Ohio Hazardous Waste Facility Installation and Operation Permit

Division of Environmental Response and Revitalization

Permittee: Envirosafe Services of Ohio, Inc U.S. EPA ID: OHD 045 243 706

Facility Name: Envirosafe Services of Ohio, Inc.

Mailing Address: 876 Otter Creek Road

City: Oregon State: Ohio Zip: 43616-3518

Facility Street Address: 876 Otter Creek Road

City: Oregon State: Ohio Zip: 43616-3518

Operator Name: Envirosafe Services of Ohio, Inc.

Mailing Address: 876 Otter Creek Road

City: Oregon State: Ohio Zip: 43616-3518

Owner Name: Envirosafe Services of Ohio, Inc.

Mailing Address: 876 Otter Creek Road

City: Oregon State: Ohio Zip: 43616-3518

Authorized Activities

This Modified Ohio Hazardous Waste Facility Installation and Operation Permit is issued pursuant and subject to Section 3734.05(I) of the Ohio Revised Code and Rule 3745-50-51(J) of the Ohio Administrative Code. The Ohio Hazardous Waste Facility Installation and Operation Permit for the facility with the above-referenced ID number as issued by the Ohio Environmental Protection Agency and journalized on September 30, 2016, is hereby incorporated by reference in its entirety, except as it may be modified herein. This modification of the permit shall remain in effect until the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, modified, withdrawn, suspended, or revoked. The modified Terms and Conditions of this permit are attached hereto and are incorporated herein by reference. The modified Terms and Conditions supersede and replace the corresponding pages found in the September 30, 2016 renewal permit.

Permit Approval

Entered into the Journal of the Director on:

Date: Click here to enter a date.

Craig W. Butler, Director
Ohio Environmental Protection Agency

This permit approval is based upon the record in this matter which is maintained at the offices of the Ohio Environmental Protection Agency. The Director has considered the application, accompanying information, inspection reports of the facility, a report regarding the facility's compliance or noncompliance with the terms and conditions of its permit and rules adopted by the Director under this chapter, and such other information as is relevant to the operation of the facility. The Director has determined that the facility under the existing permit has a history of compliance with ORC Chapter 3734, rules adopted under it, the existing permit, or orders entered to enforce such requirements that demonstrate sufficient reliability, expertise, and competency to operate the facility henceforth under this chapter, rules adopted under it, and the renewal permit.

(b) The Permittee must submit to the Ohio EPA within sixty (60) days after permit journalization, in accordance with Ohio's hazardous waste rules, the following information to be incorporated in the permit application:

(i) Updated Closure/Post-Closure/Corrective Action Cost Estimate
OAC Rules 3745-54-101(B) and (C), 3745-55-42, and 3745-55-44

Section I of the permit application containing the financial assurance mechanism for closure/post-closure/corrective action must be updated to include a copy of the current closure/post-closure/corrective action cost estimate as set forth in OAC Rules 3745-54-101(B) and (C), 3745-55-42, and 3745-55-44.

(ii) Updated Financial Assurance Mechanism for Closure, Post-Closure Care, and Corrective Action
OAC Rules 3745-54-101(B) and (C), 3745-55-43, and 3745-55-45

Section I of the permit application containing the financial assurance mechanism for closure, post-closure care, and corrective action must be updated to include a copy of the current financial assurance mechanism, as set forth in OAC Rules 3745-55-43 and 3745-55-45, and as specified by the wording requirements of OAC Rule 3745-55-51. The value of the financial assurance mechanism must reflect at least the current amount of the closure/post-closure/corrective action cost estimate.

During the life of the permit the facility may change the financial assurance mechanism as stated in OAC Rules 3745-55-43 and 3745-55-45. The facility must submit the financial assurance mechanism documentation to the Director in accordance with the parameters set forth in OAC Rules 3745-55-43 and 3745-55-45.

(iii) Updated Liability Requirements
OAC Rule 3745-55-47

Section I of the permit application containing the mechanism used to demonstrate third party liability coverage must be updated to include a copy of the current liability mechanism as set forth in OAC Rule 3745-55-47 and as specified by the wording requirements of OAC Rule 3745-55-51.

During the life of the permit the facility may change the mechanism used to demonstrate liability coverage as stated in OAC Rule 3745-55-47. The facility must submit the liability mechanism documentation to the Director in accordance with the parameters set forth in OAC Rule 3745-55-47.

(iv) Within sixty (60) days of permit journalization of Module E, Corrective Action Requirements, and Module K, Integrated Ground Water Monitoring Program, the Permittee must submit to Ohio EPA in accordance with Ohio's hazardous waste rules, in the form of Class 2 permit modification, a request to modify the permit

application to be consistent with the modifications in Modules E and K, including but not limited to Appendix E.9, E.11, D.32, F and as included by reference, the Operation, Maintenance and Performance Monitoring Plan for WMUs 5, 6 and 7.

A.28 Information to be Maintained at the Facility
OAC Rule 3745-54-74

(a) Unless otherwise specified by the hazardous waste rules, the Permittee must maintain at the facility, until closure is completed and certified by a qualified professional engineer, pursuant to OAC Rule 3745-55-15, and until the Director releases the Permittee from financial assurance requirements pursuant to OAC Rule 3745-55-43, the following documents (including amendments, revisions and modifications):

(i) Waste analysis plan, developed and maintained in accordance with OAC Rule 3745-54-13 and the terms and conditions of this permit;

(ii) Contingency plan, developed and maintained in accordance with OAC Rule 3745-54-53 and the terms and conditions of this permit;

(iii) Closure plan, developed and maintained in accordance with OAC Rule 3745-55-12 and the terms and conditions of this permit;

(iv) Cost estimate for facility closure, developed and maintained in accordance with OAC Rule 3745-55-42 and the terms and conditions of this permit;

(v) Personnel training plan and the training records, developed and maintained in accordance with OAC Rule 3745-54-16 and the terms and conditions of this permit;

(vi) Operating record, required by OAC Rule 3745-54-73 and the terms and conditions of this permit; and

(vii) Inspection schedules, developed in accordance with OAC Rules 3745-54-15, 3745-

MODULE E – CORRECTIVE ACTION REQUIREMENTS

E. MODULE HIGHLIGHTS

In 1987, a RCRA Facility Assessment (RFA) of the Permittee's facility was conducted by a U.S. EPA contractor. The RFA consisted of a preliminary review of existing facility information and a visual site inspection. The RFA report was received by U.S. EPA on September 8, 1987. In October of 1991, the Permittee submitted a RCRA Facility Investigation (RFI) work Plan. The RFI Work Plan was approved by U.S. EPA on March 6, 1995. This RFI Work Plan, and a Supplemental RFI Work Plan issued by U.S. EPA in September of 1996, focused on an environmental investigation of the Northern Sanitary Landfill (aka Waste Management Unit (WMU) 6) only. The Permittee submitted a draft final RFI report to U.S. EPA on June 20, 1997. The Permittee also submitted a draft Corrective Measure Study (CMS) Work Plan for WMU 6.

On September 30, 1998, U.S. EPA modified the Permittee's federal permit to include more specific corrective action requirements and include a specific list of WMU and Areas of Concern (AOC). On June 23, 2000, the Permittee submitted a Description of Current Conditions (DOCC) to U.S. EPA. The Permittee submitted a revised DOCC on November 28, 2000 to U.S. EPA and on February 21, 2001, U.S. EPA issued a conditional approval of the DOCC. The Permittee submitted a second revision to the DOCC on March 23, 2001 to address the conditions of approval.

On April 23, 2001, the Permittee submitted a RFI Work Plan that provided details of the formal site investigation. On December 20, 2001, U.S. EPA issued a conditional approval of the RFI Work Plan. The Permittee submitted a revised RFI Work Plan dated February 28, 2002 to address the conditions of the approval. On April 10, 2002, U.S. EPA granted final approval of the DOCC and the RFI Work Plan. Per the requirements of the Permittee's federal permit, implementation of the RFI Work Plan began on March 18, 2002.

On July 18, 2003, the Permittee submitted an RFI Phase I Report and Phase II Work Plan. This report presents the findings from the data collected during field work and sampling events beginning in mid-2002. Limited field work and sampling was completed at SWMU 5 during 2004. On April 12, 2006, Ohio EPA granted approval of the Phase II Work Plan.

On January 27, 2004, Ohio EPA became the lead agency with RCRA Corrective Action document approval and oversight responsibilities at the facility. All documents submitted by the Permittee, which have been approved by U.S. EPA, are included by reference into this permit. The Permittee continued implementation of the RFI Work Plan in accordance with Permit Condition E.5.

In 2007, based on Phase I findings, the Permittee implemented presumptive remedies at WMUs 1, 5, 6 and 7 (Cell F, Millard Road Landfill, North Sanitary Landfill, and Central Sanitary Landfill). Subsequently, on February 15, 2008, the Permittee submitted the RFI Report detailing the conclusions of the RFI. On June 30, 2009, Ohio EPA granted approval of the Permittee's RFI Report and required a CMS Work Plan.

On August 31, 2009, the Permittee submitted a Corrective Measures Study Work Plan for the collection of additional information to develop remedy alternatives. On February 24, 2010, Ohio EPA granted conditional approval of the CMS Work Plan. On January 1, 2011, the Permittee submitted a Corrective Measures Study Report and evaluation of remedy alternatives with revisions submitted on August 1, 2011 and April 30, 2012. On March 27, 2017, Ohio EPA granted partial approval of the CMS. Ohio EPA did not approve the corrective action ground water monitoring proposal. Instead, Permit Terms and Conditions were drafted.

E.1 Corrective Action at the Facility
OAC Rules 3745-50-10 & 3745-54-101

In accordance with OAC Rule 3745-50-10, "waste management unit" (WMU) means any discernible unit at which solid waste, hazardous waste, infectious waste (as those terms are defined in ORC Chapter 3734), construction and demolition debris (as defined in ORC Chapter 3714), industrial waste or other waste (as those terms are defined in ORC Chapter 6111) has been placed at any time, irrespective of whether the unit was intended for the management of waste or hazardous waste. Such units include any area at a facility at which wastes have been routinely and systematically managed or released. As used in this permit, the term "waste management unit" shall be consistent with and equivalent to the term "solid waste management unit" (SWMU) as that term is used in the federal Corrective Action program. As Corrective Action was initiated under U.S. EPA, the Permittee may continue to use the terms interchangeably throughout the process. For Corrective Action, facility is defined as all contiguous property under the control of the owner or operator seeking a permit under Subtitle C of RCRA. The terms Interim Measure (IM), RCRA Facility Investigation (RFI), Corrective Measures Study (CMS) and Corrective Measure Implementation (CMI) are defined in U.S. EPA's Corrective Action Plan (CAP) (OSWER Directive 9902.3-2A, May 1994).

The Permittee must institute Corrective Action as necessary to protect human health and the environment for all releases of hazardous waste(s) or hazardous constituent(s) from any WMUs at the Facility, regardless of the time at which waste was placed in such units.

E.2 Corrective Action Beyond the Facility Boundary
OAC Rule 3745-54-101

The Permittee must implement Corrective Action beyond the Facility property boundary, where necessary to protect human health and the environment, unless the Permittee demonstrates to the satisfaction of Ohio EPA that, despite the Permittee's best efforts, the Permittee was unable to obtain the necessary permission to undertake such actions. The Permittee is not relieved of all responsibility to clean up a release that has migrated beyond the Facility boundary where off-site access is denied. On-site measures to address such releases will be addressed under the RFI, CMS, and CMI phases, as determined to be necessary on a case-by-case basis.

E.3 Identification of WMUs
OAC Rules 3745-50-44(D) & 3745-54-101

(a) The following WMUs and AOCs were identified at the facility either during the 1987 RCRA Facility Assessment (RFA) or during the RCRA Facility Investigation (RFI) that concluded in 2008.

WMU 1	Landfill Cell F
WMU 2*	Landfill Cell G
WMU 3*	Landfill Cell H
WMU 4*	Landfill Cell I
WMU 5	Millard Road Landfill
WMU 6	Northern Sanitary Landfill
WMU 7	Central Sanitary Landfill
WMU 8	Old Oil Pond #1 (South Pond)
WMU 9	New Oil Pond #2 (North Pond)
WMU 10	Ash Disposal Area
WMU 11	Former Teepee Burner
WMU 12	Former Bill's Road Oil Operation
AOC 1	Toledo Water Lines
AOC 2	Truck Scales
AOC 3	Building "C" Equipment Maintenance Area
AOC 4	Building "C" Septic Tank and Leach Field
AOC 5	Decontamination Building
AOC 6	Oily Waste Above Ground Storage Tanks
AOC 7	Butz Crock Concrete Utility Vault
AOC 8	Staging Area
AOC 9	Cell M Water Retention Basin
AOC 10	Rail Spur
AOC 11*	Former Truck Scale
AOC 12	Building "C" Heating Oil Tank

* WMU 2, WMU 3, WMU 4, and AOC 11 were not retained for further investigation in the RFI that concluded in 2008.

(b) The following WMUs were identified during the 1987 RFA. These WMUs are currently operating and are subject to on-going ground water monitoring, closure, and post-closure, and perpetual care requirements, as applicable, and therefore were not included in the RFI.

WMU 13	Landfill Cell M
WMU 14	Leachate Storage Building
WMU 15	Containment Building
WMU 16	Area H Storage
WMU 17	Area K Storage
WMU 18	Rail Storage Areas M and N

E.4 Reserved

E.5 RCRA Facility Investigation (RFI)
OAC Rule 3745-54-101

The Permittee conducted an RFI, concluding in 2008, to thoroughly evaluate the nature and extent of the releases of hazardous wastes and hazardous constituents from all applicable WMUs identified in Permit Condition E.3(a). In the event of newly discovered units, the Permittee must conduct an RFI to thoroughly evaluate the nature and extent of the release of hazardous waste(s) and hazardous constituent(s) from WMUs and AOCs identified in Permit Condition E.10. The major tasks and required submission dates are shown below. The scope of work for each of the tasks is found in U.S. EPA's CAP.

(a) RFI Workplan

The Permittee must submit a written RFI Workplan to Ohio EPA within the timeframe established by Ohio EPA.

(i) Within ninety (90) days of receipt of any Ohio EPA comments on the RFI Workplan, the Permittee must submit either an amended or new RFI Workplan that incorporates Ohio EPA's comments.

(ii) Ohio EPA will approve or modify an approve, in writing, the amended or new RFI Workplan. The RFI Workplan, as approved or as modified and approved, shall be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approved RFI Workplan must be authorized by Ohio EPA.

(b) RFI Implementation

Within sixty (60) days of Ohio EPA written approval of the RFI Work Plan, the Permittee must implement the RFI Work Plan according to the terms and schedule in the approved RFI Work Plan.

(c) RFI Final Report(s)

Within sixty (60) days after the completion* of each phase of the RFI, the Permittee must submit an RFI Final Report to Ohio EPA. The RFI Final Report must describe the procedures, methods, and results of the RFI phase completed. The Final Report must contain adequate information to support further decisions concerning corrective action at the facility.

(i) If necessary, Ohio EPA must provide written comments on each Final RFI Report to the Permittee.

(ii) Within sixty (60) days of receipt of Ohio EPA's comments on the Final RFI Report, the Permittee must submit either an amended or new RFI Final Report that incorporates Ohio EPA's comments.

(iii) Ohio EPA will approve or modify and approve, in writing, the amended or new RFI Final Report. Each RFI Final Report, as approved or as modified and approved, must be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approved RFI Final Report(s) must be authorized by Ohio EPA.

*Completion occurs when all activities approved in the RFI Work Plan are completed except for report preparation.

E.6 Interim Measure (IM)

Based on the RFI Final Report or other information documenting a release of hazardous waste or constituents to the environment, Ohio EPA may require (or the Permittee may propose) the development and implementation of an interim measure (this may include an IM Work Plan) at any time during the life of the permit to mitigate or eliminate a threat to human health or the environment. The Permittee must implement the IM upon a time frame established by Ohio EPA.

E.7 Determination of No Further Action

(a) Permit Modification

Based on the results of the completed RFI and other relevant information, the Permittee may submit an application to Ohio EPA for a permit modification under OAC Rule 3745-50-51 to terminate the Corrective Action tasks of the Schedule of Compliance. Other tasks identified in the Schedule of Compliance must remain in effect. This permit modification application must conclusively demonstrate that there are no releases of hazardous waste or constituents from WMUs at the Facility that pose an unacceptable risk to human health and the environment.

If, based upon review of the Permittee's request for a permit modification, the results of the completed RFI, and other information, Ohio EPA determines that releases or suspected releases which were investigated either are nonexistent or do not pose an unacceptable risk to human health and the environment, then Ohio EPA will approve the requested modification. Decisions regarding the completion of RCRA Corrective Action and no further action may be made for the entire Facility, for a portion of the Facility, or for a specific unit or release.

(b) Periodic Monitoring

A determination of no further action shall not preclude Ohio EPA from requiring continued or periodic monitoring of air, soil, ground water, or surface water, if necessary to protect

human health and the environment, when site-specific circumstances indicate that potential or actual releases of hazardous waste or constituents exists.

(c) Further Investigations

A determination of no further action shall not preclude Ohio EPA from requiring further investigations, studies, or remediation at a later date, if new information or subsequent analysis indicates that a release or potential release from a WMU at the Facility may pose an unacceptable risk to human health or the environment. In such a case, Ohio EPA shall initiate a modification to the terms of the permit to rescind the determination made in accordance with Permit Condition E.7(a). Additionally, in the event Ohio EPA determines that there is insufficient information on which to base a determination, the Permittee, upon notification, is required to develop a Work Plan and upon Ohio EPA approval of that Work Plan, perform additional investigations as needed.

E.8 Corrective Measures Study (CMS)

Ohio EPA has determined, based on the RFI Phase I and other relevant information, that implementation of containment corrective measures are necessary and appropriate for certain units while the Permittee completes the RFI. These specific corrective measures are outlined in permit condition E.9(b).

If Ohio EPA determines, based on additional or final results of the RFI and any other relevant information, that additional corrective measures are necessary, Ohio EPA will notify the Permittee in writing that the Permittee must conduct a CMS either as below or as described in Ohio EPA's notification to the Permittee. The purpose of the CMS will be to develop and evaluate the corrective action alternative(s) and to outline one or more alternative corrective measure(s) that will satisfy the performance objectives specified in Permit Condition E.9.

(a) CMS Work Plan

The Permittee must submit a written CMS Work Plan to Ohio EPA within ninety (90) days from the notification by Ohio EPA of the requirement to conduct a CMS.

(i) Within ninety (90) days of receipt of Ohio EPA's comments, the Permittee must submit either an amended or new CMS Work Plan that incorporates Ohio EPA's comments.

(ii) Ohio EPA will approve or modify and approve, in writing, the amended or new CMS Work Plan. The CMS Work Plan, as approved or as modified and approved, must be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approved CMS Work Plan must be authorized by Ohio EPA.

(b) CMS Work Plan Implementation

The Permittee must implement the CMS Work Plan according to the terms and schedule in the approved CMS Work Plan.

(c) CMS Final Report

Within sixty (60) days after the completion* of the CMS, the Permittee must submit a CMS Final Report to Ohio EPA. The CMS Final Report must summarize the results of the investigations for each remedy studied and must include an evaluation of each remedial alternative.

(i) Within ninety (90) days of receipt of Ohio EPA's comments, the Permittee must submit either an amended or new CMS Final Report that incorporates Ohio EPA's comments.

(ii) Ohio EPA will approve or modify and approve, in writing, the amended or new CMS Final Report. The CMS Final Report, as approved or as modified and approved, must be incorporated into this permit and become an enforceable condition of this permit. Subsequent changes to the approved CMS Final Report must be authorized by Ohio EPA.

*Completion occurs when all activities approved in the CMS Work Plan are completed except for report preparation.

E.9 Corrective Measures Implementation (CMI)

Based on the findings in the April 2012 CMS, the Permittee must implement one or more of the Corrective Measures authorized by Ohio EPA. Ohio EPA will authorize one or more of the Corrective Measures in the CMS, and will notify the Permittee in writing of the decision. The Corrective Measure selected for implementation must: (1) be protective of human health and the environment; (2) attain media clean-up standards; (3) control the source(s) of releases to reduce or eliminate further releases of hazardous waste(s) (including hazardous constituent[s]); and, (4) comply with all applicable standards for management of wastes.

If two or more of the Corrective Measures studied meet the threshold criteria set out above, Ohio EPA will authorize the Corrective Measures Implementation by considering remedy selection factors including: (1) long-term reliability and effectiveness; (2) the degree to which the Corrective Measure will reduce the toxicity, mobility or volume of contamination; (3) the Corrective Measure's short-term effectiveness; (4) the Corrective Measure's implement ability; and (5) the relative cost associated with the alternative.

(a) Permit Modification - Implementation

Ohio EPA will initiate a permit modification, as provided by OAC Rule 3745-50-51 to require

implementation of the corrective measure(s) authorized.

The Permittee must not implement the corrective measure until the permit is modified pursuant to OAC Rule 3745-50-51.

(b) Selected Containment Corrective Measures

Based on results of the 2003 RFI Phase I and subsequent field work, Ohio EPA determined that the appropriate remedy for WMUs 1, 5, 6 and 7 includes containment. ESOI implemented a containment remedy in 2006 through Ohio EPA's permitting process. A public hearing for this action was held on May 3, 2006 and the public comment period closed on May 15, 2006. On December 21, 2009, Ohio EPA received a corrective measures completion report for WMU 1. Therefore, corrective measures Permit Conditions related to WMU 1 have been removed and ground water monitoring and post-closure operations and maintenance will continue. U.S. EPA has established containment as the presumptive remedy for municipal landfills to protect human health and the environment and save time and costs.

(i) WMUs 5, 6, & 7 – Leachate Collection System Performance Objectives

Leachate collection and removal systems for WMUs 5, 6 and 7 shall be maintained and operated as detailed in the Operations, Maintenance & Performance Monitoring (OMPM) Plan for the Leachate Collection Systems at Waste Management Unit Nos. 5, 6, and 7. The Permittee must maintain an inward gradient at each WMU to minimize impacts to ground water at each WMU. This performance objectives will be implemented by the following:

(a) The Permittee will maintain the leachate level at each deep interior piezometer below the piezometer's target leachate level. The target leachate level is an elevation 3.0 feet below the lowest ground water elevation in the relevant shallow perimeter monitoring well(s). The deep interior piezometers and the relevant shallow ground water monitoring wells for each deep interior piezometer shall be as identified in Table 1.0 of the Operation, Maintenance, and Performance Monitoring Plan, and any other locations established in the future with concurrence from Ohio EPA.

(b) The Permittee will identify in the Operation, Maintenance, and Performance Monitoring Plan response actions that the Permittee will implement to return to the target leachate level in a reasonable timeframe in the event of a temporary excursion determined pursuant to Permit Condition E.9(b)(i)(a).

(c) Selected Corrective Measures (Remedy)

Based on the final RFI and CMS reports, and the remedial actions previously completed at the Facility, Ohio EPA proposes the following corrective measures are appropriate. These corrective measures are discussed in detail in ESOI's CMS. The CMS includes engineering and

institutional controls. For engineering controls, the Permittee must prepare and submit preliminary design alternatives to Ohio EPA within ninety (90) days of the effective date of this permit condition. Ohio EPA will review the alternatives and select a remedy design. The Permittee must, within sixty (60) days of receiving notification from Ohio EPA of its selected remedy design, submit a Class 1 permit modification request requiring Director's approval that includes final design plans for the enhanced or modified cap and an implementation schedule. After implementation of the remedy, an Environmental Covenant (EC) can be considered.

(i) Facility Wide

(a) Environmental Covenant

The selected facility-wide remedy (all WMUs and AOCs listed in Condition E.3) is an institutional control in the form of an environmental covenant.

Institutional controls, including but not limited to, a restriction prohibiting ground water use, and a land use restriction to ensure that facility-wide land use remains industrial until such time when risk values for unrestricted land use are achieved. Under this permit, the institutional controls will consist of measures that limit the future use of the property in a manner that is consistent with the risk values for the facility. This will be accomplished through an environmental covenant. An environmental covenant, as set forth in ORC §5301.80 and through §5301.92, is a written agreement between Ohio EPA and the property owner arising under an environmental response project that imposes activity and/or use limitations on specific portions of a facility.

The environmental covenant(s) must be filed with the Lucas County Recorder in accordance with state law governing recording and priority of interest in real property. The environmental covenant(s) will run with the land and be binding upon a future property owner should the property be sold. Monitoring the property owner's adherence to the environmental covenant(s) will help to ensure continued protection of human health and the environment. A violation of the environmental covenant(s) is enforceable by Ohio EPA. The environmental covenant(s) cannot be amended or terminated without the consent of Ohio EPA.

(i) The Permittee must supply Ohio EPA with a legal description of each parcel to be restricted by an environmental covenant, and a list of all encumbrances on each parcel. To complete the environmental covenant(s), the Permittee must be prepared to enter into good faith negotiations with Ohio EPA at least ninety (90) days prior to the projected filing date for the covenant(s).

(ii) The Permittee must finalize and record the environmental covenant(s) and submit a file and date stamped copy to Ohio EPA.

(b) Maintain engineering controls (i.e., fencing)

(c) Health and Safety Plan

Amend the Facility's Health and Safety Plan to prevent exposure hazards (Section F of ESOI's Part B Permit).

(d) Ground Water Monitoring

Amend the Facility's ground water monitoring program to incorporate corrective action ground water monitoring as stipulated in Module K.

(e) Restoration

Restore areas disturbed during implementation of corrective measures.

(ii) Institutional Control Only

The selected remedy for the following WMUs is an institutional control in the form of an environmental covenant (Condition E.9(d)(i)), since the results of the facility-wide RFI, Human Health Risk Assessment (HHRA) and Ecological Risk Assessment (ERA) indicate that this measure is currently appropriate and adequate to provide protection of human health and the environment. For AOC 6, an active remedy was previously completed as a post-closure project.

WMU 2	Landfill Cell G
WMU 3	Landfill Cell H
WMU 4	Landfill Cell I
WMU 10	Ash Disposal Area
WMU 11	Former Teepee Burner
WMU 12	Former Bill's Road Oil Operation
AOC 2	Truck Scales
AOC 4	Building "C" Septic Tank and Leach Field
AOC 6	Oily Waste Above Ground Storage Tanks
AOC 8	Staging Area
AOC 9	Cell M Water Retention Basin
AOC 10	Rail Spur
AOC 11	Former Truck Scales

(iii) Leachate Management

The selected remedy for managing leachate is via direct connection to sewer system

for nonhazardous leachate.

(iv) WMU 1 Cell F Landfill

The selected remedy for WMU 1 is

(a) Expand/improve the leachate recovery program by modifying the existing leachate maintenance program for cleaning/jetting the existing 6-inch perforated lateral leachate collection pipes.

(b) Continuation of existing landfill gas venting and monitoring program as specified in the Explosive Gas Monitoring Plan (EGMP).

(v) WMU 5 Millard Road Landfill

The selected remedy for WMU 5 is

(a) Improve storm water drainage by re-grading and lining perimeter storm water drainage ditches to prevent potential for storm water ponding and infiltration into the landfill.

(b) Continuation of existing landfill gas venting and monitoring program as specified in the Explosive Gas Monitoring Plan (EGMP).

(vi) WMU 5 LNAPL

The selected remedy for WMU 5 NAPL is to initiate and maintain active recovery of LNAPL on west side of WMU 5.

(vii) WMU 6 Northern Sanitary Landfill

The selected remedy for WMU 6 is

(a) Excavation and transportation of off-site waste to ESOI's active landfill for disposal.

(b) Continuation of existing landfill gas venting and monitoring program as specified in the Explosive Gas Monitoring Plan (EGMP).

(viii) WMU 7 Central Sanitary Landfill

The selected remedy for WMU 7 is the continuation of existing landfill gas venting and monitoring program as specified in the Explosive Gas Monitoring Plan (EGMP).

(ix) WMU 8 Old Oil Pond

The selected remedy for WMU 8 is

(a) Contain waste in-place by repairing cap at locations where NAPL tar seeps have been observed, installing leachate/NAPL recovery wells, installation of passive gas recovery/vents, and installation of barrier wall surrounding limits of waste.

(b) Removal (including floor slabs) and replacement of Building C (AOC 3) (in an alternate location), and removal of AOC 12, AOC 7, and AOC 5.

(x) WMU 9 New Oil Pond

The selected remedy for WMU 9 is:

(a) Upgrade Cap to a Composite Cover. This includes re-contouring of the landfill cover to provide positive drainage, and minimizing accumulation and infiltration of storm water.

(b) Installation of recovery wells.

(c) Excavate current cap to remove top zone of stabilized waste.

(xi) AOC 1 Toledo Water Line

The selected remedy for AOC 1 is to reduce volume of water in trenches by removing vegetation from drainage ditches along this AOC, and re-grading and recapping the areas along waterline right-of-way to improve runoff and reduce infiltration.

(xii) AOC 5 Decontamination Building Underground Storage Tanks (UST)

The selected remedy for WMU 8 (Condition E.9(d)(ix)) also addresses AOC 5.

(xiii) AOC 7 Butz Crock – Utility Vault

The selected remedy for WMU 8 (Condition E.9(d)(ix)) also addresses AOC 7.

(xiv) AOC 12 Building "C" Heating Oil Tank

The selected remedy for WMU 8 (Condition E.9(d)(ix)) also addresses AOC 12.

(d) Permit Modification

In case of a newly discovered waste management unit that requires corrective measures or Ohio EPA determination that additional corrective measures are necessary, Ohio EPA will initiate a permit modification, as provided by OAC Rule 3745-50-51 to require implementation of the corrective measures authorized

(e) Financial Assurance
OAC Rule 3745-54-101

Within forty-five (45) days after receiving approval of the CMI, the Permittee must provide financial assurance in the amount necessary to implement the corrective measure(s) as required by OAC Rule 3745-54-101 (B) and (C).

E.10 Newly Identified WMUs or Releases
OAC Rule 3745-54-101

(a) General Information

The Permittee must submit to Ohio EPA, within thirty (30) days of discovery, the following information regarding any new WMU identified at the Facility by Ohio EPA or the Permittee:

(i) The location of the unit on the site topographic map;

(ii) Designation of the type of unit;

(iii) General dimensions and structural description (supply any available drawings);

(iv) When the unit was operated; and

(v) Specification of all waste(s) that have been managed at the unit.

(b) Release information

The Permittee must submit to Ohio EPA, within forty-five (45) days of discovery, all available information pertaining to any release of hazardous waste(s) or hazardous constituent(s) from any new or existing WMU.

E.11 Corrective Action for Newly Identified WMUs or Releases
OAC Rule 3745-54-101

If Ohio EPA determines that a RFI is required for newly identified WMUs, the Permittee must submit a written RCRA Facility Investigation Work Plan to Ohio EPA upon a time frame established in written notification by Ohio EPA in accordance with Permit Condition E.5. This determination will be made

based on the information submitted in accordance with Permit Condition E.10.

Further investigations or corrective measures will be established by Ohio EPA.

The Permittee must make such a submittal in accordance with time frames established by Ohio EPA.

E.12 Completion of Corrective Action
OAC Rule 3745-54-101

Within ninety (90) day of completing Corrective Action as necessary to protect human health and the environment for all releases of hazardous wastes or hazardous constituents from any WMUs at the Facility, the Permittee shall submit a Corrective Measures Completion of Work (CMCW) Report, Operation and Maintenance (O&M) Plan, and if necessary, a performance monitoring plan for each corrective measure (remedy). The CMCW Report shall document that Corrective Action construction is complete, cleanup objectives and standards have been met, and any releases of hazardous waste or constituents no longer pose an unacceptable risk to human health and the environment. The CMCW Report may be submitted for any part of the Facility for which corrective measures are complete, or for the entire Facility. The CMCW Report, O&M Plan, and performance monitoring plan must be submitted as a request for permit modification pursuant to OAC Rule 3745-50-51.

E.13 Documents Requiring Professional Engineer Stamp
ORC 4733.01

Preparation of the following Corrective Action documents constitutes the "practice of engineering" as defined by ORC 4733.01:

Final Interim Measures Report
Corrective Measures Final Design
Corrective Measures Construction Completion Report
Corrective Measures Attainment of Ground Water Performance Standards Report
Corrective Measures Completion of Work Report

As such, the Permittee must ensure that these documents, as submitted to Ohio EPA, are stamped by a Professional Engineer licensed to practice in the State of Ohio.

E.14 Schedule of Compliance

The Permittee must provide Ohio EPA with the following items according to the schedule below:

Facility Submission	Due Date
Document Revisions	Sixty (60) days from date of receipt of deficiencies from Ohio EPA.
Newly identified WMU	Thirty (30) days after discovery.
RFI Implementation	Sixty (60) days after approval of the RFI Work Plan.

RFI Report(s)	Sixty (60) days after completion of each phase of the RFI.
CMS Work Plan	Sixty (60) days from the notification of the requirement to conduct the CMS.
CMS Implementation	Sixty (60) days after Ohio EPA written approval.
Corrective Measures Report	Thirty (30) days after completion of the CMS.
Progress Reports	Monthly, by the 12th of each month. If the 12th falls on a non-work day, the report will be submitted on the first work day after the 12th.

MODULE K – INTEGRATED GROUND WATER MONITORING PROGRAM

K. GROUND WATER MONITORING

The Permittee maintains a network of ground water monitoring wells around the facility for detecting releases of hazardous constituents from the active disposal unit (Cell M landfill) and closed disposal units. The monitoring network wells monitor three zones: 1) the lacustrine/upper till contact; 2) the upper till/lower till contact and sands at the contact; and 3) the Greenfield limestone bedrock, which is the uppermost aquifer at the facility. This network provides integrated monitoring of RCRA Waste Management Units (WMU) and Areas of Concern (AOC). Due to the proximity of these WMUs/AOCs to one another, except for the Millard Avenue Landfill (WMU 5) and Cell M landfill (WMU 13), the facility is monitored with a network of wells circumscribing all the units and AOCs, and along York Street which bisects the facility.

The ground water monitoring program includes a network of 132 monitoring wells, which consist of 31 wells that monitor the upper-most aquifer (27 bedrock or "R" monitoring wells and 4 water level wells), 50 wells that monitor the contact zone between the shallow and deep tills, including the sand within this zone (deep till or "D" wells), and 51 wells that monitor the contact zone between the lacustrine and shallow till (shallow till or "S" wells).

This permit module institutes an Integrated Ground Water Monitoring Program (IGWMP) developed based on over 20 years of monitoring and the findings of a facility-wide RCRA corrective action program. This IGWMP is designed to coordinate the requirements of two programs, as follows:

1. RCRA Facility Monitoring for the uppermost aquifer in accordance with OAC Rules 3745-54-90 through 3745-54-100 consisting of: 1) on-going detection monitoring to detect concentrations above background levels, which may be an indication of a contaminant release; 2) compliance monitoring to assess concentrations relative to ground water protection standards where concentrations have been confirmed to be above background; and 3) corrective action monitoring when a release from the facility causes the uppermost aquifer ground water concentrations to exceed ground water protection standards.

2. RCRA Corrective Action Monitoring of shallow and deep till contact zones. The affected shallow and deep till wells with constituent concentrations above ground water protection standards are monitored to assess the effectiveness of corrective actions that have been implemented under OAC 3745-54-101. Specific RCRA Corrective Action requirements are provided in Module E of this permit.

   Additional monitoring of shallow and deep till contact zones is also required in this Module for unaffected wells to provide early detection of releases which may eventually reach the uppermost aquifer and to detect releases that may cause shallow ground water concentrations to exceed action levels found in Permit Condition K.2(a).

The IGWMP applies to the entire facility, including all regulated and corrective action units listed in Module E. Under this IGWMP, the monitoring well system, sampling program (including parameters

monitored, appropriate sampling and analytical methods, and frequency of monitoring), data evaluation procedures, record keeping, reporting and any necessary corrective action are coordinated across the facility in order to facilitate protection of the uppermost aquifer and to support corrective action being implemented at a few of the WMUs/AOCs. The data quality requirements are the same for all wells regardless of the geologic unit being monitored.

Contamination detected in each zone is evaluated in accordance with the potential exposures relevant to each zone as described in the April 2012 *Corrective Measures Study, ESOI Otter Creek Road Facility* (CMS) and Appendix E.11 of the approved Part B Permit Application. All wells (shallow till wells, deep till wells, and uppermost aquifer wells) that do not indicate a potential or known release from the facility are considered to be "unaffected" and are monitored essentially as if they are in detection monitoring according to OAC Rule 3745-54-98. As defined in Permit Conditions K.9, K.12 and K.13, all wells with elevated constituent concentrations (concentrations exceeding background limits) are considered to be "affected". If the affected well concentrations are below protection standards specified in Permit Condition K.2(a) they are monitored essentially as if they are in compliance monitoring according to OAC Rule 3745-54-99. Affected wells are also sampled to identify any additional elevated constituent concentrations above background. If concentrations exceed ground water protection standards, then the need for additional corrective action will be evaluated according to OAC Rule 3745-54-100 (uppermost aquifer wells) or OAC Rule 3745-54-101 (wells above the uppermost aquifer). Any constituent can be removed from "affected" status if it is no longer detected above background limits for four consecutive events.

In summary, the objectives of the IGWMP are as follows:

1. Satisfy requirements for detection monitoring in the uppermost aquifer (i.e., bedrock unit). The monitoring specified in this IGWMP satisfies all the requirements for ground water monitoring under OAC Rule 3745-54-91.

2. Provide monitoring under OAC Rule 3745-54-101 of current "Affected Wells" that monitor the two contact zones above the uppermost aquifer to assess the effectiveness of the selected corrective measures, which includes the evaluation of whether additional correctives measures or modification of the selected corrective measures are warranted.

3. Provide early detection of potential releases from unlined WMUs using the shallow till and deep till wells that are adjacent to unlined disposal units (and are not Affected Wells), and to assess if a detected release poses a significant risk as determined using the risk assessment methodology from the approved RCRA Facility Investigation (RFI); these procedures are provided in Appendix E.11 of the Part B Permit Application.

4. Maintain existing shallow till and deep till wells that are not Affected Wells and adjacent to only lined disposal units to allow for future ground water monitoring if monitoring is determined to be warranted based on the assessment of leachate management performance of the lined disposal units as required in this Permit. Additional information regarding the monitoring of leachate in the lined disposal units is provided in Appendix D.32 of the approved Part B Permit Application.

K.1. Applicability
OAC Rules 3745-50-44(B), 3745-54-90, 3745-54-91, and 3745-54-101

(a) The Permittee must comply with the applicable requirements in OAC Rules 3745-54-90 through 3745-54-100 for purposes of detecting, characterizing, and responding to releases to the uppermost aquifer from the units listed in Permit Condition E.3.

(b) The Permittee must comply with OAC Rule 3745-54-101 for responding to releases as necessary to protect human health and the environment. Compliance with this Rule may warrant monitoring of ground water present above the uppermost aquifer in accordance with the approved CMS and Rule 3745-54-101.

(c) OAC Rules 3745-54-90 through 3745-54-100 apply to the uppermost aquifer and 3745-54-101 applies to zones above the uppermost aquifer as described in K.1(a) and (b), during the active life, which includes the closure period, of the units listed in Permit Condition E.3. After closure of each regulated unit, OAC Rules 3745-54-90 through 3745-54-100 apply for the uppermost aquifer, as follows:

(i) Do not apply if all waste, waste residues, contaminated containment system components, and contaminated subsoils are removed or decontaminated at closure;

(ii) Apply during the post-closure care period under OAC Rule 3745-55-17 if the Permittee is conducting a detection monitoring program under OAC Rule 3745-54-98; or

(iii) Apply during the compliance period under OAC Rule 3745-54-96 if the Permittee is conducting a compliance monitoring program under OAC Rule 3745-54-99 or a corrective action program under OAC Rule 3745-54-100 or 101.

(d) The Permittee is subject to OAC Rules 3745-54-90 through 3745-54-100 for the uppermost aquifer and must conduct a monitoring and response program for the uppermost aquifer as follows:

(i) The Permittee must institute a detection monitoring program as specified in Permit Condition K.9;

(ii) If concentrations exceed background levels established pursuant to Permit Condition K.9 then Permittee must institute compliance monitoring as specified in Permit Condition K.10;

(iii) If concentrations exceed protection standards listed in Permit Condition K.2 then Permittee must institute corrective action monitoring program as specified in Permit Condition K.11.

(e) The Permittee is subject to Permit Conditions K.2 through K.8 and K.12 through K.14 for

zones above the uppermost aquifer and must conduct a monitoring program for these zones as specified therein. When referenced below, OAC Rule 3745-54-101 is only applicable to Affected wells with constituent concentrations above ground water protection standards specified in Permit Condition K.2(a).

K.2. Ground Water Protection Standard

OAC Rules 3745-50-44(B), 3745-54-92 through 3745-54-96, and 3745-54-100(A) for the uppermost aquifer and 3745-54-101 for zones above the uppermost aquifer.

The Permittee must ensure that the hazardous constituents listed in the table in Permit Condition K.2(a) that have been either detected in the ground water or wastes in the WMUs/AOCs do not exceed the concentration limits listed for the uppermost aquifer and do not exceed action levels listed for zones above the uppermost aquifer beyond the point of compliance as defined in OAC Rule 3745-54-95 during the compliance period defined in OAC Rule 3745-54-96. This ground water protection standard has been established to be protective of the uppermost aquifer and potential shallow ground water exposures due to hazardous constituents being detected in the ground water in zones above the uppermost aquifer at monitoring wells adjacent to several WMUs.

(a) The Permittee must monitor the ground water to determine whether regulated units are in compliance with the ground water protection standard under OAC Rule 3745-54-92. The hazardous constituents detected in the ground water underlying a regulated unit and reasonably expected to be contained in or derived from the waste contained in the regulated unit to which the ground water protection standard applies and their concentration limits and screening levels are listed in the table below.

(i) The Permit Condition K.2(a) Table presents a facility-specific list of hazardous constituents for the RCRA ground water monitoring program. This facility-specific list was identified based on past RCRA leachate and ground water monitoring and the results of the RCRA Facility Investigations.

(ii) Once every five (5) years, the Permittee shall perform leachate analysis of WMUs 1, 2, 3, 4, 5, 6, 7, 8, 9 and 13 (Landfill Cells F, G, H, and I, Millard Road Landfill, Northern Sanitary Landfill, Central Sanitary Landfill, Old Oil Pond, New Oil Pond, and Cell M) for all constituents in Appendix to OAC Rule 3745-54-98. All constituents detected in the leachate analysis that are not already listed in Permit Condition K.2(a), must be identified in the Annual Report required by Permit Condition K.8. The Permittee must include a determination of whether the additional constituent(s) should be added to the list. Unless demonstrated to be a false detection, all constituents detected in the primary leachate collection system (PLCS) of WMUs 1, 3, 5, 6, 7, 8, and 9 or in the secondary leachate collection system (SLCS) at WMUs 2, 4 and 13 (Cells G, I, and M) at concentrations greater than the shallow till action level found in Permit Condition K.2(a) for the constituent or greater than 30 times the maximum PQL for the constituent listed in the Part B Permit Application Section E.9, Attachment C, must be added to the list. The addition of constituents to the list must be made through an application for a permit modification per OAC Rule 3745-50-51.

(iii) Once every five (5) years (beginning in 2019), the Permittee shall perform an order of magnitude evaluation for each of the protection standards specified on the Table to Permit Condition K.2(a) to identify changes in models (*e.g.* Johnson & Ettinger no longer accepted) and toxicity data or other contaminant characteristic data on which these standards are based. If changes are identified that would result in an order of magnitude change in the protection standard, the Permittee must inform Ohio EPA and initiate a permit modification to update the protection standard.

(b) Point of Compliance

OAC Rules 3745-54-91(A)(3), 3745-54-95, and 3745-54-100(A)(3) & (E)(1) for the uppermost aquifer and 3745-54-101 for zones above the uppermost aquifer.

The point of compliance at which the ground water protection standard in Permit Condition K.2(a) applies is indicated on Figure E-15 in Section E of the approved Part B Permit Application. The Permittee must monitor the wells listed in Permit Condition K.3(b) representing the quality of ground water passing the point of compliance. If a concentration limit or action level found in Permit Condition K.2(a) is exceeded, and to the extent practicable, Permittee must also monitor the ground water, as necessary, between the point of compliance and the downgradient property boundary to determine if the concentration limit or action level has been exceeded at any point between the compliance point and the downgradient property boundary.

(c) Compliance Period

OAC Rule 3745-54-96 for the uppermost aquifer and OAC Rule 3745-54-101 for zones above the uppermost aquifer.

(i) The compliance period for the uppermost aquifer, during which the ground water protection standard of OAC Rule 3745-54-92 applies, begins when a well monitoring the uppermost aquifer is designated as affected in accordance with Permit Condition K.9(f) and continues until all uppermost aquifer affected wells have reverted to unaffected status and returned to detection monitoring in accordance with Permit Condition K.10(a)(iv)(3).

(ii) For the zones above the uppermost aquifer, the ground water protection standard specified in Permit Condition K.2(a) applies when a well monitoring a zone above the uppermost aquifer is designated as affected in accordance with Permit Condition K.12(d) or K.13(d) and will continue until all constituents monitored in zones above the uppermost aquifer have reverted to unaffected status in accordance with Permit Condition K.12(c)(iii) and K.13(c)(iii). Monitoring will continue in accordance with Permit Conditions K.12 and K.13 for unaffected wells.

Table to Permit Condition K.2(a)		
Chemical	**Hazardous Constituent**	**Protection Standard** [1]

Group		Concentration Limits (ug/L) OAC 3745-54-94	Action Levels (ug/L) OAC Rule 3745-54-101			
		Uppermost Aquifer - Bedrock Wells (2)	Deep Till Wells (3)	Shallow Till Wells (4)	WMU 5 Shallow Till Wells (5)	WMU 1/6 Shallow Till Wells (5)
VOC	Acetone	32,850 *	985,500 *	9,177,884	13,548	330,109
VOC	Benzene	5	150	5,290	405	5,290
VOC	2-Butanone	21,900 *	657,000 *	2,676,051	17,533	427,200
VOC	Carbon Disulfide	3,650 *	109,500 *	54,277	120	2,913
VOC	Chlorobenzene	100	3,000	22,301	375	9,127
VOC	Chloroethane	3,650 *	109,500 *	144,386	144,386	144,386
VOC	Chloromethane	146 *	4,380 *	2,675	2,675	2,675
VOC	Dibromomethane	329 *	9,855 *	32,138	32,138	32,138
VOC	1,2-Dichlorobenzene	600	18,000	120,890	112	2,719
VOC	1,3-Dichlorobenzene	730 *	21,900 *	5,269	175	4,272
VOC	1,4-Dichlorobenzene	75	2,250	4,370	75	1,825
VOC	1,1-Dichloroethane	7,300 *	219,000 *	890,445	375	9,127
VOC	1,2-dichloroethane	5				
VOC	1,1-Dichloroethene	7	210	23,426	19	509
VOC	cis-1,2-Dichloroethylene	70				
VOC	trans-1,2-Dichloroethene	100	3,000	187,585	7,730	187,585
VOC	1,2-Dichloropropane	5	150	3,566	307	3,566
VOC	1,4-Dioxane(5)	8.5 or PQL8	256 *	55,051	1,079	29,061
VOC	EthylBenzene	700	21,000	24,181	112	2,719
VOC	4-Methyl-2-pentanone	10 PQL	10 PQL	1,438,932	1,355	33,011
VOC	MethyleneChloride	5	150	91,917	1,585	42,683
VOC	Tetrachloroethene	5	150	11,519	111	2,997
VOC	Tetrahydrofuran	32,850 *	985,500 *	575,191	87,665	575,191
VOC	Toluene	1,000	30,000	231,496	494	12,039
VOC	1,2,4-Trichlorobenzene	70	2,100	3,658	239	3,658
VOC	1,1,1-Trichloroethane	200	6,000	1,178,750	606	14,758
VOC	Trichloroethene	5	150	191	191	191
VOC	Trichlorofluoromethane	10,950 *	328,500 *	193,233	193,233	193,233
VOC	VinylAcetate	36,500 *	1,095,000 *	58,386	1,976	48,157

VOC	VinylChloride	2	60	1,295	16	436
VOC	Xylenes(total)	10,000	300,000	29,844	215	5,243
SVOC	Acenaphthene	2,190 *	65,700 *	27,646	120	2,913
SVOC	Acenaphthylene	1,095 *	32,850 *	39,787	104	2,524
SVOC	Acetophenone	3,650 *	109,500 *	2,205,128	2,205,128	2,205,128
SVOC	Anthracene	10,950 *	328,500 *	72,400	5 PQL	5 PQL
SVOC	Benzo(a)anthracene	5 PQL	35 *	18	5 PQL	5 PQL
SVOC	Benzo(a)pyrene	5 PQL	6	5 PQL	5 PQL	5 PQL
SVOC	Benzo(b)fluoranthene	5 PQL	35 *	11	5 PQL	11
SVOC	Benzo(g,h,i)perylene	1,095 *	32,850 *	2,610	61	1,484
SVOC	Benzo(k)fluoranthene	12 *	350 *	113	5 PQL	16
SVOC	BenzylAlcohol	3,650 *	109,500 *	1,019,685	69	1,670
SVOC	bis(2-Ethylhexyl)phthalate	6	180	538	5 PQL	58
SVOC	Butylbenzylphthalate	448 *	13,447 *	44,271	183	4,466
SVOC	Chrysene	117 *	3,500 *	1,826	5 PQL	16
SVOC	Dibenz(a,h)anthracene	5 PQL	5 PQL	5 PQL	5 PQL	5 PQL
SVOC	Dibenzofuran	5 PQL	5 PQL	335	32	335
SVOC	Diethylphthalate	29,200 *	876,000 *	9,943,650	877	21,360
SVOC	2,4-Dimethylphenol	730 *	21,900 *	41,169	120	2,913
SVOC	Di-n-octylphthalate	1,460 *	43,800 *	3,888	239	3,888
SVOC	Fluoranthene	1,460 *	43,800 *	14,889	6.4	155
SVOC	Fluorene	1,460 *	43,800 *	41,696	151	3,689
SVOC	Hexachlorophene	40 PQL	329 *	40 PQL	40 PQL	40 PQL
SVOC	Indeno(1,2,3-cd)pyrene	5 PQL	35 *	8.3	5 PQL	8.3
SVOC	2-Methylnaphthalene	146 *	4,380 *	542	542	542
SVOC	2-Methylphenol	1,825 *	54,750 *	585,486	585,486	585,486
SVOC	3-Methylphenol	1,825 *	54,750 *	609,067	609,067	609,067
SVOC	4-Methylphenol	183 *	5,475 *	25,673	25,673	25,673
SVOC	Naphthalene	730 *	21,900 *	1,057	104	1,057
SVOC	2-Nitrophenol	5 PQL	5 PQL	1,951	582	1,951
SVOC	Phenanthrene	1,095 *	32,850 *	24,454	18	447
SVOC	Phenol	10,950 *	328,500 *	586,231	34	908
SVOC	p-Phenylenediamine	6,935 *	208,050 *	1,590,817	1,590,817	1,590,817
SVOC	Pyrene	1,095 *	32,850 *	11,330	5 PQL	58
PEST	Aldrin	0.05 *	1.5 *	0.8	0.05 PQL	0.05 PQL

PEST	alpha-BHC	0.14 *	4 *	50	0.16	4.4
PEST	beta-BHC	0.47 *	14 *	178	0.44	12
PEST	delta-BHC	0.05 PQL	0.05 PQL	0.05 PQL	5,316	129,519
PEST	gamma-BHC	0.2	6	163	0.21	5
PEST	Chlordane(total)	2	60	21	0.52 PQL	0.52 PQL
PEST	4,4'-DDD	3.5 *	106 *	62	0.05 PQL	0.28
PEST	4,4'-DDE	2.5 *	75 *	7.1	0.05 PQL	0.05 PQL
PEST	4,4'-DDT	2.5 *	75 *	9.2	0.05 PQL	0.05 PQL
PEST	Dieldrin	0.05 *	1.6 *	4.1	0.05 PQL	0.05 PQL
PEST	EndosulfanI	219 *	6,570 *	6,313	6,313	6,313
PEST	EndosulfanII	219 *	6,570 *	6,313	6,313	6,313
PEST	Endosulfansulfate	219 *	6,570 *	8,687	18	431
PEST	Endrin	2	60	300	0.29	7
PEST	Endrinaldehyde	11 *	329 *	459	1.2	29
PEST	Heptachlor	0.4	12	4.1	0.05 PQL	0.07
PEST	Heptachlorepoxide	0.2	6	2.3	0.05 PQL	0.05 PQL
PEST	Methoxychlor	40	1,200	548	0.15	3.7
PEST	Toxaphene	3	90	69	2 PQL	2 PQL
PCB	PCBs(total)	0.5	15	0.69	0.5 PQL	0.5 PQL
INORG	Antimony	6	180	593	327	593
INORG	Arsenic	16 Bkg	300	2,577	43 Bkg	127
INORG	Barium	2,000	60,000	149,340	1,753	42,720
INORG	Beryllium	4	120	159	29	159
INORG	Cadmium	5	150	272	2 PQL	29
INORG	Chromium (total)	100	3,000	707	335	707
INORG	Cobalt	11 *	329 *	23,292	191	4,660
INORG	Copper	1,300 (7)	39,000	220,868	56 Bkg	307
INORG	Cyanide(total)	200	6,000	330	41	330
INORG	Lead	15 (7)	450	3 PQL	9.3	227
INORG	Mercury	2	60	106	0.2 PQL	0.25
INORG	Nickel	730 *	21,900 *	37,751	704 Bkg	5,612
INORG	Selenium	50	1,500	27,608	40	971
INORG	Silver	183 *	5,475 *	3,568	10 PQL	23
INORG	Thallium	1 PQL	60	1 PQL	16	427
INORG	Tin	10,950 *	328,500 *	1,656,509	1,435	34,953
INORG	Vanadium	183 *	5,475 *	2,901	104 Bkg	2,330

INORG	Zinc	10,950 *	328,500 *	2,051,484	524	12,758
HERB	2,4-D	70	2,100	10,934	1,753	10,934
HERB	2,4,5-T	365 *	10,950 *	9,037	5,467	9,037

1. The presence of multiple chemicals in ground water are to be evaluated relative to the ground water protection level defined as a cumulative cancer risk level of 10^{-5} and a noncancer hazard index of 1 (chemicals with an MCL are not included in the computation of cumulative risks).

2. The uppermost aquifer ground water concentration limit is set to the MCL. If a MCL is not available, then the equivalent drinking water level (EDWL) is calculated at the lower of the target cancer risk of 10^{-5} or hazard quotient of 1. EDWL values are noted with a "*".
3. The deep till well action level is equal to the drinking water standard or EDWL times the default bedrock dilution factor of 30:1, which represents the lowest dilution factor as specified in Permit Condition K.12. Unit-specific action levels may be computed as provided in Permit Condition K.12 (see Section E, Appendix E.11 of the approved RCRA Part B Permit Application). Action levels based on EDWL values are noted with a "*".
4. The shallow till well action level is the lower of the risk-based criteria for: (a) dermal contact with shallow ground water and inhalation of vapors from ground water by workers during excavations; and (b) vapor intrusion into industrial buildings. The risk-based criteria for each pathway are calculated at the lower of the target cancer risk of 10^{-5} or hazard quotient of 1.
5. The shallow till well action level for monitoring of WMU 5 (Millard Road Landfill) and WMUs 1/6 (Cell F / North Sanitary Landfill) is the lower of the (a) shallow till risk-based criteria and (b) groundwater to surface water criteria calculated using the minimum human health and ecological surface water criteria and unit-specific dilution attenuation factors (see Section E, Appendix E.11 of the approved RCRA Part B Permit Application). WMU 5 criteria apply to monitoring wells MR-2S, MR-3S, and MR-06S (proposed). WMU 1/6 criteria apply to monitoring wells F-3S, F-2S, SW-2S, and SW-01S.
6. 1,4-Dioxane is analyzed as a VOC; this constituent is analyzed as an SVOC if other SVOCs are being analyzed.
7. The criterion for copper and lead in bedrock wells are the federal treatment standards.
8. The concentration limit for 1,4-dioxane in the Uppermost Aquifer is 8.5 ug/l unless the PQL exceeds 8.5 ug/l. The PQL for the analysis of Uppermost Aquifer samples will be in accordance with the following: Using analysis method 8260 the maximum PQL is 50 ug/l for Method SW846:8260; for Method SW846:8270, the maximum PQL is 3 ug/l. A PQL less than 8.5 ug/L is required for Uppermost Aquifer wells when conducting compliance monitoring or corrective measures monitoring in the Uppermost Aquifer, or if concentrations in a deep till well exceeds the specified Action Level.

   In detection monitoring if 1,4-dioxane is detected at an estimated level in the uppermost aquifer with a PQL that is >8.5 ug/L, resampling shall be conducted to confirm the detection with a PQL that is <8.5 ug/L.

PQL = Uppermost Aquifer Bedrock Concentration Limit or Till Action Level is the PQL.

Bkg = Uppermost Aquifer Bedrock Concentration Limit or Till Action Level is the background groundwater concentration.

K.3. Well Location, Installation, Maintenance, and Removal

OAC Rules 3745-54-95, 3745-54-97(A) to (C), and 3745-54-100(D) & (E) for the uppermost aquifer and 3745-54-101 for zones above the uppermost aquifer.

(a) The Permittee's ground water monitoring system must consist of a sufficient number of wells, installed and screened at appropriate locations and depths to yield ground water samples from the Greenfield limestone bedrock zone which is considered to be the uppermost aquifer, the lacustrine/upper till contact zone, and the upper till/lower till contact

zone/sands at the contact zone. The well system must be as effective as the compliance ground water monitoring system required by OAC Rule 3745-54-99 in determining compliance with the ground water protection standard defined in Permit Condition K.2 and in determining the success of the corrective action program required under OAC Rule 3745-54-100 for the uppermost aquifer and OAC Rule 3745-54-101 for zones above the uppermost aquifer. The samples must:

(i) Represent the quality of background water that has not been affected by leakage from the regulated unit;

(ii) Represent the quality of ground water passing the point of compliance, between the point of compliance and the downgradient property boundary, and beyond the property boundary, where necessary, to protect human health and the environment;

(iii) Allow for the detection and measurement of contamination when hazardous waste or hazardous constituents have migrated from the waste management area consisting of one or more WMUs/AOCs to the uppermost aquifer; and

(iv) Demonstrate the effectiveness of the corrective action program.

(b) The monitoring system consists of the ground water wells as specified on Figure E-15 found in Section E of the approved Part B Permit Application and in conformance with the following list:

Monitoring Wells in the Integrated Ground Water Monitoring Program					
"S" Wells		"D" Wells		Uppermost Aquifer Bedrock "R" Wells	
F-1S	M-11S	F-1DA	M-4D	R-1	R-26*
F-2S	M-12S	F-2D	M-5D	R-2	R-27*
F-3S	M-13S	F-3D	M-6D	R-3	CR-1**
G-1S	M-14S	G-1DA	M-8D	R-4	DDG-1**
G-2S	M-15S	G-2DA	M-9D	R-5	DDG-3**
G-3S	M-16S	G-3D	M-10D	R-6 (Cell M)	DUG-2**
G-4S	M-17S	G-6	M-11D	R-7 (Cell M)	
G-12S	M-18S	G-7	M-12D	R-8	
G-13S	M-19S	G-8	M-13D	R-9	
H-1S	M-20S	G-9	M-14D	R-10	
H-2S	M-21S	G-10A	M-15D	R-11 (Cell M)	
H-3S	M-22S	G-11	M-16D	R-12 (Cell M)	
H-4S	M-23S	H-1D	M-17D	R-13 (Cell M)	
H-5S	MR-1SA	H-2D	M-18D	R-14	
H-6S	MR-2S	H-3D	M-19D	R-15	
I-3SA	MR-3S	H-4D	M-20D	R-16	
I-4S	MR-4S	H-5D	M-21D	R-17 (Cell M)	

Monitoring Wells in the Integrated Ground Water Monitoring Program					
"S" Wells		"D" Wells		Uppermost Aquifer Bedrock "R" Wells	
I-5SA	MR-5S	H-6D	M-22D	R-18 (Cell M)	
I-6S	MR-6S	I-3D	MR-1DA	R-19 (Cell M)	
I-7S	MR-7S	I-4D	MR-2D	R-20 (Cell M)	
I-8S	SW-1S	I-5D	MR-3D	R-21 (Cell M)	
M-1S	SW-2S	I-6D	MR-4D	R-22 (Cell M)	
M-2S	SW-3S	M-1D	SW-1D	R-23	
M-3S	SW-4S	M-2D	SW-2D	R-24	
M-5S		M-3D	SW-3D	R-25***	
M-6S					
M-10S					
* New Bedrock wells to be installed in accordance with permit condition K.3(b)(i). **Bedrock Water Level Recording Wells. These wells are utilized for collection of water level measurements only. ***Bedrock water level recording well DUG-1 to be redesignated and incorporated into the bedrock monitoring network in accordance with Permit Condition K.3(b)(ii).					

(i) To meet the requirements of Permit Condition K.3(a), two (2) new bedrock monitoring wells will be installed within sixty (60) days of the approval of this permit modification. One well is to be located on the east side of WMU 4 (Cell I), north of well nest I-4. The second well is to be located on the north side of WMU 6 (North Sanitary Landfill) approximately midway between bedrock monitoring wells R-16 and R-3.

(ii) To meet the requirements of Permit Condition K.3(a), existing bedrock water level recording well designated DUG-1 will be incorporated into the monitoring network as bedrock well R-25, and shallow till wells G-12S, G-13S, MR-5S, MR-6S, MR-7S, and SW-4S will be incorporated into the monitoring network.

(c) Wells identified in Permit Condition K.3(b) must be cased in a manner that maintains the integrity of the monitoring well bore hole and complies with the detailed plans and specifications presented in Section E3b of the approved Part B Permit Application. The casing must be screened and packed with gravel or sand, where necessary, to enable collection of ground water samples. The annular space above the sampling depth must be sealed to prevent contamination of samples and the ground water.

Section E Appendix E.13 of the approved Part B Permit Application contains a "Master Boring and Well Log", which references the location of boring logs and well construction diagrams illustrating compliance with this Permit Condition.

(d) The addition, removal or replacement of any monitoring well identified in Permit Condition K.3(b) must be conducted in accordance with the Appendix to OAC Rule 3745-50-51 permit

modification process. Each change must be accompanied by a revised map as specified on Figure E-15 of Section E of the approved Part B Permit Application for Permit Condition K.3(b). Within thirty (30) days from the date a well is added to the ground water monitoring well network, the Permittee must submit to the Director and Ohio EPA, Northwest District Office, all well construction details.

(e) All wells replaced or removed in accordance with Permit Condition K.3(d) must be plugged and abandoned in accordance with *Ohio EPA's Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring (Chapter 9 (2009))*. Well plugging and abandonment methods, and certification must be submitted to the Director within thirty (30) days from the date the wells are removed from the monitoring program.

(f) Whenever any well specified in Permit Condition K.3(b) is replaced for any reason or, if any other well is added to the network (i.e., any well that is not already installed), the Permittee must:

(i) Conduct sampling for all constituents listed Permit Condition K.2(a) at that well within one (1) year from the date of installation;

(ii) Within one (1) year of the date of installation, collect from that well all ground water samples necessary to develop background limits for data from that location for naturally occurring constituents in accordance with Permit Condition K.6 and K.7;

(iii) Whenever any of the wells specified in Permit Condition K.3(b) are replaced, the Permittee must demonstrate to Ohio EPA that the ground water chemistry at the replacement well meets the criteria in Permit Condition K.3(a) prior to submittal of the next semi-annual data report according to Permit Condition K.8(b)(ii) using means appropriate to the reason for replacement. For all replacement wells, the Permittee must perform a statistical comparison of the water quality at the replacement well with that of the original well;

(iv) Submit a report to Ohio EPA, Northwest District Office detailing the results of testing conducted pursuant to Permit Conditions K.3(f)(i), (ii), and (iii). This report is to be provided with the semi-annual data report for the event immediately following the end of the first year after the installation of the new well. The schedule for semi-annual reports is found in Permit Condition K.8(b)(ii)(a). The Permittee must enter the sampling and analysis data generated pursuant to Permit Condition K.3(f)(i) into the operating record as described in Permit Condition K.8(a);

(v) If the comparison of ground water quality pursuant to Permit Condition K.3(f)(iii) shows a statistically significant difference between that of the original well and the replacement well, then the report described in Permit Condition K.3(f)(iv) must include an evaluation as to whether this difference has an effect on the ground water monitoring program, including the influence on cumulative risk estimates for the ground water above the uppermost aquifer calculated in accordance with Permit

Condition K.2(a); and,

(vi) If any changes are necessary to the ground water monitoring program because of a statistically significant difference in ground water quality between a replacement well and the well it replaced, the Permittee must submit a request for a permit modification in accordance with Permit Condition K.8(b)(ii)(b)(xxiv).

K.4. Sampling and Analysis Procedures

OAC Rule 3745-54-97 (D) and (E) for the uppermost aquifer and 3745-54-101 for zones above the uppermost aquifer.

The Permittee must use the following techniques and procedures when obtaining and analyzing samples from the ground water monitoring wells described in Permit Condition K.3:

(a) Ground water elevations must be measured using the techniques described in Appendix E.9 of the approved Part B Permit Application.

(b) Each well must be checked for the presence of immiscible layers using an interface probe prior to purging where dissolved concentrations of any facility-specific parameter indicates that immiscible layers could be present using the methods described in Appendix E.9 of the approved Part B Permit Application.

(c) Sample Collection

(i) Samples must be collected and handled (including well evacuation, sample withdrawal, preservation, containerization, filtration and shipment) to ensure representative samples are obtained using the techniques and equipment described in Appendix E.9 of the approved Part B application.

(ii) The Permittee must collect samples from the wells least likely to exhibit ground water contamination prior to collecting samples from wells with known or suspected ground water contamination.

(d) Field analysis must be performed using instruments, procedures and forms described in the approved Part B Permit Application. Instruments must be calibrated as described in Appendix E.9 of the approved Part B Permit Application.

(e) Sampling equipment must be decontaminated using techniques described in Appendix E.9 of the approved Part B Permit Application.

(f) Purge water must be disposed in accordance with procedures described in Appendix E.9 of the approved Part B Permit Application.

(g) Laboratory Analysis

(i) Laboratory analytical methods, detection limits and sample holding time must be in accordance with techniques described in Appendix E.9 of the approved Part B Permit Application.

(ii) Laboratory selection for sample analysis shall not be contingent upon Ohio EPA approval of laboratories.

(h) Quality Assurance/Quality Control

(i) Quality assurance, including field/lab/equipment blanks, duplicate samples and identification of potential interferences, must be in accordance with the methods described in Appendix E.9 of the approved Part B Permit Application.

(ii) Field and analytical data must be validated in accordance with the procedures specified in Appendix E.12 of the approved Part B Permit Application and reported as specified in Permit Condition K.8(b)(ii)(b)(vii).

(iii) Chain of custody procedures, including standardized field tracking reporting forms, and sample labels, must be in accordance with Appendix E.9 of the approved Part B Permit Application.

K.5. Ground Water Surface Elevation

OAC Rule 3745-54-97(F) for the uppermost aquifer and 3745-54-101 for zones above the uppermost aquifer.

(a) The Permittee must determine the ground water surface elevation at each well each time the well is sampled, and submit the information in accordance with Permit Condition K.8(b)(ii)(b). Ground water surface elevation from each of the chart recorder wells DUG-2, DDG-3, DDG-1 and CR-1 must be reported for each semi-annual sampling event.

(b) The Permittee must report, in writing to the Ohio EPA, Northwest District Office, the surveyed elevation of the tops of casing, ground surface and/or aprons, and protective casings of any new or replacement monitoring wells specified in Permit Condition K.3(d) within thirty (30) days of the date of installation.

K.6. Sampling Frequency for Setting Background Limits

OAC Rule 3745-54-97(G)) for the uppermost aquifer and 3745-54-101 for zones above the uppermost aquifer.

Data on each hazardous constituent specified in Permit Condition K.2(a) will be collected from the wells specified in Permit Condition K.3(b). The sampling methods, sampling frequency and data evaluation procedures are described in Appendices E.7 and E.9 of the approved Part B Permit Application and Permit Conditions K.4, K.7, and K.9 through K.13.

(a) The number and kinds of samples collected to establish background must be appropriate for

the form of statistical test employed, following generally accepted statistical principles.

(b) The sample size must be as large as necessary to ensure with reasonable confidence that a contaminant release to ground water from a facility will be detected.

(c) Background data must be updated as necessary in accordance with Permit Condition K.7(c) to provide an accurate representation of background ground water quality. New or revised background values must be established in the permit through the permit modification process in OAC Rule 3745-50-51.

K.7. Statistical Procedures

OAC Rule 3745-54-97 (H) and (I) for the uppermost aquifer and 3745-54-101 for zones above the uppermost aquifer.

The Permittee must use the following evaluation and statistical procedures to establish background limits to be used to identify ground water monitoring results showing statistically significant evidence of contamination for each hazardous constituent in Permit Condition K.2(a) in each well listed in Permit Condition K.3(b):

(a) For those constituents for which background values have not been collected and established at the time of Permit Application, the Permittee must choose and submit to Ohio EPA the appropriate statistical method within sixty (60) days after the receipt of the last background sampling event data through the permit modification process in OAC Rule 3745-50-51.

(i) For inorganics listed in Permit Condition K.2(a), dissolved inorganics data will be used, when available, to establish background levels for future monitoring. If dissolved data are not available, then "total" inorganics data will be used. If data are not available, then sampling for dissolved inorganic concentrations must be conducted as specified in Permit Condition K.7(c).

(ii) For all deep and shallow till zone wells, background levels will be established as the facility-wide maximum intrawell prediction limit among all deep till monitoring wells and shallow till zone monitoring wells, respectively.

For those constituents for which background values have been collected, the derivation of the statistical background limit is presented in Section E of Appendix E.7 of the approved Part B Permit Application.

(b) The Permittee's statistical procedures to determine background limits must be protective of human health and the environment, provide reasonable confidence that the migration of hazardous constituents from a regulated unit into and through the aquifer will be indicated, and will determine whether such leakage of hazardous constituents into the ground water exceeds specified ground water protection standard specified in Permit Condition K.2(a). The statistical procedures must comply with the following performance standards:

(i) The statistical evaluation of ground water monitoring data must be conducted separately for each hazardous constituent specified in Permit Condition K.2(a) in each well.

(ii) The statistical method must be appropriate for the distribution of the data used to establish background or concentration limits. If the distribution for the constituents differs, more than one statistical method may be needed.

(iii) The statistical method must provide a reasonable balance between the probability of falsely identifying a non-contaminating and/or exceeding unit and the probability of failing to identify a contaminating and/or exceeding regulated unit using U.S. EPA Guidance document as a reference "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance", March 2009.

(iv) If a control chart approach is used, the specific type of control chart and its associated parameter values must be proposed by the Permittee and incorporated into the permit in accordance with OAC Rule 3745-50-51.

(v) If a tolerance or prediction interval procedure is used, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, must be proposed by the Permittee and incorporated into the permit in accordance with OAC Rule 3745-50-51. These parameters must be determined after considering the number of samples in the background data base, the data distribution, and the range of concentration values for each constituent of concern.

(vi) The statistical method must account for data below the limit of detection with one or more statistical procedures. Any practical quantitation limit (PQL) approved in the permit that is used in the statistical method must be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the Permittee.

When 100% of the background data is less than the PQL, the background statistical limit is equal to <PQL. In this case any compliance data result equal to or greater than the PQL is considered to be statistically above background.

(vii) If necessary, the statistical method must include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

(c) Data used to develop background must be demonstrated to be representative of ground water quality that has not been affected by leakage from a regulated unit. Background must consist of a minimum of eight (8) data points and must be updated in accordance with the following procedures when less than sixteen (16) data points.

(i) Background is not updated with less than four (4) new data points at any one time.

(ii) The new background (previous background data plus new background data) must be checked for slowly increasing trends. If a slowly increasing trend is identified, then the background must not be updated unless concurrence from Ohio EPA is received that the Permittee has adequately demonstrated that the increasing trend is not the result of a release from the facility.

(iii) Background updates must be accumulative and not a moving window, unless a trend or shift is identified in the background data. As required in Permit Condition K.7(c)(ii), the Permittee must adequately demonstrate that the identified trends are not the result of a release from the facility before the background update would be accepted by Ohio EPA.

(iv) When a trend or shift in background data has been identified and it has been adequately demonstrated to not be the result of a release from the facility, then a moving window background should be used. The size of the moving window will be dependent upon the rate of change and the best balance between background size and variance.

(v) Background data for wells with established background statistical limits based on a background size of less than 16 must be re-evaluated on a fixed schedule of every four years, beginning in calendar year 2012. Data points available to the Permittee on July 1, 2012 (and on the first day of July every four years thereafter) will be used for recalculation of background statistical limits, provided that four or more new data points are available for the constituent-well combination being monitored as required by Permit Condition K.7(c)(i). Recalculated background statistical limits must be submitted to Ohio EPA in the form of a Permit modification by the last day of the calendar year during which the recalculation is performed, based on the four-year schedule beginning in 2012. The Permittee may elect to recalculate individual background statistical limits at any well more frequently than specified herein, if the Permittee complies with the requirements of Permit Conditions K.7(c)(i) through K.7(c)(iv).

K.8. Operating Record and Reporting

OAC Rules 3745-54-73, 3745-54-75, 3745-54-77 and 3745-54-100(G) for the uppermost aquifer, and 3745-54-101 for zones above the uppermost aquifer.

(a) Operating Record

The Permittee must maintain all the following information obtained in accordance with Permit Module K in the operating record:

(i) Ground water monitoring data collected in accordance with this permit including actual levels of constituents.

(ii) The laboratory results from each of the wells and their associated qualifiers including the laboratory sheets for the full volatile and semi-volatile analyses (must include

method codes, method detection limits, and units of measurement).

(iii) The date each well was sampled (in tabular format).

(iv) The date, time, and identification of all blanks and duplicates.

(v) Any field log documentation of deviation from the procedures in the Ground Water Monitoring Program Sampling and Analysis Plan in Appendix E.9 of the approved Part B Permit Application, including documentation of parameter omissions during the sampling event.

(vi) The date the Permittee received the results from the laboratory.

(vii) The date the Permittee completed their review of the analytical laboratory's verification of the accuracy and precision of the analytical data and determined its quality.

(viii) The results of the data validation review per Permit Condition K.8(a)(vii) including: report completeness, chain of custody, sample receipt form, signed statement of validity, technical holding time review, data qualifiers including their definitions, dilutions, blank data, spikes, spike recovery %, surrogate recovery, and an explanation of any rejected results.

(ix) Results of all blanks and duplicates (trip, field, equipment, and method).

(x) Results of the field parameters.

(xi) The statistical evaluation of the data (must include all computations, results of statistical tests, and date the statistical evaluation was completed).

(xii) Any change in well status (i.e., going from unaffected to affected status and vice versa).

(xiii) Ground water surface elevations taken at the time of sampling each well.

(xiv) Data and results of the semi-annual determination of the ground water flow rate and direction.

(xv) The results of the last three years of all inspections required under OAC Rule 3745-54-15(D) related to ground water monitoring and equipment as required under OAC Rule 3745-54-73(B)(5).

(xvi) Evaluation of the efficiency of any corrective actions performed to bring the ground water quality into compliance with the ground water protection standard specified in Permit Condition K.2.

(b) Annual, Semi-Annual, & Other Periodic Required Reporting

(i) Required Annual Reporting

The Permittee must submit an annual report to the Director by March 1st of the following year. The annual reports must reference the titles and dates of any other periodic reports required by the permit or any updates to those reports, but generally do not need to include duplicates of hard copies previously submitted. The annual reports must include, at a minimum:

(a) The analytical results required by Permit Conditions K.9, K.10, or K.11, and K.12, K. 13, or K.14.

(b) The ground water elevation data required by Permit Condition K.5.

(c) The results of any statistical analyses required by Permit Conditions K.9, K.10, K.11, K.12, K.13 or K.14.

(d) A copy on disk of all ground water and blank data must be submitted electronically in the format supplied by the Director.

(e) A hard copy of well-specific information (location (latitude and longitude, depth, construction, etc.) for any new/replacement wells.

(f) Any other information specified in the instructions for the annual report not addressed in this Permit Condition must be submitted in accordance with OAC Rules 3745-54-75 and 97(J).

(g) Evaluation of the efficiency of any corrective actions performed to bring the ground water quality into compliance with the ground water protection standard specified in Permit Condition K.2.

(h) Double lined WMU monitoring data including a table of leachate volumes for the calendar year, the results of the ALR analysis described in Appendix D.32 of the approved Part B Permit Application.

(i) Leachate analysis results per Permit Condition K.2(a)(ii) beginning 2019.

(j) Evaluation of the double-lined WMU leachate system performance.

(ii) Required Semi-Annual Reporting

(a) The Permittee must submit semi-annually a Data Report and Evaluation for each semi-annual sampling and analysis event, conducted in April and

October each year. Semi-Annual Data Reports and Evaluations must be submitted on or before September 1st for April events and March 1st for October events. If any of these dates fall on a weekend or state holiday, the reports will be due no later than the following business day. The reports must be submitted to Ohio EPA Northwest District Office and entered into the operating record in accordance with OAC Rule 3745-54-73. The Permittee must maintain all documentation from the laboratories regarding analysis of ground water samples. Ohio EPA may require submittal of a copy of the full quality assurance/quality control (QA/QC) report for a particular event if circumstances warrant; but, in general, this will not be required.

(b) Semi-Annual Data Reports required by Permit Condition K.8(b)(ii)(a) must include all the information listed below for: Replacement well sampling required by Permit Condition K.3(f); Background sampling required by Permit Condition K.6 and K.7; and Semi-annual and annual sampling and analysis events required by Permit Conditions K.9 through K.14.

(i) The laboratory results from each of the wells, including duplicates, and their associated data qualifiers.

(ii) The date each well was sampled (in tabular format).

(iii) The date, time and identification of all blanks and duplicates (tabulated).

(iv) All Ground Water Sampling Field Data Sheets and documentation of deviations from the procedures specified in Appendix E.9 of the approved Part B Permit Application including documentation of parameter omissions during the sampling event.

(v) The date the Permittee received the results from the laboratory.

(vi) The date the Permittee completed their preliminary review of the analytical laboratory's verification of the accuracy and precision of the analytical data and determined its quality. This review must be based upon the data validation procedures in Appendix E.12 of the approved Part B Permit Application. Compliance will be facilitated by referring to: Ohio EPA Technical Guidance Manual for

Hydrogeologic Investigations and Ground Water Monitoring, February 1995.

(vii) The results of the data validation review including: report completeness, chain of custody, sample receipt form, signed statement of validity, technical holding time review, data qualifiers including their definitions, dilutions, blank data, spikes, spike recovery %, surrogate recovery, and an explanation of any rejected results consistent with the U.S. EPA and Ohio EPA guidelines for data review.

(viii) The results from all blanks (temperature, trip, field, equipment, method, etc.), matrix spike analysis, and laboratory control samples.

(ix) Results of the field parameters.

(x) All Chains-of-Custody.

(xi) A list of affected wells.

(xii) The constituent lists for the affected wells.

(xiii) Identification of the person(s) performing the statistical evaluation;

(xiv) Ground water elevation data, tabulated as required by Permit Conditions K.5(a);

(xv) Potentiometric surface maps for each monitored zone (one map for each zone) based on the ground water elevation data based on data from all wells, whether the data are contourable or not.

(xvi) A discussion of flow characteristics, including any changes in ground water flow direction in the bedrock zone.

(xvii) The information specified in Permit Condition K.8(b)(i)(a) through (j) for all resampling and analysis and confirmation sampling and analysis conducted to satisfy Permit Condition K.9(f).

(xviii) The date of completion of all data evaluation (e.g., cumulative risk estimates, statistical analysis, etc.).

(xix) Identification in change in well-constituent status:

(*a*) Identification of elevated constituents for each well in accordance with Permit Conditions K.9(d) and (f); K.10(a)(iv) and (vi); K.12(c); and K.13(c)

(*b*) Notice of change in well status from unaffected to affected in accordance with Permit Condition K.9(g);

(*c*) Notice of change in well status from affected to unaffected, and change in constituent from elevated to non-elevated in accordance with Permit Condition K.10(a)(iv)(c); and

(*d*) Notice of intent to submit a false positive demonstration in accordance with Permit Condition K.9(g)(vi).

(xx) The date the Permittee completed their final review of the analytical laboratory's verification of the accuracy and precision of the analytical data and determined its quality and a signed statement of validity. This review must be based upon the elements in Permit Condition K.8(b)(i)(a) through (j) and the data validation procedures in Appendix E.12 of the approved Part B Permit Application.

(xxi) Plan maps, cross sections, and evaluations for each elevated constituent showing the extent of the plume in accordance with Permit Condition K.10(a)(iv)(b).

(xxii) The results of cumulative risk estimates, including a discussion of the effect of using any qualified data.

(xxiii) A report on the effectiveness of the IGWMP, performed by a qualified hydrogeologist in accordance with Permit Conditions K.14(i), K.9(h), and K.10(d).

(xxiv) A report on, and schedule for, any permit modification requests to be submitted. Permit modification requests may include, but are not limited to, those required by Permit Conditions:

(*a*) K.3(d) to add, remove or replace wells;

(*b*) K.3(f)(vi) for changes to the program as a result of a difference in ground water quality between a well and a replacement well;

(*c*) K.6(c) for establishing new or revised background values;

(*d*) K.7(a) for identifying appropriate statistical method for establishing background values;

(*e*) K.7(c) for implementing recalculated background statistical limits;

(*f*) K.9(g)(iv) and K.10(a)(iv) to change well status from unaffected to affected, add constituents to sampling and analysis lists for affected wells and adjacent wells, and/ or change monitoring frequency, sampling and analysis procedures;

(*g*) K.10(b) to establish a corrective action program meeting the requirements of OAC Rules 3745-54-100;

(*h*) K.9(g)(vi) and K.10(c) for changes to the program because of an alternate source demonstration;

(*i*) K.10(a)(vi) add wells to determine extent; and,

(*j*) K.9(h), K.10(d), and K.11 changes because of the Permittee or the Director determining that the IGWMP established by this Permit no longer satisfies the regulatory requirements.

(xxv) Report on any monitoring well maintenance performed, including copies of any maintenance forms, and any maintenance scheduled to be performed.

(iii) Other Reports
OAC Rule 3745-54-77(C)

The Permittee must comply with any reporting requirements that become necessary under Permit Conditions K.9, K.10, K.11, K. 12, K.13 and K.14 in accordance with the schedules covered by that permit condition and as required by OAC Rule 3745-54-77(C).

UPPERMOST AQUIFER MONITORING PROGRAM

K.9. Detection Monitoring Program
OAC Rule 3745-54-98

(a) The Permittee must establish and implement a detection ground water monitoring program as required by OAC Rule 3745-54-98 at all uppermost aquifer wells listed in Permit Condition K.3(b) that have not been identified as an affected well. An affected well is a well where the Permittee has determined there is statistically significant evidence of contamination in accordance with Permit Condition K.9(f) and K.9(g)(ii).

(b) The Permittee must determine concentrations of the parameters in the following table that provide a reliable indication of the presence of hazardous constituents in ground water at each uppermost aquifer monitoring well listed in Permit Condition K.3(b) semi-annually during the active life of the regulated unit(s) plus the closure period and post closure care period. These concentrations will be compared to the background concentrations set forth below in accordance with Permit Conditions K.6 and K.7.

Hazardous Constituent	CASRN	Background Concentration Limit
VOCs		
Acetone	67-64-1	<PQL(1)
Benzene	71-43-2	<PQL(1)
2-Butanone	78-93-3	<PQL(1)
Carbon Disulfide	75-15-0	<PQL(1)
Chlorobenzene	108-90-7	<PQL(1)
Chloroethane	75-00-3	<PQL(1)
Chloromethane	74-87-3	<PQL(1)
Dibromomethane	74-95-3	<PQL(1)
1,1-Dichloroethane	75-34-3	<PQL(1)
1,2-Dichloroethane	107-06-2	<PQL(1)
1,1-Dichloroethene	75-35-4	<PQL(1)
trans-1,2-Dichloroethene	156-60-5	<PQL(1)
1,2-Dichloropropane	78-87-5	<PQL(1)
1,4-Dioxane	123-91-1	<PQL(1)
Ethyl Benzene	100-41-4	<PQL(1)
Methylene Chloride	75-09-2	<PQL(1)
Tetrachloroethene	127-18-4	<PQL(1)
Tetrahydrofuran	109-99-9	<PQL(1)
Toluene	108-88-3	<PQL(1)
1,1,1-Trichloroethane	71-55-6	<PQL(1)
Trichloroethene	79-01-6	<PQL(1)
Vinyl Chloride	75-01-4	<PQL(1)
Xylenes (total)	1330-20-7	<PQL(1)
Inorganics		
Barium (dissolved)	7440-39-3	Background Statistical Limit(2)
Cadmium (dissolved)	7440-43-9	Background Statistical Limit(2)
Total Chromium (dissolved)	7440-47-3	Background Statistical Limit(2)
Cyanide (total)	57-12-5	Background Statistical Limit(2)
Lead (dissolved)	7439-92-1	Background Statistical Limit(2)

1. Practical Quantitation Limit (PQL). A confirmed detection at or above the PQL is considered a statistical significant increase above background. Maximum PQLs are listed in Attachment C of Appendix E.9 of the approved Part B Permit Application.
2. Background Statistical Limit: For the uppermost aquifer, background limits are specified as intrawell statistical limits derived and listed in Appendix E.7 of the approved Part B Permit Application.

In addition to the hazardous constituents listed above, the Permittee must monitor the following parameters:

Ground Water Field Parameters
pH
specific conductance

Ground Water Field Parameters
temperature
turbidity

Note: These field parameters will be measured in the field in accordance with the Permittee's Standard Operating Procedures for the collection of ground water samples as described in Appendix E.9 of the approved Part B Permit Application. These parameters will be collected to demonstrate that the collected ground water samples are representative of formation water.

(c) The Permittee's ground water monitoring program must include collection, preservation, and analysis of samples for the constituents and parameters listed in Permit Condition K.9(b) pursuant to Permit Conditions K.4, K.5, and K.6. The Permittee must maintain a record of ground water analytical data as measured and in a form necessary for the determination of statistical significance under Permit Conditions K.7 and K.8.

(d) Statistical analysis shall be conducted semi-annually to determine whether there is statistically significant evidence of contamination for any parameter or hazardous constituent specified in Permit Condition K.9(b).

(e) The Permittee must determine the ground water flow rate and direction in the uppermost aquifer semi-annually using the procedures specified in Appendix E.9 of the Approved Part B Permit Application and Permit Condition K.5.

(f) The Permittee must determine whether there is statistically significant evidence of contamination for any chemical parameter or hazardous constituent specified in Permit Condition K.9(b) semi-annually and include the results in the semi-annual data report in accordance with Permit Condition K.8(b)(ii)(b).

In determining whether statistically significant evidence of contamination exists, the Permittee must use the methods specified in Permit Conditions K.6 and K.7 to compare data collected at the compliance point(s) to the background ground water quality data.

When the initial sample concentration of a constituent exceeds its associated background statistical limit, the Permittee may re-sample the well(s) in question in duplicate in accordance with Permit Condition K.9(g)(iii). The duplicate samples must be analyzed by two independent laboratories. If the independent laboratory results have a relative percent difference of 30% or less, then the exceedance will be considered confirmed only if the analysis results from both laboratories exceed the associated background limit. If the independent laboratory results have a relative percent difference greater than 30%, then the exceedance will be considered confirmed if either result exceeds the associated background limit. If the exceedance is confirmed, the constituent will be considered elevated and the well will be considered to be affected unless demonstrated otherwise pursuant to Permit Condition K.9(g)(vi). If the exceedance is not confirmed, then the constituent will be considered to not be elevated and the well will remain unaffected and in detection

monitoring. If re-sampling in duplicate is not conducted the constituent will be considered elevated based on the initial sample concentration and the well will be considered affected.

(g) If the Permittee determines, pursuant to Permit Condition K.9(f), that statistically significant evidence of contamination for any chemical parameter or hazardous constituent specified in Permit Condition K.9(b) has been confirmed at any monitoring well at the compliance point, then the Permittee must:

(i) Notify the Director of this finding in writing in the semi-annual data report in accordance with Permit Condition K.8(b)(ii) of that determination. The notification must indicate what chemical parameters or hazardous constituents have shown statistically significant evidence of contamination, the corresponding analytical results, and the well(s) with the confirmed evidence;

(ii) Sample the ground water prior to or during the next semi-annual sampling event in affected well(s), nested wells, and adjacent wells listed in Permit Condition K.3(b) and determine whether constituents listed in Permit Condition K.2(a) are present, and if so, at what concentration. A well need only be sampled once within a given sampling event, excluding re-sampling for confirmation, to meet the requirements of this Permit Condition, even if it is identified for this sampling more than once due to an overlap in sampling events.

(iii) For any constituents listed in Permit Condition K.2(a) detected in samples collected pursuant to Permit Condition K.9(g)(ii), the Permittee may re-sample affected wells in accordance with the re-sampling procedures in Permit Condition K.9(f) within thirty (30) days of receiving all final data validation results for the sampling event (target dates are April and October for initial samples and July and January for resamples). If the results of the second analysis confirm the initial results, or if the Permittee elects not to re-sample, then these constituents form the basis for compliance monitoring specified in Permit Condition K.10.

(iv) Within ninety (90) days of the semi-annual data report submittal date in Permit Condition K.8(b)(ii), submit to the Director an application for a permit modification adding the affected well(s) to the affected well list in Appendix E.9, Attachment D of the approved Part B Permit Application, and implement the compliance monitoring program meeting the requirements of OAC Rule 3745-54-99 in Permit Condition K.10. The application must include the following information:

(a) Identification of the concentration of any constituents listed in Permit Condition K.2(a) detected in the ground water at each monitoring well at the point of compliance or between the compliance point and the downgradient facility boundary;

(b) Any proposed changes to the ground water monitoring system at the facility necessary to meet the requirements of compliance monitoring under OAC Rule 3745-54-99 including wells necessary to meet OAC Rule 3745-54-

91(A)(3) with a visual representation of the point of compliance required by OAC Rule 3745-54-95;

(c) Any proposed additions or changes to the monitoring frequency, sampling and analysis procedures or methods, or statistical methods used at the facility necessary to meet the requirements of OAC Rule 3745-54-99;

(d) For each hazardous constituent detected at the compliance point or between the compliance point and the downgradient property boundary, a proposed concentration limit under OAC Rule 3745-54-94(A)(1) or (A)(2), or a notice of intent to seek an alternate concentration limit for a hazardous constituent under OAC Rule 3745-54-94(B);

(e) The compliance period as defined in OAC Rule 3745-54-96; and

(f) A statement that the Permittee will begin or has begun sampling and analyzing for the new constituents at the next regularly scheduled sampling event following the event in which they were determined to be present.

(v) Within one hundred and eighty (180) days of determining a statistically significant increase submit to the Director:

(a) All data necessary to satisfactorily justify an alternate concentration limit under OAC Rule 3745-54-94(B) if a concentration limit has not already been established for the constituent in Permit Condition K.2(a); and

(b) An engineering feasibility plan (EFP) for a corrective action program necessary to meet the requirements of OAC Rule 3745-54-100 if concentrations exceed the concentration limit in Permit Condition K.2(a).

(vi) If the Permittee determines, pursuant to Permit Condition K.9, that there is a statistically significant difference for chemical parameters or hazardous constituents specified in Permit Condition K.9(b) at any monitoring well at the compliance point or between the compliance point and the downgradient property boundary, a demonstration may be submitted to the Agency that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by an error in sampling, analysis, statistical evaluation, or natural variation in the ground water.

The Permittee may make this demonstration in addition to, or in lieu of, submitting a permit modification application for a compliance ground water monitoring program under OAC Rule 3745-54-99. However, the Permittee is not relieved of the requirement to submit a permit modification application within ninety (90) days unless the demonstration made under this Permit Condition is deemed successful by the Agency prior to the ninety (90) day time limit.

In such cases, the Permittee must:

(a) Notify the Director in writing in the semi-annual data report in accordance with Permit Condition K.8(b)(ii) of determining a statistically significant evidence of contamination at the compliance point or between the compliance point and the downgradient property boundary that such a demonstration will be made;

(b) Within ninety (90) days of the date of the semi-annual data report, submit a report to the Director which successfully demonstrates that a source other than a regulated unit caused the contamination or that the increase resulted from error in sampling, analysis, or evaluation;

(c) Within ninety (90) days of the date of the semi-annual data report, submit to the Director, in accordance with OAC Rule 3745-50-51, an application for a permit modification to make any appropriate changes to the detection monitoring program at the facility; and

(d) Continue to monitor in accordance with the approved detection monitoring program established under this permit.

(h) If the Permittee determines in the evaluation required by Permit Condition K.8(b)(ii)(b)(xxiii) that the detection monitoring program no longer satisfies the requirements of OAC Rule 3745-54-98, the Permittee must, within ninety (90) days of the date of the semi-annual data report, submit an application for a permit modification in accordance with OAC Rule 3745-50-51 to make any appropriate changes to the program.

K.10. Compliance Monitoring Program
OAC Rule 3745-54-99

(a) The Permittee required to establish and implement a compliance ground water monitor program under OAC Rules 3745-54-90 through 54-100 must at a minimum, discharge the following responsibilities:

(i) The Permittee must monitor the ground water to determine whether regulated units are in compliance with the ground water protection standard under OAC Rule 3745-54-92 as specified in Permit Condition K.2.

(ii) The Permittee must install a ground water monitoring system at the compliance point as specified under OAC Rule 3745-54-95 as defined in Permit Condition K.2(b). The ground water monitoring system must comply with the requirements in Permit Condition K.3.

(iii) The program must include collection, preservation, and analysis of samples pursuant to Permit Conditions K.4, K.5, and K.6. Statistical analysis must be conducted pursuant to Permit Condition K.7.

(a) The Permittee must conduct a sampling program semi-annually for each chemical parameter and hazardous constituent specified in Permit Condition K.9(b) and those additional constituents identified in accordance with Permit Conditions K.9(g)(ii) and K.10(a)(vi) from each uppermost aquifer compliance well specified in Appendix E.9, Attachment D of the approved Part B Permit Application.

(b) The Permittee must maintain a record of ground water analytical data as measured and in a form necessary for the determination of statistical significance under Permit Condition K.7 and K.8 for the compliance period defined in Permit Condition K.2(c).

(iv) The Permittee must determine whether there is statistically significant evidence of increased contamination for any chemical parameter or hazardous constituent specified in Permit Condition K.9(b) and those additional constituents identified in accordance with Permit Conditions K.9(g)(ii) and K.10(a)(vi) semi-annually during the compliance period.

(a) In determining whether statistically significant evidence of increased contamination exists, the Permittee must identify all elevated constituents using the statistical procedures specified in Permit Conditions K.6 and K.7. The Permittee must compare data for all identified elevated constituents collected at each uppermost aquifer compliance well specified in Appendix E.9, Attachment D of the approved Part B Permit Application to the concentration limits specified in Permit Condition K.2(a).

(b) The Permittee must determine whether there is statistically significant evidence of increased contamination at each uppermost aquifer compliance well specified in Appendix E.9, Attachment D of the approved Part B Permit Application and report the results within the semi-annual report in accordance with Permit Condition K.8(b)(ii). The report shall include for each elevated constituent the extent of the plume. The extent shall be shown on isoconcentration maps and isoconcentration cross sections for each elevated constituent. The concentration must be printed on the map and cross section next to the appropriate well location and concentration contours must be drawn on the map cross section when applicable (maps and cross sections which highlight the affected well with the identified concentrations may be used as appropriate). The estimated extent of the plume must be indicated on the map and cross section. The report must include an evaluation of the need for additional monitoring wells to determine the full extent of the plume. If additional wells are needed to determine the extent of the plume, a permit modification shall be submitted in accordance with Permit Condition K.10(d) to add any necessary wells to the monitoring system or make any appropriate changes to the program.

(c) An elevated non-naturally occurring constituent may return to un-elevated

status when it has not been detected at or above the PQL for 4 consecutive sampling events. A naturally occurring constituent may return to un-elevated status when it has not been detected above its statistical background limit for 4 consecutive sampling events. An affected well will return to unaffected status and return to detection monitoring requirements in Permit Condition K.9 when there have been no elevated constituents as defined above at the well for a minimum of two consecutive years documented by a minimum of 4 sampling and analysis events.

(v) The Permittee must determine the ground water flow rate and direction in the uppermost aquifer at least semi-annually using the procedures specified in Appendix E.9 of the Approved Part B Permit Application and in accordance with Permit Condition K.5.

(vi) The Permittee annually must determine whether additional hazardous constituents listed in Permit Condition K.2(a), which could possibly be present above background but are not on the affected well monitoring list in Appendix E.9, Attachment D of the Approved Part B Permit Application, are actually present in the uppermost aquifer and, if so, at what concentration, pursuant to procedures in Permit Condition K.7. The Permittee must perform sampling for hazardous constituents listed in Permit Condition K.2(a) during the Spring event each year at affected uppermost aquifer compliance wells listed in Appendix E.9, Attachment D of the Approved Part B Permit Application at the compliance point.

If the Spring event indicates that constituents from the constituent list in Permit Condition K.2(a) are present above background in the ground water that are not already identified on the affected wells monitoring list in Appendix E.9, Attachment D of the Approved Part B Permit Application, the Permittee may resample within thirty (30) days of receiving all final data validation results for the sampling event (target dates are April for initial samples and July for resamples), and repeat the analysis following the re-sampling procedures in Permit Condition K.9(f). If the second analysis confirms the presence of new constituents, the Permittee must report the concentration of these additional constituents to the Director within the semi-annual data report required by Permit Condition K.8. If the Permittee chooses not to resample, then the concentrations of these additional constituents must be reported to the Director within the semi-annual data report and added to the monitoring list in Permit Condition K.10(a)(iv).

(a) Within ninety (90) days, the Permittee must submit to the Agency an application for a permit modification to incorporate the additional constituent(s) identified in Permit Condition K.10(a)(vi) into the affected well, nested wells, and adjacent wells monitoring list in Appendix E.9, Attachment D of the Approved Part B Permit Application.

(b) The Permittee must begin sampling and analyzing for the new constituents at the next regularly scheduled sampling event.

(b) If the Permittee has determined that any concentration limits identified in Permit Condition K.2(a) are being exceeded in any uppermost aquifer monitoring well either at the compliance point or between the compliance point and the downgradient property boundary, the Permittee must:

(i) Notify the Director of this finding in the semi-annual data report in accordance with Permit Condition K.8(b)(ii) of that determination. The notification must indicate which parameter concentration limit(s) have been exceeded by well location.

(ii) The Permittee must submit to the Director an application for a permit modification to establish a corrective action program meeting OAC Rule 3745-54-100 requirements within one hundred and eighty (180) days of determining that any concentration limit has been exceeded, or within ninety (90) days if the Permittee has previously submitted an engineering feasibility study pursuant to Permit Condition K.9(g)(v)(a). The application must at a minimum include the following information:

(a) A detailed description of corrective actions, including time frames, that will achieve compliance with the ground water protection standard specified in Permit Condition K.2; and

(b) A plan for a ground water monitoring program that will demonstrate the effectiveness of the corrective action. Such a ground water monitoring program may be based on a compliance monitoring program developed to meet the requirements of OAC Rule 3745-54-99.

(c) If the Permittee determines, pursuant to Permit Condition K.10(b) that any concentration limits specified in Permit Condition K.2(a) are being exceeded at any monitoring well at the compliance point or between the compliance point and the downgradient property boundary, the Permittee may submit a demonstration to the Agency that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by an error in sampling, analysis, statistical evaluation or natural variation in the ground water. In making such a demonstration, the Permittee must:

(i) Notify the Director in writing within the semi-annual data report in accordance with Permit Condition K.8(b)(ii) that the Permittee intends to make such a demonstration;

(ii) Within ninety (90) days of determining an exceedance, submit a report to the Director which demonstrates that a source other than a regulated unit caused the standard to be exceeded or that the apparent non-compliance with the standards resulted from error in sampling, analysis, or evaluation;

(iii) Within ninety (90) days of determining an exceedance, submit to the Director an application for a permit modification to make any appropriate changes to the monitoring program at the facility; and

(iv) Continue to monitor in accordance with the compliance monitoring program under this Permit.

(d) If the Permittee determines the compliance monitoring program established by this permit no longer satisfies the requirements of OAC Rule 3745-54-99, the Permittee must, within ninety (90) days of the determination, submit an application for a permit modification per OAC Rule 3745-50-51 to make any appropriate changes to the program.

K.11. Corrective Action Program
OAC Rules 3745-50-44(B)(8) and 3745-54-100

[Reserved]

MONITORING GROUND WATER ABOVE UPPERMOST AQUIFER

K.12. Deep Till Contact Zone Monitoring Program
OAC Rule 3745-54-101 for zones above the uppermost aquifer.

(a) The Permittee must implement a routine ground water monitoring program at all deep till contact zone wells listed in Permit Condition K.3(b) with constituent concentrations below ground water protection standards in Permit Condition K.2(a) or returned to concentrations levels below protection standards in accordance with Permit Condition K.14(h). This monitoring program will be conducted as follows based on the current designation of the well as affected or unaffected and the construction of leachate collection systems in any adjacent WMU:

(i) Unaffected wells listed in the Table below adjacent to double-lined WMU:

Wells adjacent to double-lined WMUs			
G-1DA	I-5D	M-8D	M-16D
G-2DA	I-6D	M-9D	M-17D
G-3D	M-1D	M-10D	M-18D
G-8	M-2D	M-11D	M-19D
G-9D	M-3D	M-12D	M-20D
G-11	M-4D	M-13D	M-21D
I-3D	M-5D	M-14D	M-22D
I-4D	M-6D	M-15D	

For unaffected wells located adjacent to a double-lined WMU, sampling and analysis at these wells may be suspended in accordance with the following:

(a) Monitoring wells are maintained and monitored annually for water level.

(b) Sampling is required for constituents listed in Permit Condition K.9(b) if the ALR and secondary-leachate concentration limits established for the adjacent lined

WMU are exceeded. Appendix D.32 of ESOI's approved Part B Permit Application provides ALRs and secondary-leachate concentration limits for WMUs 2, 4, and 13 (Cells G, I, and M), which are all double-lined WMUs. Monitoring will begin with the next event scheduled for other deep till contact zone monitoring wells, but no sooner than one (1) year from exceeding the ALR and action limits. Monitoring shall continue at a frequency of once every five years until it is successfully demonstrated that it is no longer necessary.

(ii) Unaffected wells listed in the Table below adjacent to non-double-lined WMU:

Wells next to non-double-lined WMUs			
F-1DA	G-10A	H-5D	SW-2D
F-2D	H-1D	H-6D	
F-3D	H-2D	MR-1DA	
G-6	H-3D	MR-4D	
G-7	H-4D	SW-1D	

For unaffected wells located adjacent to a non-double-lined WMU, monitor constituents specified in Permit Condition K.9(b). Monitoring shall be performed once every five years beginning with the year following the effective date of this permit modification.

(iii) Affected wells: Wells identified as affected in accordance with Permit Conditions K.12(c) and (d) are to be monitored for constituents specified in Permit Condition K.2(a) every five years.

(b) The Permittee's ground water monitoring program must include collection, preservation, and analysis pursuant to Permit Conditions K.4, K.5, and K.7. The Permittee must maintain a record of ground water analytical data as measured and in a form necessary for the determination of statistical significance under Permit Conditions K.7 and K.8.

(c) The Permittee must identify elevated constituents in the monitoring data as follows:

(i) For non-naturally occurring constituents, elevated constituents will be identified by concentrations that are equal to or greater than PQLs; and

(ii) For naturally occurring constituents, elevated metal constituents will be identified by concentrations that exceed facility wide statistical background levels, which will be based on the maximum intra-well prediction limits among all deep till wells. Determination of background limits will be conducted in accordance with Permit Conditions K.6 and K.7. Calculated background limits are listed in Appendix E.7 of the approved Part B Permit Application.

(iii) An elevated non-naturally occurring constituent may return to un-elevated status when it has not been detected at or above the PQL for 4 consecutive sampling events over a minimum of two consecutive years. A naturally occurring constituent may return to un-elevated status when it has not been detected above its statistical background limit for

four (4) consecutive sampling events over a minimum of two consecutive years. An affected well will return to unaffected status and return to monitoring requirements for unaffected wells in Permit Condition K.12(a) when there have been no elevated constituents as defined above at the well for a minimum of two consecutive years documented by a minimum of 4 sampling and analysis events. The Permittee may schedule semi-annual sample and analysis events to achieve this status within the minimum two-year period.

(d) The Permittee must identify all wells with elevated constituents as an affected well and monitor the well as specified in Permit Condition K.12(a)(iii). Elevated constituent concentrations that do not exceed the action levels specified in Permit Condition K.2(a) will be added to the list of monitoring parameters for the particular WMU so that future monitoring can assess any temporal trends. In addition,

(i) The Permittee must sample adjacent wells in the same formation for the elevated constituent(s) and K.2(a) constituents in the same analyte group.

(ii) Elevated constituent concentrations that exceed the action level specified in Permit Condition K.2(a) must be assessed to determine whether the cumulative cancer risk or HI exceed the ground water protection standard defined in Permit Condition K.2. The Permittee may utilize unit-specific bedrock dilution factors provided in Section E, Appendix E.11 of the approved RCRA Part B Permit Application for this assessment.

(e) If the cumulative cancer risk or HI exceeds the ground water protection standard defined in Permit Condition K.2, then the Permittee implement additional corrective measures or modify the existing corrective measures in accordance with Permit Condition K.14. The Permittee must also implement the monitoring program in Permit Condition K.14(d) at wells with constituents exceeding the protection standards in Permit Condition K.2(a).

(f) The findings of the evaluation of sampling results in accordance with Permit Conditions K.12(a) through (e) must be reported to the Director in the semi-annual data reports in accordance with Permit Condition K.8(b)(ii).

K.13. Shallow Till Contact Zone Monitoring Program
OAC Rule 3745-54-101 for zones above the uppermost aquifer.

(a) The Permittee must implement a routine ground water monitoring program at all shallow till contact zone wells listed in Permit Condition K.3(b) with constituent concentrations below ground water protection standards specified in Permit Condition K.2(a) or returned to concentrations levels below ground water protection standards in accordance with Permit Condition K.14(h). This monitoring program will be conducted as follows based on the current designation of the well in Appendix E.9, Attachment D of the approved Part B Permit Application as affected or unaffected and the conditions of leachate levels in any adjacent WMU:

(i) Assess leachate levels in adjacent WMUs in comparison with the elevation of the lacustrine/upper till contact zone ground water level. Leachate levels are the most

recently recorded average of interior leachate head for each unit. The shallow till contact zone ground water level is the lowest ground water elevation in the adjacent shallow till wells. For double lined WMUs, the shallow till contact zone ground water elevation in the adjacent wells should be compared to the elevation of the leachate in the primary leachate collection system [leachate measurements required by Permit Conditions M.7(C) and F.2(D)(ii)] if the ALR specified in the RAP is exceeded. Appendix D.32 of ESOI's approved Part B Permit Application provides ALRs for WMUs 2, 4, and 13 (Cells G, I and M), which are all double-lined WMUs.

(ii) Unaffected wells:

(a) For unaffected wells located adjacent to WMUs in which the average leachate level is above the elevation of the monitored lacustrine/upper till contact zone, monitor all adjacent wells with ground water elevations below the average interior leachate level for constituents listed in Permit Condition K.9(b) semi-annually until ground water elevations within the adjacent wells are above the average interior leachate head level.

(b) For unaffected wells located adjacent to WMUs in which the average leachate level is below the elevation of the monitored lacustrine/upper till contact zone, wells are maintained and monitored annually for water level.

(iii) Affected wells: Wells identified as affected in accordance with Permit Conditions K.13(c) and (d) are to be monitored as follows:

(a) If located adjacent to WMUs in which the average leachate level is below the elevation of the lacustrine/upper till contact zone level, monitor elevated constituents biennially and water levels annually.

(b) If located adjacent to WMUs in which the average leachate level is above the elevation of the lacustrine/upper till contact zone level, monitor constituents listed in Permit Condition K.9(b) and elevated constituents semi-annually. Constituents listed in Permit Condition K.2(a) VOCs and inorganics will be analyzed annually.

(b) The Permittee's ground water monitoring program must include collection, preservation, and analysis pursuant to Permit Conditions K.4, K.5, and K.7. The Permittee must maintain a record of ground water analytical data as measured and in a form necessary for the determination of statistical significance under Permit Conditions K.7 and K.8.

(c) Permittee must identify elevated organic constituents in the monitoring data as follows:

(i) For non-naturally occurring constituents, elevated constituents will be identified by concentrations that are equal to or greater than PQLs.

(ii) For naturally occurring constituents, elevated inorganic constituents will be identified by concentrations that exceed facility wide statistical background levels, which will be

based on the maximum intra-well prediction limits among all shallow till wells. Determination of background limits will be conducted in accordance with Permit Conditions K.6 and K.7. Calculated background limits are listed in Appendix E.7 of the approved Part B Permit Application.

(iii) An elevated non-naturally occurring constituent may return to un-elevated status when it has not been detected at or above the PQL for four (4) consecutive sampling events over a minimum of two consecutive years. A naturally occurring constituent may return to un-elevated status when it has not been detected above its statistical background limit for four (4) consecutive sampling events over a minimum of two consecutive years. An affected well will return to unaffected status and return to monitoring requirements for unaffected wells in Permit Condition K.13(a) when there have been no elevated constituents as defined above at the well for a minimum of two consecutive years documented by a minimum of four (4) sampling and analysis events. The Permittee may schedule semi-annual sample and analysis events to achieve this status within the minimum two-year period

(d) Permittee must identify all wells with elevated constituents as an affected well and monitor the well as specified in Permit Condition K.13(a)(iii). Elevated constituent concentrations that do not exceed the action level specified in Permit Condition K.2(a) will be added to the list of monitoring parameters for the particular WMU so that future monitoring can assess any temporal trends. In addition,

(i) The Permittee must sample adjacent wells in the same formation for the elevated constituent and constituents in the same analyte group specified in Permit Condition K.2(a).

(ii) Elevated constituent concentrations that exceed the action level specified in Permit Condition K.2(a) must be assessed to determine whether the cumulative cancer risk or HI exceed the ground water protection standard.

(e) If the cumulative cancer risk or HI exceeds the ground water protection standard defined in Permit Condition K.2, then the Permittee implement additional corrective measures or modify the existing corrective measures in accordance with Permit Condition K.14. The Permittee must also implement the monitoring program in Permit Condition K.14(d) at wells with constituents exceeding the protection standards in Permit Condition K.2(a).

(f) Findings of the evaluation of sampling results in accordance with Permit Conditions K.13(a) through (e) must be reported to the Director in the semi-annual data reports in accordance with Permit Condition K.8(b)(ii).

K.14 Corrective Action Program

OAC Rules 3745-54-101 for zones above the uppermost aquifer.

(a) The Permittee is required to establish and implement a ground water corrective action program under OAC Rule 3745-54-101 for affected deep and shallow till wells with constituent

concentrations above protection standards specified in Permit Condition K.2(a) and must take corrective action to ensure that regulated units are in compliance with the ground water protection standard in Permit Condition K.2.

(b) The Permittee must implement a corrective action program that prevents hazardous constituents specified in Permit Condition K.2(a) from exceeding their respective protection standard specified in Permit Condition K.2(a) at the compliance point specified in Permit Condition K.2(b). If the protection standard is exceeded, then the Permittee must implement a corrective action program that lowers concentrations below the protection standard by removing or containing the hazardous waste constituents or by treating them in place.

(c) The Permittee must implement corrective action required under this Permit Condition and Permit Module E in accordance with the time schedule in Permit Module E and the approved Corrective Measures Plan.

(d) In conjunction with the corrective action program, the Permittee must establish and implement a ground water monitoring program to fully characterize contaminated ground water as required to demonstrate the effectiveness of the corrective action program. When the protection standard in Permit Condition K.2(a) is exceeded, the Permittee must implement the following:

(i) Monitoring frequency and constituents shall be:

(a) For shallow till wells, semiannual for elevated constituents and constituents listed in Permit Condition K.9(b) and annually for constituents in Permit Condition K.2(a).

(b) For deep till wells, annually for elevated constituents and constituents listed in Permit Condition K.9(b) and every five years for constituents in Permit Condition K.2(a).

(ii) Determine rate, extent, and concentration of any releases exceeding protection standard in Permit Condition K.2(a).

(iii) For current identified releases submit a new CMS if the assessment in Permit Condition K.12(e) or K.13(e) determines that additional corrective measures are necessary or if Ohio EPA does not concur that additional corrective measures are not necessary. The new CMS must be submitted within ninety (90) days of making the determination that additional corrective measures are necessary. Until the director selects new corrective measures, the Permittee must continue with the current Integrated Ground Water Monitoring Program.

(iv) For newly identified releases

(a) Submit a new CMS within ninety (90) days of making the determination that protection standards have been exceeded.

(b) Until the Director selects new corrective measures, continue implementing the current IGWP, including identifying all elevated constituents, determining if protection standards are exceeded and submitting trend charts for elevated constituents.

(e) The Permittee must conduct a corrective action program to remove, contain or treat in place any hazardous constituents specified in Permit Condition K.2(a) that exceeds the ground water protection standard specified in Permit Condition K.2(a) in ground water:

(i) Between the compliance point specified in Permit Condition K.2(b) and the downgradient facility property boundary, in accordance with the procedures specified in the approved Part B Permit Application.

(ii) Beyond the facility boundary, where necessary to protect human health and the environment, unless the Permittee demonstrates to the Agency that, despite the Permittee's best efforts, the Permittee was unable to obtain the necessary permission to undertake such action. The Permittee is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis.

(f) Corrective action measures required under Permit Condition K.14(e) must be initiated and completed within the time period outlined in the approved corrective measures plan referenced in Permit Condition K.14(d).

(g) Corrective measures under Permit Condition K.14(e) may be terminated once the concentration of hazardous constituents under Permit Condition K.2(a) are reduced to levels below the protection standard under Permit Condition K.2(a) for three consecutive years of monitoring per OAC Rule 3745-54-100(F), documented with a minimum of four (4) analysis results.

(h) The Permittee must continue corrective action measures during the compliance period specified in Permit Condition K.2(c) to the extent necessary to ensure that the ground water protection standard is not exceeded.

Since the Permittee is conducting source control corrective measures that must continue in perpetuity to ensure that the ground water protection standard will never be exceeded, the Permittee must continue the source control corrective action in perpetuity. However, a well monitored in accordance with corrective action monitoring requirements may revert to monitoring requirements in Permit Condition K.12 and K.13 if all elevated constituents have been below protection standards in Permit Condition K.2(a) for three (3) consecutive years documented with a minimum of four (4) analysis results.

(i) The Permittee must report in writing to the Director on the effectiveness of the corrective action program annually according to Permit Condition K.8(b).

(j) If the Permittee determines the corrective action program established by this permit no longer satisfies the requirements of OAC Rule 3745-54-101, the Permittee must, within

ninety (90) days of that determination, submit an application for a permit modification pursuant to OAC Rule 3745-50-51 to make any appropriate changes to the program

(iii) The Permittee must return to a leachate level of less than 12 inches as defined in Appendix D.5 for each sub-cell in Cell M after a temporary excursion by operating the PLCS pumps in the affected landfill collection sumps 24 hours per day, 7 days per week.

(b) Reserved.

(c) The Permittee must monitor the SLCS for the presence of liquid. If commercially available level monitoring equipment (e.g., transducers) cannot be inserted into specific sub-cell sumps because of space constraints within a SLCS riser pipe, then the Permittee must monitor for the presence of liquid on a semi-weekly (Sunday through Saturday) basis by activation of the sub-cell pump until pump cavitation occurs or liquid flow ceases. If activation of the pump produces no liquids, then the Permittee will verify that the pump is operable before concluding that no liquid is present in the sub-cell sump. If the pump is found to be inoperable, then the Permittee must repair or replace it as appropriate to restore pumping capability.

(d) The Permittee must monitor the PLCS and SLCS of Cell M for the production of liquid. When a sub-cell that is not capped or closed that normally produces liquid every week produces no liquid for two sequential calendar weeks, the Permittee will, unless liquid production has resumed, verify that the pump and its control system are operable before concluding that no liquid is present in the sub-cell sump. If the pump or its control system is found to be inoperable, then the Permittee must repair or replace it as appropriate to restore pumping capability.

M.4 Operating Requirements

The Permittee must conduct landfill operations according to the approved practices and procedures set forth in Section D of the permit application and the terms and conditions of this permit including, but not limited to, the following:

(a) Trucks carrying wastes into a cell must be swept or brushed to remove all visible particles of waste from the tires and exterior of the bed prior to leaving the facility. Truck tires and frame that come into contact with hazardous waste must be decontaminated prior to leaving the facility;

(b) unloading of wastes into Cell M must be halted and mitigative steps must commence to minimize wind dispersal of waste whenever wind speed is high enough to blow wastes out of the cell;

(c) The Permittee must continue to monitor the temperature of incoming bulk waste loads. If such temperatures is less than 20 degrees Fahrenheit below the waste's flashpoint, the load

(i) measurements of wind direction;

(ii) average and maximum wind speed; and,

(iii) precipitation accumulated over the previous 24 hour period.

(c) The Permittee must record leachate level readings in the Cell M sub-cells at the beginning of each working day and after completion of operator-assisted leachate storage or shipment activities at the end of each working day. The start time and end time of each working day is documented on inspection form MF-18b. These leachate level readings will be used to evaluate compliance with Permit Condition M.3(a)(i) and OAC Rule 3745-57-03(A)(2).

(i) In evaluating compliance with Permit Conditions M.3(a)(i), (ii), and (iii), Ohio EPA will consider factors such as power failures, equipment failures, maintenance activities, the safety of personnel or the environment, declared Level 2 or 3 snow emergencies affecting availability of transportation, or the consequences of other natural or manmade disasters.

(d) The Permittee must report to Ohio EPA on a monthly basis, the following information related to the primary and secondary leachate collection and removal systems of Cell M:

(i) daily on-site rainfall measurements;

(ii) as applicable, any daily operational problems associated with the systems (e.g., pumps inoperable, transducers inoperable, etc.);

(iii) daily leachate level readings for each sub-cell in Cell M recorded in accordance with Permit Condition M.7(c); and,

(iv) daily volumes of leachate removed from the systems.