			Yes			
(7) Is an indelible pen or marker used to complete sample labels?	Yes			Yes			
(8) Are sample labels secured and protected to ensure legibility when delivered to the laboratory?	Yes			Yes			
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?	Yes			Yes			
b) Documentation of all deviations from SAP-required procedures?	Yes			Yes			

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
14. Field QA/QC, cont.:							
c) Collection of the following QA/QC samples in accordance with the SAP:							
(1) Duplicate samples?	Yes			Yes			
(2) Field blanks?	Yes			Yes			
(3) Equipment blanks?			NA			NA	
(4) Trip blanks?	Yes			Yes			
d) Collection of all necessary laboratory QA/QC samples (*e.g.*, matrix spike, matrix spike duplicate)?	Yes			Yes			
15. Chain-of-Custody (COC) procedures, including:							
a) Are all SAP-required COC procedures followed? (If not, explain why.)				Yes			
b) Are standardized COC forms used to establish a complete custody record from the field to the laboratory for all samples?	Yes			Yes			
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?	Yes			Yes			

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

	SAP Requirement?			Field Implementation			Comments Regarding SAP Requirements and/or Field Implementation:
	Yes	No	N/A	Yes	No	N/A	
16. Is the following sampling and water level elevation information properly documented on field forms or in a field log book for each well, surface water, or leachate sampling location observed? a) Monitoring program (detection, assessment, or compliance) identified?			NA			NA	
b) Correct reference to well identification number or specific well location?	Yes			Yes			
c) Static ground water level (elevation), associated measurement technique, date, and time?	Yes			Yes			
d) Surface water level (elevation), associated measurement technique, date, and time?			NA			NA	
e) Total depth and associated measurement technique for each well?	Yes					NA	Total depth measured when well maintenance is performed.
f) Presence and thickness of immiscible layers and associated measurement technique?	Yes					NA	
g) Well purging procedures and all associated SAP-required information?	Yes			Yes			
h) Field analyses procedures and all associated SAP-required information?	Yes			Yes			
i) Sampling procedures and all associated SAP-required information?	Yes			Yes			
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?	Yes			Yes			

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

Have all discrepancies between the SAP and the field implementation been described in the "Comment" 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:

Ohio EPA Ground Water Monitoring Well Field Inspection Form for the ESOI Facility - April 2 and 3, 2007

Well ID	Depth to Ground Water (ft)	Time	Comments
CR-1	40.86	10:30	Cell M, Locks broken/ not locked. No digital recorder installed.
DDG-1	33.66	12:53	Cell G, Digital recorder installed.
DDG-3	39.96	11:20	Cell I, No digital recorder installed. Wasp nest in well. Needs survey mark. Surface seal needs repared.
DUG-1	32.86	12:33	Cell F, Digital recorder installed. Small nest (mouse?) under cap. Only one lock on cap, 2nd lock added.
DUG-2	42.02	11:41	Cell H, No digital recorder installed. Added second lock.
F1DA	16.74	10:05	No bag. New bag added.
F1S	6.36	10:07	No bag. New bag added. Lock replaced.
F2D	9.86	5:03	
F2S	4.86	5:00	Needs relabeled.
F3D	15.26	5:08	Replaced bag.
F3S	7.68	5:09	Needs surface seal replaced around outter casing. Replaced bag.
G10A	24.37	10:00	Bag replaced.
G11	15.82	10:25	
G1DA	19.84	10:20	Needs relabeled. Bag replaced.
G1S	6.23	10:18	No bag. New bag added. Lock replaced.
G2DA	11.88	10:28	No bag. New bag added. Lock replaced.
G2S	9.32	10:30	
G3D	12.04	10:35	No bag. New bag added.
G3S	6.64	10:34	
G4S	6.14	3:14	No bag. New bag added.
G6	22.47	10:10	No bag. New bag added.
G7	22.14	10:03	Recommend relabeling. Bag replaced.
G8	19.88	10:15	Replaced lock.
G9	19.32	10:45	10:23 Could not unlock. 10:45 Cut lock off & replaced it.
H1D	16	4:25	No bag. New bag added.

Ohio EPA Ground Water Monitoring Well Field Inspection Form for the ESOI Facility - April 2 and 3, 2007

Well ID	Depth to Ground Water (ft)	Time	Comments
H1S	4.37	4:22	
H2D	7.21	4:35	No bag. New bag added.
H2S	3.09	4:34	
H3D	9.72	4:11	No bag. New bag added.
H3S	2.91	4:07	Bag replaced. Grout came up thru sand.
H4D	3.84	4:02	No bag. New bag installed.
H4S	3.29	4:04	No bag. New bag installed.
H5D	22.52	4:30	Replaced bag.
H5S	7.86	4:28	Replaced bag.
H6D	24.52	4:18	
H6S	7.14	4:17	
I3D	20.12	3:58	No bag. New bag added.
I3SA	7.36	3:56	
I4D	20.65	3:48	No bag. New bag added.
I4S	8.18	3:50	Replaced bag. Surface seal needs patched.
I5D	14.45	3:41	No survey mark present. Survey mark added.
I5SA	9.04	3:39	No lock. No bag. New locke & bag installed.
I6D	17.23	3:34	
I6S	6.86	3:32	Replaced old torn bag.
I7S	5.83	3:22	Replaced old torn bag.
I8S	6.09	3:18	No bag. New bag added.
L-1	NM		
M10D	10.86	1:09	
M10S	4.94	1:10	Needs to be relableed.
M11D	19.24	1:06	Bag replaced.

Well ID	Depth to Ground Water (ft)	Time	Comments
M11S	8.16	1:07	Bag replaced.
M12D	8.4	1:01	No bag. New bag added.
M12S	8.88	1:00	No bag. New bag added.
M13D	10.92	12:57	No bag. New bag added.
M13S	3.97	12:58	No bag. New bag added.
M14D	5.79	12:49	Needs to be relableled. No bag. New bag installed.
M14S	4.44	12:48	Bag replaced.
M15D	9.52	12:39	
M15S	4.25	12:40	
M16D	12.26	12:34	No bag. New bag added.
M16S	4.2	12:33	No bag. New bag added. New Llock put on.
M17D	16.49	12:30	No bag. New bag added.
M17S	5.7	12:31	No bag. New bag added.
M18D	15.37	12:27	No bag. New bag added.
M18S	5.54	12:28	Put new lock on.
M19D	20.77	12:18	No bag. New bag added.
M19S	4.02	12:19	Needs to be relabeled.
M1D	4.85	1:04	No bag. New bag added.
M1S	5.14	1:03	
M20D	18.39	12:16	No bag. New bag added.
M20S	8.16	12:15	
M21D	19.05	11:50	No bag. New bag added.
M21S	7.89	11:51	No bag. New bag added.
M22D	17.44	11:44	
M22S	9.83	11:46	No bag. New bag added.

Well ID	Depth to Ground Water (ft)	Time	Comments
M23S	9.02	11:59	No bag. New bag added.
M2D	2.49	12:53	No bag. New bag added. New lock put on.
M2S	2.35	12:52	Needs to be relabeled. No bag. New bag added. New lock put on.
M3D	3.67	12:43	
M3S	2.74	12:42	
M4D	17.68	11:55	No bag. Bag installed.
M5D	15.19	12:06	Water between casings.
M5S	4.78	12:08	There is a bag over the inner casing but there should be a slip cap on this below grade well.
M6D	26.19		No bag. New bag added. Needs to be relabeled.
M6S	6.08		Put new lock on.
M8D	11.4		Needs to be relabled. Well pump installation needs to be finished.
M9D	17.03	1:13	Vault drainage is blocked. No bag. New bag added. Water between casings.
MR1DA	14.83	11:18	Needs to be relabeled.
MR1SA	4.74	11:25	
MR2D	21.15	11:13	Bag replaced.
MR2S	10.05	11:16	Lid is dented/rusted and leaks.
MR3D	23.12	11:09	No bag. New bag added.
MR3S	16.08	11:07	No bag. New bag added.
MR4D	19.42	10:57	Replaced bag.
MR4S	11.1	11:00	Replaced bag.
R1	42.92	11:50	Cell H, No Bag. Bag added.
R10	43.05	11:46	Cell H, No lock & no bag. New bag & lock added.
R11	42.32	10:37	Cell M, No bag. Changed out lock. Bag added.
R12	40.86	10:09	Cell M, No casing cap/bag. Cleared weep hole (bottom) & added bag.
R13	41.87	10:19	Cell M, No casing cap/bag. Bag added.

Well ID	Depth to Ground Water (ft)	Time	Comments
R14	33.13	1:21	Millard, Bag torn- Replaced. Surface seal needs to be patched.
R15	39.46	11:36	Cell H, Bag torn and dirty - replaced w/new bag. Replaced old lock.
R16	44.27	12:19	NSL, No bag on well. Bag found in protective casing lid. Placed bag over well.
R17	38.58	10:02	Cell M, Need to replace label.
R18	37.46	11:08	Cell M, Dirt getting into well. Bag did not completely cover well. Sample tubing needs to changed.
R19	41.55	9:47	Cell M, Lock on. Needs bag. Bag in place. Lock would not re-lock - changed out lock.
R2	40.42	12:45	Cell G, Replaced bag (torn/hole). Lock replaced.
R20	41.96	9:41	Cell M, Needs bag. Cracks in cement pad (3). Added bag.
R21	40.62	10:52	Cell M, Bag torn/dirty - bag replaced. Lock changed out.
R22	41.84	10:45	Cell M, No casing cap/bag. Bag added.
R-23	37.7	1:07	Millard, Needs weep hole - none present. Replaced old bag w/new one.
R-24	38.79	12:10	NSL, No bag. Bag added. Need to add a weep hole - none currently there.
R3	40.27	12:15	NSL
R4	34.69	1:13	Millard
R5	39.44	11:31	Cell H, Replaced bag w/new bag.
R6	40.90*	10:13	Cell M, No pump. *Measured depth at top of casing. Cleared weep hole. Bag added.
R7	42.45	10:25	Cell M, No casing cap/bag. Cleared weep hole. Bag added.
R8	40.54	11:55	Cell H, No bag present - Bag added. Seal pad needs to be patched.
R9	37.88	12:27	Cell F, Replaced torn bag.
SW1D	25.29	4:54	Rplaced bag.
SW1S	11.36	4:53	No bag. New bag installed. Replaced lock.
SW2D	17.16	4:47	Bag too small - replaced bag.
SW2S	2.48	4:48	No bag. New bag added.
SW3D	17.44	4:42	No bag. New bag added. Lock replaced.
SW3S	5.02	4:40	No bag or survey mark. Replaced lock. New bag added.

Well ID	Depth to Ground Water (ft)	Time	Comments

Comments:
Millard Road Landfill (SWMU 5).
1. Hole/breach in fence just N.W. of T-25D (on south side of power line tower).
2. Vent just west of MR-7D/S (along Millard Ave.) is missing a weather cap.

R wells (bedrock wells) were inspected April 2, 2007.
S and D wells (shallow till and deep till wells) were inspected April 3, 2007

Questions for Comment Section:

A. Note if well is not labeled properly.
B. Note if Affected well is not marked as affected (Highlighted wells are affected).
C. Note if well was not locked. Note if you can not relock well.
D. Note if outer casing heaved.
E. Note if there is outer casing susidence or errosion around well.
F. Note if outer casing needs repaired (e.g., broken hinge, bent casing)
G. Note if surface seal is cracked or damaged.
H. Note there is ponded water around well.
I. Note if there is no inner casing cap (or bag) present.
J. Note if there is water between casings?
K. Note if there is no weep hole in protective casing or if weep hole is clogged.
L. Note if there is no survey mark present for depth measurements.
M. Note if well has a hand pump installed.

Bedrock wells = 24 + 5 chart recorder wells, S = 46, D = 49

Highlight = Affected well

I, R, H, SW, F, G, M, and MR = IGWMP Wells
Exceptions are MR-5S, MR-5D, MR-6S, MR-7S, MR-7D, H-7S and H-8S. These wells are RFI wells.
W = RFI water table monitoring well.
T = Temporary RFI well.
QD, GR, QE = NSL RFI well.
CR-1, DDG-1, DDG-3, DUG-1, and DUG-2 are bedrock chart recorder wells
L1 = water supply well
R = Bedrock well
S = Shallow till monitoring well.
D = Deep till monitoring well.
MB = Cell M bubble monitoring well.

Investigation Well Inspection Form for the Envirosafe Services of Ohio, Inc. Otter Creek Road Facility
May 17, 2007

Well ID	SWMU	Comments
MB-1D	Cell M	ok
MB-1R	Cell M	ok
MB-1S	Cell M	could not open.
MB-2D	Cell M	ok
MB-2S	Cell M	could not open
BG-1D	Johlin	cracked pad.
BG-1R	Johlin	ok
BG-1S	Johlin	errosion under pad.
T-36D	S1	Could not open.
T-36S	S1	ok
T-36W	S1	Wobbly, could not open.
T-37D	S1	good
T-37S	S1	Wobbly
T-37W	S1	Wobbly, water between casings.
T-57S	S10 (Cell G)	ok
T-58S	S10 (Cell G)	ok
T-60S	S10 (Cell G)	Flush mount near scale. No label, otherwise ok.
MR-5D (T-23D)	S5	ok
MR-5S (T-23S)	S5	Relabeled
MR-6S (T-20S)	S5	ok
MR-7D (T-17D)	S5	Could not open.
MR-7S (T-17S)	S5	Could not open.
T-16D	S5	Could not open.
T-16S	S5	ok
T-18S	S5	Could not open.
T-19W	S5	ok
T-203D	S5	NW corner, outside fence. Needs weep hole. Labeled today. Ned to fill hole next to well seal.

Investigation Well Inspection Form for the Envirosafe Services of Ohio, Inc. Otter Creek Road Facility
May 17, 2007

Well ID	SWMU	Comments
T-203S	S5	Needs weep hole. Labeled today.
T-204S	S5	Across Millard Road overpass. No lock, weep hole, or label.
T-205S	S5	Needs lock, weep hole and label.
T-20D	S5	Needs bag.
T-20S(1)	S5	Outside fence. West of T-20S(2). Ok
T-20S(2)	S5	South of T-20S(4). Ok
T-20S(3)	S5	Outside fence. West of T-20S(4). Ok
T-20S(4)	S5	Outside fence. Directly west of MR-6S. Ok
T-20S(5)	S5	Outside fence. West of T-20S(6). Ok
T-20S(6)	S5	North and west of MR-6S. Ok, relabeled.
T-20S(7)	S5	No lock, no weep hole, water between casings.
T-20S(8)	S5	Needs lock and weep hole.
T-20W	S5	ok
T-21D	S5	ok
T-21S	S5	Broken hinge.
T-22D	S5	ok
T-22S	S5	ok
T-22W	S5	Water between casings.
T-23W	S5	Could not open.
T-24D	S5	ok
T-24S	S5	ok
T-24W	S5	ok
T-25S	S5	No hinge, no cap.
T-45W	S5	ok
T-46W	S5	ok
T-47W	S5	Ok, relabeled.
T-48W	S5	Ok, relabeled.

Investigation Well Inspection Form for the Envirosafe Services of Ohio, Inc. Otter Creek Road Facility
May 17, 2007

Well ID	SWMU	Comments
GR-1	S6	PZ, 1" PVC, no cap, water flowing out. Extension laying on ground, we put it back on. No protective casing. Labeled well today.
GR-2	S6	PZ, 1" PVC, no protective casing, labeled well today.
GR-3	S6	PZ, 1" PVC, no protective casing, labeled today.
GR-4	S6	PZ, no protective casing, 1" pvc casing has a cap.
GR-5	S6	PZ, has a 1" PVC cap. No protective casing.
GR-7	S6	PZ (north of fence), could not find.
GR-9	S6	PZ (north of fence) could not find.
QD-1D	S6	Well, can not open, relabeled.
QD-1S	S6	Well, can not open, relabeled.
QD-2D	S6	Well, needs relabeled.
QD-2S	S6	Well, relabeled.
QD-3D	S6	Well, ok.
QD-3R	S6	Well, ok.
QD-3S	S6	Well, ok.
QD-4D	S6	Well, ok.
QD-4S	S6	Well, ok.
QD-5.25BB	S6	PZ, trippled cased. Water between casings, no protective casing.
QD-5D	S6	Well, could not open. Needs labeled.
QD-5S	S6	Well, Relabeled with black pen, but label is still hard to see. Needs relabeled.
QD-7	S6	PZ could not find.
QD-9	S6	PZ, could not find.
QD-9C	S6	PZ, could not find.
QE-160	S6	PZ, no protective casing, labeled today.
QE-160BB	S6	PZ, no protective casing, labeled today.
QE-160BB	S6	Labeled today. No protective casing.
QE-160C	S6	PZ, not found.
QE-200	S6	PZ, no protective casing, labeled today.

Investigation Well Inspection Form for the Envirosafe Services of Ohio, Inc. Otter Creek Road Facility
May 17, 2007

Well ID	SWMU	Comments
QE-200B	S6	PZ, could not find.
QE200-BB	S6	PZ, no protective casing, labeled today.
QE-200CC	S6	PZ,no protective casing, no cap. Put bag over well and labeled well.
QE-280	S6	PZ, no protective casing, labeled today.
QE-280B	S6	PZ, not found.
QE-280BB	S6	PZ, protective casing broken,. Labeled today.
QE-350	S6	PZ, no protective casing, labeled today.
QE-360	S6	PZ, no protective casing, labeled today.
QE-360BB	S6	PZ, no protective casing, labeled today.
QE-360C	S6	Not found.
QE-360CC	S6	PZ, casing broke off, no protective casing, labeled today.
QE-360D	S6	PZ, not found.
QE-370	S6	Labeled today, no protective casing.
QE-400	S6	Not found.
QE-400B	S6	No protective casing. Labeled today.
QE-440C	S6	PZ, no protective casing, casing broke off, well open, seal/pad broken.
QE-480B	S6	PZ, no protective casing, labeled today.
QE-480BB	S6	PZ, no protective casing, labeled today.
QE-80	S6	PZ, no protective casing, labeled today.
QE-80B	S6	PZ, not found.
QE-80BB	S6	PZ, no protective casing, labeled today.
T-1D	S6	good
T-1S	S6	Needs a weep hole.
T-2D	S6	good
T-2S (T-2U)	S6	good
T-3D	S6	good
T-3S (T-3U)	S6	good

Investigation Well Inspection Form for the Envirosafe Services of Ohio, Inc. Otter Creek Road Facility
May 17, 2007

Well ID	SWMU	Comments
T-4D	S6	good
T-4S	S6	good
T-10D	S7	ok
T-10S	S7	ok
T-11D	S7	good
T-11S	S7	good
T-15D	S7	Needs a weep hole.
T-15S	S7	good
T-207	S7	Phase II shallow well. May 11, 2007 well was damaged by a cement truck. Well was abandoned on May 29, 2007.
T-5D	S7	good
T-5S	S7	good
T-8D	S7	ok
T-8S	S7	ok
H-7S	S8	good
H-8S	S8	cement pad cracked
S8-204	S8	Needs a weep hole, needs labeled.
S8-205	S8	Needs a weep hole, needs labeled.
T-31S (T-31U)	S8	Put bag on.
T-32D	S8	good
T-32S	S8	good
T-33S (T-33U)	S8	good
T-34S	S8	good
T-35S	S8	Bag put on over casing.
T-42S	S8	Water between casings, hinge broken.
T-52S	S8	Water between casings, hinge broken, needs cap or bag - bag put on.
T-53S	S8	Protective casing lid hinge broken.
T-54S	S8	Protective casing lid hinge broken, needs weephole.

Investigation Well Inspection Form for the Envirosafe Services of Ohio, Inc. Otter Creek Road Facility
May 17, 2007

Well ID	SWMU	Comments
T-55S	S8	ok
T-56S	S8	Cement pad cracked.
T-59S	S8	Protective casing lid hinge broken, wasp nest inside.
T-28D	S9	good
T-28S	S9	good
T-43D	S9	good
T-43S	S9	good
T-44D	S9	good
T-44S (T-44U)	S9	good

I, R, H, SW, F, G, M, and MR = IGWMP Wells
Exceptions are MR-5S, MR-5D, MR-6S, MR-7S, MR-7D, H-7S and H-8S. These wells are RFI wells.
W = RFI water table monitoring well.
T = Temporary RFI well.
QD, GR, QE = NSL RFI well.
S = Shallow till monitoring well.
D = Deep till monitoring well.
R = Bedrock well
MB = Cell M bubble monitoring well.
NI = not inspected.

Highlight = Samples taken during Phase II

A. Note if well is not labeled properly.
B. Note if well was not locked. Note if you can not relock well.
C. Note if outer casing heaved.
D. Note if there is outer casing susidence or errosion around well.
E. Note if outer casing needs repaired (e.g., broken hinge, bent casing)
F. Note if surface seal is cracked or damaged.
G. Note there is ponded water around well.
H. Note if there is no inner casing cap (or bag) present.
I. Note if there is water between casings?
J. Note if there is no weep hole in protective casing or if weep hole is clogged.
K. Note if there is no survey mark present for depth measurements.