Modified Ohio Hazardous Waste Facility Installation and Operation Permit

Division of Environmental Response and Revitalization

Permittee: Ross Incineration Services, Inc. U.S. EPA ID: OHD 048 415 665

Facility Name: Ross Incineration Services, Inc.

Mailing Address: 36790 Giles Road

City: Grafton State: OH Zip: 44044

Operator Name: Ross Incineration Services, Inc.

Mailing Address: 36790 Giles Road

City: Grafton State: OH Zip: 44044

Facility Street Address: 36790 Giles Road

City: Grafton State: OH Zip: 44044

Permit Modification

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 January 29, 2014, 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in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, modified, withdrawn, suspended, or revoked.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 January 29, 2014, renewal permit.

Permit Modification Approval

Entered into the Journal of the Director on:
Click here to enter a date.

Date:

Craig W. Butler, Director
Ohio Environmental Protection Agency

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 of Ohio EPA in accordance with the parameters set forth in OAC Rule 3745-55-47.

This information must be submitted in accordance with OAC Rule 3745-50-51.

(c) Within sixty (60) days of permit journalization the Permittee must submit to Ohio EPA in accordance with Ohio's hazardous waste rules, in the form of an administrative Class 1 permit modification request without prior Director's approval, all the permit modification requests which it submitted after September 27, 2013 and which Ohio EPA has approved or acknowledged, so that the submitted information can be incorporated in the renewal permit and/or permit application. For each permit modification request submitted prior to the date of journalization and for which Ohio EPA approval or acknowledgement occurs after the date of permit journalization, the Permittee must submit the approved or acknowledged permit modification request to Ohio EPA within sixty (60) days of such approval or acknowledgement in accordance with Ohio's hazardous waste rules, in the form of an administrative Class 1 permit modification request without prior Director's approval so that the submitted information can be incorporated in the renewal permit and/or permit application.

This information must be submitted in accordance with OAC Rule 3745-50-51.

(d) The Permittee shall complete all actions and submit all documents specified in the following permit conditions within the time periods specified in those permit conditions:

1) Condition E.9(b): provide financial assurance for corrective measures.

2) Condition E.9(c)(i): initiate entering into an environmental covenant with Ohio EPA.

3) Condition E.9(c)(ii): develop and implement an expanded integrated site-wide ground water monitoring program.

4) Condition E.9(c)(iii): prepare, submit, and implement a site-wide soil management plan and a site-wide health and safety plan.

5) Condition E.9(c)(iv): develop and implement an inspection and maintenance plan for the North Landfill area in SWMUA 1.

6) Condition E.9(c)(v): develop and implement an inspection and maintenance plan for barriers to contact with backfill materials in SWI-2 and SWI-6 in SWMUA 3.

7) Condition E.9(c)(vi): develop and implement improved contact barriers for the South Landfill area in SWMUA 4.

8) Condition E.9(c)(vii): develop and implement an inspection and maintenance plan for the SWMUA 4 landfill (i.e., South Landfill area) and portions of SMWUA 4 outside the South Landfill.

9) Condition E.9(c)(viii): develop and implement improved contact barriers for the mixing area in SWMUA 3.

10) Condition E.9(c)(ix): develop and implement an inspection and maintenance plan for the mixing area in SWMUA 3.

11) Condition E.9(c)(x): increase the barriers to contact with backfill materials in surface impoundments SWI-1, SWI-4, SWI-5, and SWI-8.

12) Condition E.9(c)(xi): develop and implement an inspection and maintenance plan for SWI-1, SWI-4, SWI-5, and SWI-8.

13) Condition E.9(c)(xiii): develop and implement a sediment management plan for the surface water bodies.

14) Condition E.9(c)(xiv): develop and implement Dawley Ditch Remediation Plan.

15) Condition E.9(c)(xv): develop and implement Freshwater Lake ecological risk mitigation plan.

16) Condition E.9(d): prepare and submit an analysis of the vapor intrusion pathway prior to construction of any new structure or any modification in structure.

This information must be submitted in accordance with OAC Rule 3745-50-51.

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 an independent, registered 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;

MODULE E - CORRECTIVE ACTION REQUIREMENTS

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

In accordance with OAC Rule 3745-50-10 waste management unit 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 released. In this module solid waste management unit has the same meaning as waste management unit as defined in OAC Rule 3745-50-10. For the purpose of 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 facility (i.e., the RIS facility) subject to these corrective action requirements is indicated approximately as all the property within the facility boundary line on the General Facility Layout drawing (Drawing No. D-90-036 rev. 10) in Section A of the permit application. The RIS facility includes land that was utilized for waste management activities by Robert Ross when doing business as a sole proprietorship and subsequent successor corporate entities to that business which include Robert Ross & Sons, Inc., Ross Consolidated Corp. (RCC), Ross Incineration Services, Inc. (RIS), and Ross Transportation Services (RTS). RCC, which is an owner on this permit, has retained ownership and title to the real property previously utilized for waste management activities by Robert Ross and Robert Ross & Sons, Inc. For corrective action purposes the facility includes property currently leased, occupied or controlled by RIS and RTS. One of the solid waste management unit areas (SWMUA 4) includes RIS and RTS leased property.

The Permittee must institute Corrective Action as necessary to protect human health and the environment for all releases of hazardous wastes or hazardous constituents from any waste management units (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) and 3745-54-101

U.S. EPA prepared an RFA (RCRA Facility Assessment) report for the Permittee's facility dated July 21, 1987. The RFA identified potential releases and potential release pathways including groundwater, soils, surface water and air. Based on the results of the RFA, the Permittee was required to implement a RCRA Facility Investigation (RFI). Consequently, a Corrective Action Program requirement was added to Section VI of the U.S. EPA RCRA Part B Permit issued to the Permittee on September 8, 1988.

The Permittee began implementation of the RFI by preparing the Facility Background Report that was submitted to U.S. EPA on May 3, 1989. The Facility Background Report provided an historical site profile and environmental setting of the facility. The historical site profile provided a description of ownership, facility operation, a site description, a summary of solid waste management units (SWMUs) and the volume and types of wastes handled, and a chronology of the waste management practices that have been conducted throughout the life of the facility. The environmental setting provided an initial description of the hydrogeological, geological and meteorological characteristics of the site.

The Facility Background Report indicates that various waste treatment and waste management practices have occurred at the facility since it began operating in 1949. Consequently, different sections of the site have had multiple and overlapping uses during the years of operation. The Permittee's RFI Work Plan designates four SWMU Areas (SWMUAs) where past waste management practices occurred and SWMUs are located. A summary for most of the SWMUs within each of the four SWMU Areas, including information on waste management unit type, general dimensions, structural description, time periods of operation and an abbreviated list of wastes managed in the unit, is provided in Table J3-1 of Section J of the Permit Application. Detailed SWMU descriptions are found in the Permittee's Facility Background Report, Section 2.4 "Chronology of Known Waste Management Practices" (Pages 2-18 through 2-42). Most of the past waste management practice areas are represented spatially in Figure J-1 in Section J of the Permit Application.

The following solid waste management unit areas (SWMUAs), each containing one or more WMUs, have been identified at this facility.

- SWMUA 1
- SWMUA 2
- SWMUA 3
- SWMUA 4

The following waste management units were also identified and evaluated in the RFI:

- Equipment Storage Area
- Ground Water Units
- Surface Water Units

After the RCRA rules went into effect in 1980, RIS operated several RCRA Interim Status waste management units that were located within SWMUA 3 and SWMUA 4. To facilitate closure of these units, RIS conducted a Unit Boundary Definition (UBD) investigation which was accepted by Ohio EPA in 1996. The UBD established boundaries between Pre-RCRA and Post-RCRA activities at these units. Contamination from Post-RCRA activities was to be addressed during unit closure; any contamination from Pre-RCRA activities was to be addressed under the RCRA corrective action program.

Because of the UBD boundaries, these interim status unit closures were not RCRA clean closures or risk-based closures. All approved closure plans for these units reference the UBD. The closure plans state that closure activity certifications can be achieved based on unit removal. The units were certified as closed according to the specifications in the respective approved closure plan, which included the UBD.

A number of units remain in operation, and are subject to closure *and corrective action* after they are taken out of service. The provisions under the UBD described above equally apply to these still operating units.

E.4 Reserved.

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

Historical Overview

The Permittee began implementation of the RFI required by Section VI of the U.S. EPA RCRA Part B Permit issued to the Permittee on September 8, 1988 by preparing the Facility Background Report that was submitted to U.S. EPA on May 3, 1989. Subsequent to preparation of the Facility Background Report, the Permittee submitted a report entitled "Investigative Analysis" to U.S. EPA on February 7, 1990. The "Investigative Analysis" report provided an assessment of the nature and extent of contamination of the Permittee's facility based on multimedia sampling and analytical data collected in and around SWMUs from 1986 through 1989. The "Investigative Analysis" also evaluated potential risks posed by site contamination to human health and the environment.

Subsequent to the "Investigative Analysis" report the Permittee submitted a proposed RFI Work Plan to U.S. EPA and Ohio EPA on September 25, 1991. The proposed RFI Work Plan included results of multimedia sampling and analysis from 1986 through 1991 and a site characterization based on this data. The proposed RFI Work Plan site characterization data constitute the initial phase of the RFI work at the facility and is often referred to as Phase 1. After responding to several Notices of Deficiency from U.S. EPA, the Permittee submitted a revised RFI Work Plan on November 3, 1993 which was approved by U.S. EPA on March 3, 1994.

The site characterization work completed under the November 3, 1993 work plan is often referred to as Phase II of the RFI. Characterization under the November 3, 1993 RFI Work Plan included multimedia sampling and analysis in and around SWMUs and the Equipment Storage Area (ESA), further sampling of site surface water bodies, further analysis of groundwater characteristics, groundwater modeling and an assessment of human health and ecological risk. The Permittee conducted the activities identified in the November 3, 1993 RFI Work Plan in 1994 and 1995 and submitted an RFI Report to U.S. EPA and Ohio EPA on December 7, 1995.

The December 7, 1995 RFI Report generated multiple review and response cycles in which U.S. EPA and Ohio EPA issued Notice of Deficiency comments (NODs) to the Permittee on the RFI Report and the Permittee responded to the NODs. These NODs and responses defined the final scope of the RFI, identified data gaps and identified improvements in the ecological risk assessment. To address U.S. EPA and Ohio EPA concerns, the Permittee prepared a Work Plan Addenda for U.S. EPA and Ohio EPA review which represented the third stage (Phase III) of RFI activities at the facility. On May 17, 1999 U.S. EPA issued a conditional partial approval of the Work Plan Addenda. Based on the partial approval, the Permittee conducted sediment and water sampling in the surface water bodies in 1999 and 2000.

On August 2, 2002, U.S. EPA approved the revised RFI Work Plan Addenda (dated July 2, 2002), associated Quality Assurance Project Plan (QAPP), and Preliminary

Ecological Risk Assessment (PERA) Work Plan. On December 9-12, 2002, the Permittee completed the RFI Phase III sampling. The Permittee submitted the results of the December 2002 sampling and analysis and data validation for those samples to U.S. EPA and Ohio EPA by letter dated May 9, 2003.

Corrective Action oversight transitioned to Ohio EPA on the effective date of the Permittee's previous Ohio hazardous waste renewal permit, which was September 30, 2003. Ohio EPA accepted all documents and activities completed in accordance with workplans submitted and approved under U.S. EPA authority prior to the issuance of that permit.

In a letter dated March 30, 2004, Ohio EPA stated: "Ohio EPA is satisfied that Ross Incineration Services has completed all required sampling and analysis work identified in the approved RFI work plan including Phases II and III of the work plan. The data package submitted to Ohio EPA meets the goals of the approved work plan and should be useable in completing the RFI Report for the RIS facility including facility characterization, evaluation and assessment of ecological and human health risk. There is no present need to collect additional RFI data." U.S. EPA had previously issued a similar letter on March 8, 2004.

RIS submitted a RCRA Facility Investigation (RFI) Risk Assessment Assumption Document (RAAD) dated December 1, 2004 to Ohio EPA which presented the objectives, rationale, and procedures for conducting the Human Health Risk Assessment (HHRA) and Ecological Risk Assessment (ERA) sections of the RFI Report. The RAAD reflected the NODs and associated responses for the December 1995 RFI Report.

In response to Ohio EPA comments, revisions to the RAAD were submitted by RIS in 2005 and 2006. By letter dated March 27, 2006, Ohio EPA approved the RAAD as modified and with conditions.

Subsequent to RAAD approval, RIS conducted limited focused sampling of surface soil on the North Landfill and ground water in wells MW-29 and MW-31A. The resultant data were validated and submitted to the Ohio EPA in the RFI Report.

Revising the 1995 RFI Report was not feasible because of the numerous revisions required by the NOD process and changes to the HHRA and ERA procedures since 1995. Therefore, the HHRA and the ERA were completely recreated as described in the RAAD and the RFI Report was completely rewritten.

The RFI Report was submitted to Ohio EPA by RIS on April 21, 2009. The RFI report was revised by RIS on May 2, 2011 in response to Ohio EPA comments. The RFI report as revised was approved with certain conditions by Ohio EPA on June 9,

2011; it was subsequently resubmitted with the approval conditions incorporated in July 2011.

Four distinct SWMUAs (Solid Waste Management Unit Areas) and an Equipment Storage Area (ESA) were delineated to facilitate site characterization for the RFI. The four SWMUAs and the ESA incorporate RIS historical waste management activities, grouped by physical proximity. This reflects that various waste treatment and management practices have occurred at the facility since 1949, that some geographically overlapped, and that some sections of the site have had multiple uses.

Newly Discovered Waste Management Units

In the event of a newly discovered unit, the Permittee must conduct an RFI to thoroughly evaluate the nature and extent of the release of hazardous wastes and hazardous constituents from any newly identified unit pursuant to Permit Conditions E.10 and E.11. The major tasks and required submittal dates are shown below. The scope of work for each of the tasks is found in U.S. EPA's CAP.

(a) RFI Workplan

In the event of a newly discovered waste management unit the Permittee must submit a written RFI Workplan to Ohio EPA pursuant to a schedule established by Ohio EPA.

(i) Within forty-five (45) 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 and 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

The Permittee must implement the RFI Workplan according to the terms and schedule in the approved RFI Workplan.

(c) RFI Final Report

Within sixty (60) days after the completion 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. The Final Report must contain adequate information to support further decisions concerning Corrective Action at the Facility.

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

(ii) Ohio EPA will approve or modify and approve, in writing, the amended or new RFI Final Report. The RFI Final Report, 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 Final Report must be authorized by Ohio EPA.

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 IM (this may include an IM Workplan) 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 shall 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, 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 a potential or an actual release 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)

If Ohio EPA determines, based on the results of the RFI and any other relevant information, that corrective measures are necessary, Ohio EPA will notify the Permittee in writing that the Permittee must conduct a CMS either as described 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 Workplan

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

(i) Within sixty (60) days of receipt of any Ohio EPA comments, the Permittee must submit either an amended or new CMS Workplan that incorporates Ohio EPA's comments.

(ii) Ohio EPA will approve or modify and approve, in writing, the amended or new CMS Workplan. The CMS Workplan, 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 Workplan must be authorized by Ohio EPA.

(b) CMS Workplan Implementation

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

(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 sixty (60) days of receipt of any Ohio EPA 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.

E.9 Corrective Measures Implementation (CMI)

The Corrective Measures selected for implementation must: (1) be protective of human health and the environment; (2) attain media cleanup standards; (3) control the sources of releases so as to reduce or eliminate further releases of hazardous wastes (including hazardous constituents); 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 implementability; and (5) the relative cost associated with the alternative.

Prior to requiring implementation of any corrective measures, Ohio EPA may require the Permittee to complete a corrective measures study pursuant to Condition E.8 or Ohio EPA may identify, based on the results of the RFI and any other relevant information, corrective measures it believes appropriate and prepare a draft Statement of Basis and a proposed Director's Initiated Permit Modification for such corrective measures.

(a) Permit Modification

Ohio EPA will initiate a permit modification, as provided by OAC Rule 3745-50-51, to require implementation of the corrective measure(s) authorized. References in Condition E.9 to "the date of this permit modification" are references to the date of approval of the permit modification that includes the referenced permit requirement.

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

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

For the corrective measures required in Permit Condition E.9(c) and (d), the Permittee must provide financial assurance within sixty (60) days of Ohio EPA approval of a corrective measure in the amount necessary to implement the corrective measure as required by OAC Rule 3745-54-101(B) and (C).

(c) Corrective Measures

(i) Within sixty (60) days of issuance of the permit modification for this permit condition, the Permittee must initiate entering into an Environmental Covenant with Ohio EPA under Ohio law (Ohio Revised Code Sections 5301.80 through 5301.92) to restrict property use. This restriction will run with the land and will be binding upon all future property owners should the property be sold. The Environmental Covenant will include a legal description of the subject property.

The Environmental Covenant will include the entire RIS facility except the following: Closed Impoundment SWI-7 which is subject to a post closure plan, need not be included in the Environmental Covenant.

Ohio EPA will consider claims that a part of the RIS facility should not be included in the Environmental Covenant because it meets unrestricted use standards and RIS can so document to the satisfaction of Ohio EPA.

The Environmental Covenant will restrict the property from residential activities but allow it to be used for industrial activities. The term "residential activities" shall include, but not be limited to, the following:

- Single and multi-family dwelling and rental units;
- Day care centers, educational facilities, and preschools;
- Correctional facilities;
- Transient or other residential facilities; and
- Production of food-chain products by agricultural means for animal or human consumption.

The term "industrial activities" shall include, but is not limited to, facilities which supply goods or services to the public, and facilities engaged in manufacturing, processing operations and office and warehouse use, including but not limited to production, storage and sales of durable goods and parking/driveway use.

Ground water located at or underlying the Property shall not be used or extracted for any purpose, other than sampling, monitoring, or remediation pursuant to a ground water remedial action. If the Owner intends to use onsite ground water for uses other than sampling, monitoring, or remediation pursuant to a ground water remedial action, then the Owner must notify Ohio EPA and demonstrate that the alternative use does not pose an unacceptable risk to human health or the environment. This demonstration must include, at a minimum, where the extraction well will be located, how the ground water would be extracted, how the extracted ground water will be used onsite, any necessary sampling and analytical results of the ground water being extracted, the results of a pump test for the well that would be used to extract ground water and a demonstration that any ground water plume present is not expanding and that there are no unacceptable risks to human health or the environment. This demonstration must be reviewed and the intended use must receive prior approval by Ohio EPA. All uses must adhere to the restrictions and requirements in this Environmental Covenant.

(ii) The Permittee must develop and implement an expanded integrated site-wide ground water monitoring program designed to ensure that off-site migration of hazardous constituents above applicable limits does not occur. The program must be capable of detecting contaminants and implementing corrective action before this can occur. The Integrated Ground Water Monitoring Plan will be implemented no later than twelve (12) months after the date of this permit modification.

(1) The Permittee must submit an Integrated Ground Water Monitoring Plan (IGWMP) as described in the permit conditions in Module Z of this permit. The IGWMP must include appropriate implementation schedules. The IGWMP must be submitted within ninety (90) days of the date of this permit modification.

(2) Within forty-five (45) days of any Ohio EPA comments on the IGWMP, the Permittee must submit either an amended plan or a new plan that incorporates Ohio EPA's comments.

(3) Ohio EPA will approve or modify and approve, in writing, the amended or new IGWMP. The Permittee must implement the approved plan upon approval.

(4) Within thirty (30) days of the approval of the amended or new IGWMP, the Permittee must submit a modification in accordance with OAC Rule 3745-50-51, to incorporate the approved amended or new IGWMP into this permit and become an enforceable condition of this permit. Subsequent changes to the approved amended or new IGWMP must be authorized by Ohio EPA.

(iii) The Permittee must develop and implement a site-wide soil management plan and a site-wide health and safety plan.

(1) The Permittee must prepare and submit a Soil Management Plan and a site-wide Health and Safety Plan within one-hundred twenty (120) days of the date of this permit modification. The site-wide Soil Management Plan must indicate that excavated contaminated materials will be properly managed and disposed and must include procedures to ensure that any altered site characteristic (e.g., soil

currently at depth, or currently covered by a barrier, that subsequently becomes surface soil) meets industrial use risk standards. The Soil Management Plan must include procedures for agency notification, evaluating excavated materials, and documenting material excavations, management, and disposition. The site-wide Health and Safety Plan will provide procedures that ensure worker protection from potentially contaminated soil and other contaminated materials.

(2) Within forty-five (45) days of receipt of any Ohio EPA comments on the Soil Management Plan, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.

(3) Ohio EPA will approve or modify and approve, in writing, the amended Soil Management Plan or new Soil Management Plan. The Permittee must implement the approved plan upon approval.

Ohio EPA will accept but not approve or disapprove the Health and Safety Plan. The Permittee is responsible for the protection of site personnel and compliance with all applicable health and safety laws and regulations.

(4) Within thirty (30) days of the approval of the amended or new Soil Management Plan, the Permittee must submit a modification in accordance with OAC Rule 3745-50-51, to incorporate the approved amended or new Soil Management Plan into this permit and become an enforceable condition of this permit. Subsequent changes to the approved amended or new Soil Management Plan must be authorized by Ohio EPA.

(iv) The Permittee must develop and implement an Inspection and Maintenance Plan for the North Landfill area in SWMUA 1. The Inspection and Maintenance Plan must include inspection, maintenance and repair of landfill cap, mowing, and other measures necessary to ensure that the contact barrier is maintained.

(1) The Permittee must prepare and submit an Inspection and Maintenance Plan for the maintenance of the contact barrier

for the North Landfill area in SWMUA 1 within one hundred and eighty (180) days of the date of this permit modification.

(2) Within forty-five (45) days of receipt of any Ohio EPA comments on the Inspection and Maintenance Plan, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.

(3) Ohio EPA will approve or modify and approve, in writing, the amended Inspection and Maintenance Plan or new Inspection and Maintenance Plan. The Permittee must implement the approved plan upon approval.

(4) Within thirty (30) days of the approval of the amended or new Inspection and Maintenance Plan, the Permittee must submit a modification in accordance with OAC Rule 3745-50-51, to incorporate the approved Inspection and Maintenance Plan into this permit and become an enforceable condition of this permit. Subsequent changes to the approved Inspection and Maintenance Plan must be authorized by Ohio EPA.

(v) The Permittee must develop and implement an Inspection and Maintenance Plan for SWMUA 3 to ensure continued maintenance of barriers to contact (e.g., paving, gravel and soil) with the ESA soil-pile materials used as backfill in SWI-2 and SWI-6.

(1) The Permittee must prepare and submit an Inspection and Maintenance Plan for the maintenance of the contact barriers for SWI-2 and SWI-6 in SWMUA 3 within one hundred eighty (180) days of the date of this permit modification.

(2) Within forty-five (45) days of receipt of any Ohio EPA comments on the Inspection and Maintenance Plan, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.

(3) Ohio EPA will approve or modify and approve, in writing, the amended Inspection and Maintenance Plan or new Inspection and Maintenance Plan. The Permittee must implement the approved plan upon approval.

(4) Within thirty (30) days of the approval of the amended or new Inspection and Maintenance Plan, the Permittee must submit a modification in accordance with OAC Rule 3745-50-51, to

incorporate the approved amended or new Inspection and Maintenance Plan into this permit and become an enforceable condition of this permit. Subsequent changes to the approved amended or new Inspection and Maintenance Plan must be authorized by Ohio EPA.

(vi) The Permittee must develop and implement improved contact barriers for the South Landfill area in SWMUA 4 to limit potential exposure to waste and contaminants in the landfill area. The entire South Landfill must have contact barriers composed of a minimum of 2 feet of soil meeting industrial use standards or a minimum of 4 inches of concrete or another barrier acceptable to Ohio EPA. If adequate documentation that existing contact barriers meet these standards cannot be provided, additional contact barriers meeting the above standards will be required.

(1) The Permittee must prepare and submit an Exposure Control Plan for improved contact barriers for the South Landfill area in SWMUA 4 within one hundred eighty (180) days of the date of this permit modification. The Permittee must complete implementation of the Exposure Control Plan for the South Landfill area no later than thirty (30) months after Ohio EPA approval. The Exposure Control Plan will identify contact barriers and implementation schedules to cover or cap the South Landfill area with a minimum of 2 feet of soil meeting industrial use standards or a minimum of 4 inches of concrete or another barrier acceptable to Ohio EPA.

(2) Within forty-five (45) days of receipt of any Ohio EPA comments on the Exposure Control Plan for the South Landfill area, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.

(3) Ohio EPA will approve or modify and approve, in writing, the amended Exposure Control Plan for the South Landfill area or new Exposure Control Plan for the South Landfill area. The Permittee must implement the approved plan upon approval.

(4) Within thirty (30) days of the approval of the amended or new Exposure Control Plan, the Permittee must submit a modification in accordance with OAC Rule 3745-50-51, to incorporate the approved amended or new Exposure Control Plan into this permit and become an enforceable condition of this permit. Subsequent changes to the approved amended

or new Exposure Control Plan must be authorized by Ohio EPA.

(vii) The Permittee must develop and implement an Inspection and Maintenance Plan for the SWMUA 4 landfill (i.e., South Landfill area) and for those portions of SWMUA 4 outside the South Landfill, except those portions that have been determined to meet industrial risk standards. The Inspection and Maintenance Plan will include landfill cap/cover inspection, maintenance and repair, mowing, and other measures necessary to ensure that barriers (also including concrete cover over areas not meeting industrial risk standards) to contact are maintained.

(1) The Permittee must prepare and submit an Inspection and Maintenance Plan for the South Landfill area in SWMUA 4 and for all portions of SWMUA 4 outside the South Landfill, except those portions that have been determined to meet industrial risk standards, within two hundred seventy (270) days of the date of this permit modification. The plan should address maintenance of existing barriers and include provisions to modify the plan when additional contact barriers are added.

(2) Within forty-five (45) days of receipt of any Ohio EPA comments on the Inspection and Maintenance Plan, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.

(3) Ohio EPA will approve or modify and approve, in writing, the amended Inspection and Maintenance Plan or new Inspection and Maintenance Plan. The Permittee must implement the approved plan upon approval.

(4) Within thirty (30) days of the approval of the amended or new Inspection and Maintenance Plan, the Permittee must submit a modification in accordance with OAC Rule 3745-50-51, to incorporate the approved amended or new Inspection and Maintenance Plan into this permit and become an enforceable condition of this permit. Subsequent changes to the approved amended or new Inspection and Maintenance Plan must be authorized by Ohio EPA.

(viii) The Permittee must develop and implement improved contact barriers for the lead contamination in the Mixing Area in SWMUA 3.

(1) The Permittee must prepare and submit an Exposure Control Plan for the Mixing Area in SWMUA 3 within one hundred eighty (180) days of the date of this permit modification. The Permittee must complete implementation of the Exposure Control Plan for the Mixing Area no later than eighteen (18) months after Ohio EPA approval. The Exposure Control Plan will identify measures and implementation schedules for contact barriers (e.g., improved cover or cap) for the Mixing Area composed of a minimum of 2 feet of soil meeting industrial use standards or a minimum of 4 inches of concrete or another barrier acceptable to Ohio EPA. Existing barriers might be acceptable provided additional, detailed substantiating documentation is provided and is accepted and approved by Ohio EPA.

(2) Within forty-five (45) days of receipt of any Ohio EPA comments on the Exposure Control Plan for the Mixing Area, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.

(3) Ohio EPA will approve or modify and approve, in writing, the amended Exposure Control Plan for the Mixing Area or new Exposure Control Plan for the Mixing Area. The Permittee must implement the approved plan upon approval.

(4) Within thirty (30) days of the approval of the amended or new Exposure Control Plan, the Permittee must submit a modification in accordance with OAC Rule 3745-50-51, to incorporate the approved amended or new Exposure Control Plan into this permit and become an enforceable condition of this permit. Subsequent changes to the approved amended or new Exposure Control Plan must be authorized by Ohio EPA.

(ix) The Permittee must develop and implement an Inspection and Maintenance Plan for the contact barriers for the Mixing Area in SWMUA 3. The Inspection and Maintenance Plan will include barrier inspection, maintenance and repair, mowing, and other measures necessary to ensure that barriers to contact are maintained.

(1) The Permittee must prepare and submit an Inspection and Maintenance Plan for the maintenance of the barriers for the Mixing Area in SWMUA 3 within two hundred seventy (270)

days of the date of this permit modification. The plan should address existing contact barriers and include provisions to modify the plan when additional contact barriers are added.

(2) Within forty-five (45) days of receipt of any Ohio EPA comments on the Inspection and Maintenance Plan, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.

(3) Ohio EPA will approve or modify and approve, in writing, the amended Inspection and Maintenance Plan or new Inspection and Maintenance Plan. The Permittee must implement the approved plan upon approval.

(4) Within thirty (30) days of the approval of the amended or new Inspection and Maintenance Plan, the Permittee must submit a modification in accordance with OAC Rule 3745-50-51, to incorporate the approved amended or new Inspection and Maintenance Plan into this permit and become an enforceable condition of this permit. Subsequent changes to the approved amended or new Inspection and Maintenance Plan must be authorized by Ohio EPA.

(x) The Permittee must increase the barriers to contact with the ESA soil used to backfill surface impoundments SWI-1, SWI-4, SWI-5, and SWI-8 to a minimum of 2 feet of soil meeting industrial use standards or four inches of concrete or another barrier acceptable to Ohio EPA.

(1) The Permittee must prepare and submit an Exposure Control Plan for SWI-1, SWI-4, SWI-5, and SWI-8 in SWMUA 3 within two hundred seventy (270) days of the date of this permit modification. The Permittee must complete implementation of the Exposure Control Plan for the Exposure Control Plan for SWI-1, SWI-4, SWI-5, and SWI-8 no later than eighteen (18) months after Ohio EPA approval. The Exposure Control Plan will identify measures and implementation schedules to cover or cap SWI-1, SWI-4, SWI-5, and SWI- 8 with a minimum of 2 feet of soil meeting industrial use standards or four inches of concrete or another barrier acceptable to Ohio EPA.

(2) Within forty-five (45) days of receipt of any Ohio EPA comments on the Exposure Control Plan for SWI-1, SWI-4, SWI-5, and SWI-8, the Permittee must submit either an

amended or new plan that incorporates Ohio EPA's comments.

(3) Ohio EPA will approve or modify and approve, in writing, the amended Exposure Control Plan for SWI-1, SWI-4, SWI-5, and SWI-8 or new Exposure Control Plan for SWI-1, SWI-4, SWI-5, and SWI-8. The Permittee must implement the approved plan upon approval.

(4) Within thirty (30) days of the approval of the amended or new Exposure Control Plan, the Permittee must submit a modification in accordance with OAC Rule 3745-50-51, to incorporate the approved amended or new Exposure Control Plan into this permit and become an enforceable condition of this permit. Subsequent changes to the approved amended or new Exposure Control Plan must be authorized by Ohio EPA.

(xi) The Permittee must develop and implement an Inspection and Maintenance Plan for the barriers to contact (e.g., gravel, soil and paving) with the ESA soil-pile materials used as backfill in SWI-1, SWI-4, SWI-5, and SWI-8.

(1) The Permittee must prepare and submit an Inspection and Maintenance Plan for maintenance of the contact barriers for SWi-1, SWI-4, SWI-5, and SWI-8 in SWMUA 3 within three hundred sixty-five (365) days of the date of this permit modification.

(2) Within forty-five (45) days of receipt of any Ohio EPA comments on the Inspection and Maintenance Plan, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.

(3) Ohio EPA will approve or modify and approve, in writing, the amended Inspection and Maintenance Plan or new Inspection and Maintenance Plan. The Permittee must implement the approved plan upon approval.

(4) Within thirty (30) days of the approval of the amended or new Inspection and Maintenance Plan, the Permittee must submit a modification in accordance with OAC Rule 3745-50-51, to incorporate the approved amended or new Inspection and Maintenance Plan into this permit and become an enforceable

condition of this permit. Subsequent changes to the approved amended or new Inspection and Maintenance Plan must be authorized by Ohio EPA.

(xii) All of the areas requiring an engineering control (e.g. barrier) which require an Inspection and Maintenance Plan may have such plan incorporated into a Facility-Wide Inspection and Maintenance Plan.

(xiii) The Permittee must develop and implement a Sediment Management Plan for the surface water bodies at the RIS facility to manage disposal of, potential human contact with, and/or disturbance of sediments.

(1) The Permittee must prepare and submit a Sediment Management Plan within one hundred twenty (120) days of the date of this permit modification. The Sediment Management Plan must include procedures that ensure worker health and safety protection and proper sediment management for activities that involve sediment excavation or disturbance.

(2) Within forty-five (45) days of receipt of any Ohio EPA comments on the Sediment Management Plan, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.

(3) Ohio EPA will approve or modify and approve, in writing, the amended Sediment Management Plan or new Sediment Management Plan. The Permittee must implement the approved plan upon approval.

(4) Within thirty (30) days of the approval of the amended or new Sediment Management Plan, the Permittee must submit a modification in accordance with OAC Rule 3745-50-51, to incorporate the approved amended or new Sediment Management Plan into this permit and become an enforceable condition of this permit. Subsequent changes to the approved amended or new Sediment Management Plan must be authorized by Ohio EPA.

(xiv) The Permittee must dredge Dawley Ditch to remove sediments plus 6 inches of underlying soil to reduce ecological risk from persistent bioaccumulative toxic pollutants. The Permittee may implement an alternative remedy which may include moving the ditch and capping

the existing ditch bed, sediment encapsulation, or another option. If other remedies are applied, the inspection and maintenance of such remedy (if required) should be incorporated into the Facility-Wide Inspections and Maintenance Plan. The remedy shall satisfactorily manage a minimum of 90% of the current hazardous constituent loading in the contaminated sediments and soil. The final remedy must also address human health (i.e. barriers or controls to minimize contact with any remaining residual contamination).

(1) The Permittee must prepare and submit a Dawley Ditch Remediation Plan within thirty (30) months of the date of this permit modification. The Permittee must complete implementation of the Dawley Ditch Remediation Plan no later than June 30, 2020. Prior to completion of the final remedy implementation, the Permittee shall maintain the current natural barrier to human direct contact.

(2) Within forty-five (45) days of receipt of any Ohio EPA comments on the Dawley Ditch Remediation Plan, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.

(3) Ohio EPA will approve or modify and approve, in writing, the amended Dawley Ditch Remediation Plan or new Dawley Ditch Remediation Plan. The Permittee must implement the approved plan upon approval.

(4) Within thirty (30) days of the approval of the amended or new Dawley Ditch Remediation Plan, the Permittee must submit a modification in accordance with OAC Rule 3745-50-51, to incorporate the approved amended or new Dawley Ditch Remediation Plan into this permit and become an enforceable condition of this permit. Subsequent changes to the approved amended or new Dawley Ditch Remediation Plan must be authorized by Ohio EPA.

(xv) The Permittee must take steps to discourage the presence of upper trophic ecological receptors in the Freshwater Lake to reduce ecological risk from persistent bioaccumulative toxic pollutants.

(1) The Permittee must prepare and submit a Freshwater Lake Plan within two hundred seventy (270) days of the date of this permit modification to provide, for example, bird control. The Permittee must complete implementation of the Freshwater

Lake Plan no later than thirty-six (36) months after Ohio EPA approval.

(2) Within forty-five (45) days of receipt of any Ohio EPA comments on the Freshwater Lake Plan, the Permittee must submit either an amended or new plan that incorporates Ohio EPA's comments.

(3) Ohio EPA will approve or modify and approve, in writing, the amended Freshwater Lake Plan or new Freshwater Lake Plan. The Permittee must implement the approved plan upon approval.

(4) Within thirty (30) days of the approval of the amended or new Freshwater Lake Plan, the Permittee must submit a modification in accordance with OAC Rule 3745-50-51, to incorporate the approved amended or new Freshwater Lake Plan into this permit and become an enforceable condition of this permit. Subsequent changes to the approved amended or new Freshwater Lake Plan must be authorized by Ohio EPA.

(xvi) The Permittee must, at the time of closure of a currently operating unit, evaluate whether any contamination remains after closure and must implement all corrective measures necessary to comply with all corrective action program rules and laws with respect to any such contamination. All currently operating units are subject to the requirements of the closure rules and the corrective action rules. Any contamination remaining after closure of a currently operating unit is subject to RCRA corrective action investigation and appropriate corrective measures at the time of closure.

(d) Vapor Intrusion Control

Prior to construction of any new structure or any modification in structure or use of an existing structure that could increase vapor intrusion risk in SWMUA 1, SWMUA 3, SWMUA 4 or the ESA, the Permittee must prepare and submit to Ohio EPA an analysis of the vapor intrusion pathway, and if necessary proposed mitigation of risks, with the associated Permit Modification Request. The Permittee shall not commence construction or modification until the Permittee receives approval by Ohio EPA.

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 thirty (30) 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 and Releases
OAC Rule 3745-54-101

If Ohio EPA determines in accordance with Permit Condition E.5 that an RFI is required for newly identified WMUs, the Permittee must submit a written RFI Workplan 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 submittal in accordance with time frames established by Ohio EPA.

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

After 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. 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 must be submitted as a request for permit modification pursuant to OAC Rule 3745-50-51.

E.13 Documents Requiring Professional Engineer Stamp
ORC Section 4733.01

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

- Final Interim Measures Report
- Corrective Measures Final Design
- Corrective Measures Construction Completion Report
- Corrective Measures Attainment of Groundwater 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.

MODULE J – GROUND WATER MONITORING

This module has been deleted in its entirety and replaced with Module Z.

MODULE Z - INTEGRATED GROUND WATER MONITORING

This module presents permit conditions addressing the requirements for an integrated monitoring program at Ross Incineration Services, Inc. ("RIS") facility. Potential ground water contamination from a hazardous waste management unit (HWMU) regulated under OAC Rules 3745-54-90 through 3745-54-100 could commingle with potential ground water contamination from solid waste management units (SWMUs) regulated under OAC Rule 3745-54-101 at the site. In this module, solid waste management unit has the same meaning as waste management unit as defined in OAC Rule 3745-50-10. It is not practical to separate the HWMUs and SWMUs either for ground water monitoring purposes or possible future remedial efforts, should any be required. A more efficient multifaceted approach is to combine the relevant portions of OAC Rules 3745-54-90 through 3745-54-100 and 3745-54-101 for these areas. This combined approach is hereafter referred to as the Integrated Ground Water Monitoring Program or IGWMP.

For purposes of corrective action, the Permittee, the Ross Incineration Services, Inc. ("RIS") facility, includes property formerly utilized for waste management and now leased by RIS and by Ross Transportation Services, Inc. ("RTS"). The IGWMP is applicable to the Permittee.

The Permittee currently maintains a network of post-closure care ground water monitoring wells for detecting possible releases of hazardous constituents from RCRA regulated surface impoundment SWI-7 which was closed with waste in-place. No release of hazardous constituents from SWI-7 has been detected.

The Permittee has waste and contaminated media on-site in several Solid Waste Management Unit Areas (SWMUAs) from waste management activities conducted prior to RCRA. The RCRA Facility Investigation (RFI) demonstrated that wastes and contaminated media remain in place in SWMUA 1 (e. g, the North Landfill), SWMUA 3 (e.g., SWI-7, the mixing area) and SWMUA 4 (e.g., the South Landfill area). The RFI human health risk assessment for SWMUA 2 determined that no chemicals of potential concern had been detected; therefore, no additional human health risk evaluation was necessary. Consequently, SWMUA 2 is not included as a unit that requires implementation of additional ground water monitoring.

SWI-7 is located within SWMUA 3. SWI-7 was closed with stabilized waste in-place, was capped, and is in post-closure care. This impoundment contains stabilized sludge from impoundments SWI-2, SWI-6, and SWI-7. Because of the boundaries established in RIS's (March 1996) Unit Boundary Definition (UBD), the closure was not a RCRA clean closure or risk-based closure. The unit was certified as closed according to the specifications in the approved (June 16, 2004) closure plan which referenced the UBD.

The UBD established boundaries between pre-RCRA and post-RCRA activities at RIS through a statistical evaluation of analytical data from soil samples taken for this purpose. Wastes and any contamination from post-RCRA activities were to be addressed under the RCRA closure rules during unit closure. Any contamination from pre-RCRA activities was to be addressed under the RCRA corrective action program.

SWMUA 1 does not contain any active waste management units. SWMUA 1 includes the North Landfill, the former Open Burning Area and five former surface impoundments. In 1972 the land disposal area and the surface impoundments were covered with a clay cap constructed with clean soil. No waste management activities have occurred in SWMUA 1 since 1972.

SWMUA 3 contains active permitted units including container storage, tank storage and a miscellaneous unit. SWMUA 3 does not contain any active land-based waste management units. SWMUA 3 contains one land-based unit closed with waste in-place, namely SWI-7. SWMUA-3 contains former impoundments SWI-1, SWI-2, SWI-4, SWI-5, SWI-6 and SWI-8, and a former Waste Pile, all of which are closed. Because of the boundaries established in RIS's UBD, the closures were not RCRA clean closures or risk-based closures; the closures were based on unit removal according to the unit definition in the UBD. The units were certified as closed according to the specifications in the respective approved closure plans which referenced the UBD.

Also located in SWMUA 3 are the Mixing Area and the Crushed Drum Area, both of which are inactive pre-RCRA land-based units which were excavated, but not closed pursuant to RCRA closure rules.

SWMUA 4 includes active permitted hazardous waste management units: an incinerator and storage and treatment tanks. SWMUA 4 does not contain any active land-based waste management units. SWMUA 4 includes the following pre-RCRA waste management units: Incinerators 1 through 6, incinerator ash and residue disposal area, tank and container storage areas, and several other waste disposal areas. SWMUA 4 includes portions of the RIS and RTS property. Most of the tanks and the Interim Status Outdoor Container Storage Area were RCRA closed. Because of the boundaries established in RIS's UBD, these closures were not RCRA clean closures or risk-based closures; the closures were based on unit removal according to the unit definition in the UBD. The units were certified as closed according to the specifications in the respective approved closure plans which referenced the UBD.

From 1992 through 1997 RIS' permit-required ground water program monitored 20 wells, 5 upgradient and 15 downgradient in the Berea and shallow till, for Appendix IX organic and inorganic constituents. Program wells ringed the surface impoundments in SWMUA 3.

To gather data for the RFI, from May 1992 through December 1994 RIS sampled 40 wells in the Berea, deep till, and shallow till, which included the 20 program wells plus another 20 wells specific to the RFI. In 2008 RIS resampled two wells that had been sampled for the RFI in 1994 for several constituents to confirm or refute the results of the previous sampling.

In 1998 RIS's program changed from monitoring the full Appendix IX List to monitoring Appendix IX metals and two indicator parameters, TOC (total organic carbon) and TOX (total organic halogens). The wells monitored remained the same. Reasons for the change included: detected organics were rare, the majority of detected organics were less than the PQL (Practical Quantitation Limit) and the remainder were only slightly above the PQL, and, the majority of detected organics were attributable to laboratory contamination or matrix interference. Organics detected above the PQL in the program wells were evaluated through subsequent resampling. None of the previous detections were confirmed.

In March 2005 RIS's program changed from 20 wells, 5 upgradient and 15 downgradient, to 13 wells, 5 upgradient and 8 downgradient, in the Berea and shallow till. The constituents monitored remained the same. The reduced monitoring program was deemed appropriate because all the impoundments had been closed by waste removal, except impoundment SWI-7, which was closed with waste in-place. Consequently, ground water monitoring wells were chosen to monitor for potential migration of hazardous constituents from SWI-7. No contamination of ground water by SWI-7 has been detected.

In March 2006 RIS's program changed from 13 wells, 5 upgradient and 8 downgradient, to 10 wells, 2 upgradient in the Berea and 8 downgradient in the Berea and shallow till zone. The constituents monitored remained the same. The reason for the reduced monitoring program was a change in the statistical compliance evaluation methodology for the shallow till wells from interwell comparisons between the upgradient and downgradient wells to intrawell comparisons within each downgradient compliance well (i.e., new analytical results from each compliance well were compared to older data from the same well). Consequently, the upgradient till wells were removed from the monitoring program.

A 2007 sampling of well SI-5 (located just north of the North Landfill) conducted independently of RIS's permit required monitoring, indicated vinyl chloride present at 2.5 µg/l. The 2007 result was not validated and so was not used in the RFI. Previous monitoring of SI-5 in June and December of 1994 indicated vinyl chloride concentrations of 5.8 and 3.5 µg/l, respectively. Vinyl chloride was not detected in a nearby Berea well (MW-26) during 1994 sampling, suggesting that vertical migration of vinyl chloride is not occurring.

The RFI COPC determination process for the ground water units used data collected in 1992, 1993 and 1994 plus limited data for two wells collected in 2008. Data collected prior to 1992 could not be validated and so could not be used. Data collected after 1994 as required by RIS' hazardous waste permit was not validated and so was not used quantitatively in the RFI. RIS' program monitored 20 or fewer wells instead of the 40 wells sampled for the RFI and after 1997 monitored for Appendix IX metals and two indicator parameters instead the full Appendix IX List. The combination of monitoring fewer wells, and after 1997 monitoring for fewer constituents, limited potential quantitative use of the post-1994 data in the RFI.

The organic COPCs appear to be most likely isolated detections rather than indicators of ground water contamination. Although ground water sampling since 1994 has been less extensive than that conducted for the RFI, the post-RFI ground water data are consistent with the conclusion that ground water quality at the site has remained stable since the ground water data used in the RFI were obtained.

Because waste and contaminants remain in-place at the RIS site, an expansion of the RIS ground water monitoring program to a site-wide integrated ground water monitoring program (IGWMP) is necessary to monitor for potential future releases of hazardous constituents from the solid waste management units.

As part of required site-wide Corrective Action, the Permittee will implement the IGWMP outlined in this permit module to ensure that any potential migration of hazardous constituents from the SWMUAs as well as the RCRA regulated unit will be detected and corrective action implemented, if needed. The Permittee's IGWMP will coordinate the requirements for: 1) post-closure care detection monitoring of potential releases from SWI-7; and, 2) RCRA Corrective Action monitoring of potential releases from Solid Waste Management Unit Areas.

OAC Rule 3745-54-90(A)(2) requires "regulated units", whether active, in closure, or during the post-closure care period, to comply with the ground water monitoring requirements found in OAC Rules 3745-54-91 through 3745-54-100. SWI-7 is a "regulated unit" in post-closure care. ORC 3734.02(G) authorizes the director of Ohio EPA to exempt any person disposing of hazardous waste under circumstances that are unlikely to adversely affect the public health or safety or the environment from otherwise applicable requirements provided such exemption is consistent with and equivalent to regulations adopted by U.S. EPA. In reliance on ORC 3734.02(G), the ground water monitoring program for SWI-7 has been modified from the requirements found in OAC Rules 3745-54-91 through 3745-54-100 and will be merged into a site wide ground water monitoring program established pursuant to OAC Rule 3745-54-101. The IGWMP will be protective of human health and the environment, promote efficiency, and reduce potential

confusion by eliminating the need to operate two separate ground water monitoring programs at RIS.

The present ground water monitoring wells are located in two adjacent stratigraphic zones: the shallow till zone of saturation (shallow till) and the Berea Sandstone which lies approximately 35 feet below ground surface ("bgs"). These two zones comprise the upper-most aquifer, the primary water-bearing unit for the RIS site. The shallow till glacial deposits, typically 25 to 40 feet thick, are composed of silty clay, clay, and sand in discontinuous layers overlying the Berea. More permeable sand and gravel lenses are present within the glacial till allowing ground water zones of saturation. These lenses are found approximately 12-14 feet bgs and may or may not be continuous.

The IGWMP includes a list of constituents to be analyzed and protection standard concentration limits, a description of ground water monitoring wells to be sampled, the frequency at which the wells are to be sampled, sampling and analysis procedures and test methods to be used, recordkeeping and reporting requirements, and response requirements should a hazardous constituent be detected.

The Permittee must submit the IGWMP described in Module Z of this permit for Ohio EPA review and approval within the schedule established in Permit Condition E.9 (c) (ii). References in Module Z to Section E of the Permit Application are to Section E as modified when the IGWMP is submitted and as modified in response to Ohio EPA's comments on the IGWMP.

Z.1 Applicability
OAC Rule 3745-54-101

(a) The Permittee must comply with the applicable requirements in OAC Rule 3745-54-101 and institute corrective action as necessary to protect human health and the environment for all releases of hazardous wastes or constituents from the waste management units/areas, regardless of the time at which waste was placed in such unit/areas.

(b) Reserved.

(c) The Permittee must implement corrective actions beyond the facility property boundary, where necessary, to protect human health and the environment, unless the Permittee demonstrates to the satisfaction of the director 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 determined on a case-by-

case basis. Assurances of financial responsibility for such action must be provided.

Z.2 Ground Water Protection Standard (GWPS)

The Permittee must ensure that any hazardous constituent or constituents detected in the ground water from a unit/area listed in Permit Condition Z.1 do not exceed the GWPS in the uppermost aquifer beyond the point of compliance for the unit/areas during the permit period and to respond with any necessary corrective action to bring the ground water back into compliance with those standards if an exceedance should occur. The Berea Sandstone Aquifer is the upper-most aquifer at RIS. The Till Zones of Saturation overlie the Berea Sandstone Aquifer. Exceedances in the Till Zone wells indicate contaminant migration. Exceedances of the GWPS in the Till Zones of Saturation will be noted and their source investigated. Corrective action for an exceedance in Till Zone wells will be instituted as necessary to be protective of the uppermost aquifer. The GWPS has been established in this Permit because hazardous constituents have been left in place in the closed regulated unit SWI-7 and in solid waste management unit areas SWMUA 1, SWMUA 3, and SWMUA 4.

The need for background data is obsolete with this program, however, the Permittee may incorporate existing background data by reference in the Part B Permit Application. In addition, in the event of potential contamination, the Permittee may utilize wells MW-16, MW-17 (till zone of saturation) and MW-5 (Berea Sandstone Aquifer) to represent background conditions at the facility.

(a) List of Hazardous Constituents & Ground Water Protection Standards (GWPS)

The Permittee must monitor the ground water to determine whether the regulated unit and solid waste management unit areas are in compliance with the GWPS. The hazardous constituents to which the GWPS apply and their concentration limits are listed below:

CAS Number	**Hazardous Constituents**	**Protection Standards (µg/L)**
100-01-6	4-Nitroaniline	3.8E+01
100-02-7	4-Nitrophenol	**TBD**
100-41-4	Ethylbenzene	7.0E+02

100-42-5	Styrene	1.0E+02
100-52-7	Benzaldehyde	1.9E+03
10061-01-5	cis-1,3-Dichloropropene	3.9E+02
10061-02-6	trans-1,3-Dichloropropene	**TBD**
101-55-3	4-Bromophenyl phenyl ether	**TBD**
105-60-2	Caprolactam	9.9E+03
105-67-9	2,4-Dimethylphenol	3.6E+02
106-44-5	4-Methylphenol	1.9E+03
106-46-7	1,4-Dichlorobenzene	7.5E+01
106-47-8	4-Chloroaniline	3.6E+00
106-93-4	Ethylene Dibromide	5.0E-02
107-02-8	Acrolein	4.2E-02
107-06-2	1,2-Dichloroethane	5.0E+00
107-13-1	Acrylonitrile	5.2E-01
108-10-1	4-Methyl-2-pentanone	1.2E+03
108-39-4	3-Methylphenol	9.3E+02
108-60-1	2,2'-oxybis[1-chloropropane]	3.6E+00
108-87-2	Methylcyclohexane	**TBD**
108-88-3	Toluene	1.0E+03
108-90-7	Chlorobenzene	1.0E+02
108-95-2	Phenol	5.8E+03
110-82-7	Cyclohexane	1.3E+04
111-44-4	Bis(2-chloroethyl)ether	1.4E-01
111-91-1	Bis(2-chloroethoxy)methane	5.9E+01
117-81-7	Bis(2-ethylhexyl) phthalate	6.0E+00
117-84-0	Di-n-octyl phthalate	2.0E+03
118-74-1	Hexachlorobenzene	4.9E-01
120-12-7	Anthracene	1.8E+03
120-82-1	1,2,4-Trichlorobenzene	7.0E+01
120-83-2	2,4-Dichlorophenol	4.6E+01
121-14-2	2,4-Dinitrotoluene	2.4E-01

123-91-1	1,4-Dioxane	7.8E+00
124-48-1	Chlorodibromomethane	1.7E+00
127-18-4	Tetrachloroethene	5.0E+00
129-00-0	Pyrene	1.2E+02
131-11-3	Dimethyl phthalate	**TBD**
132-64-9	Dibenzofuran	7.9E+02
1330-20-7	Xylenes, Total	1.0E+04
156-59-2	cis-1,2-Dichloroethene	7.0E+01
156-60-5	trans-1,2-Dichloroethene	1.0E+02
1634-04-4	Methyl tert-butyl ether	1.4E+02
1912-24-9	Atrazine	3.0E+00
191-24-2	Benzo[g,h,i]perylene	**TBD**
193-39-5	Indeno[1,2,3-cd]pyrene	3.4E-01
205-99-2	Benzo[b]fluoranthene	3.4E-01
206-44-0	Fluoranthene	8.0E+02
207-08-9	Benzo[k]fluoranthene	3.4E+00
208-96-8	Acenaphthylene	**TBD**
218-01-9	Chrysene	3.4E+01
50-32-8	Benzo[a]pyrene	2.0E-01
51-28-5	2,4-Dinitrophenol	3.9E+01
534-52-1	4,6-Dinitro-2-methylphenol	1.5E+01
53-70-3	Dibenz(a,h)anthracene	3.4E-02
541-73-1	1,3-Dichlorobenzene	**TBD**
56-23-5	Carbon tetrachloride	5.0E+00
56-55-3	Benzo[a]anthracene	3.4E-01
58-90-2	2,3,4,6-Tetrachlorophenol	2.4E+02
591-78-6	2-Hexanone	3.8E+01
59-50-7	4-Chloro-3-methylphenol	**TBD**
606-20-2	2,6-Dinitrotoluene	4.8E-01
621-64-7	N-Nitrosodi-n-propylamine	1.1E-01
62-53-3	Aniline	1.3E+02

630-20-6	1,1,1,2-Tetrachloroethane	5.7E+00
67-64-1	Acetone	1.4E+04
67-66-3	Chloroform	8.0E+01
67-72-1	Hexachloroethane	6.9E+00
7005-72-3	4-Chlorophenyl phenyl ether	**TBD**
71-43-2	Benzene	5.0E+00
71-55-6	1,1,1-Trichloroethane	2.0E+02
7439-92-1	Lead	1.5E+01
7439-97-6	Mercury	2.0E+00
7440-02-0	Nickel	3.9E+02
7440-22-4	Silver	9.4E+01
7440-28-0	Thallium	2.0E+00
7440-31-5	Tin	1.2E+04
7440-36-0	Antimony	6.0E+00
7440-38-2	Arsenic	1.0E+01
7440-39-3	Barium	2.0E+03
7440-41-7	Beryllium	4.0E+00
7440-43-9	Cadmium	5.0E+00
7440-47-3	Chromium	1.0E+02
7440-48-4	Cobalt	6.0E+00
7440-50-8	Copper	1.3E+03
7440-66-6	Zinc	6.0E+03
74-83-9	Bromomethane	7.5E+00
74-87-3	Chloromethane	1.9E+02
74-97-5	Bromochloromethane	8.3E+01
75-00-3	Chloroethane	2.1E+04
75-01-4	Vinyl chloride	2.0E+00
75-05-8	Acetonitrile	1.3E+02
75-09-2	Methylene Chloride	5.0E+00
75-15-0	Carbon disulfide	8.1E+02
75-25-2	Bromoform	8.0E+01

75-27-4	Dichlorobromomethane	8.0E+01
75-34-3	1,1-Dichloroethane	2.7E+01
75-35-4	1,1-Dichloroethene	7.0E+00
75-69-4	Trichlorofluoromethane	1.1E+03
75-71-8	Dichlorodifluoromethane	2.0E+02
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.5E+05
77-47-4	Hexachlorocyclopentadiene	5.0E+01
7782-49-2	Selenium	5.0E+01
78-59-1	Isophorone	7.8E+02
78-87-5	1,2-Dichloropropane	5.0E+00
78-93-3	2-Butanone	5.6E+03
79-00-5	1,1,2-Trichloroethane	5.0E+00
79-01-6	Trichloroethene	5.0E+00
79-20-9	Methyl acetate	2.0E+04
79-34-5	1,1,2,2-Tetrachloroethane	7.6E-01
83-32-9	Acenaphthene	5.3E+02
84-66-2	Diethyl phthalate	1.5E+04
84-74-2	Di-n-butyl phthalate	9.0E+02
85-01-8	Phenanthrene	**TBD**
85-68-7	Butyl benzyl phthalate	1.6E+02
86-30-6	N-Nitrosodiphenylamine	1.2E+02
86-73-7	Fluorene	2.9E+02
86-74-8	Carbazole	**TBD**
87-61-6	1,2,3 - Trichlorobenzene	7.0E+00
87-68-3	Hexachlorobutadiene	3.0E+00
87-86-5	Pentachlorophenol	1.0E+00
88-06-2	2,4,6-Trichlorophenol	1.2E+01
88-74-4	2-Nitroaniline	1.9E+02
88-75-5	2-Nitrophenol	**TBD**
91-20-3	Naphthalene	1.7E+00
91-57-6	2-Methylnaphthalene	3.6E+01

91-58-7	2-Chloronaphthalene	7.5E+03
91-94-1	3,3'-Dichlorobenzidine	1.0E+00
92-52-4	1,1'-Biphenyl	8.3E-01
95-48-7	2-Methylphenol	9.3E+02
95-50-1	1,2-Dichlorobenzene	6.0E+02
95-57-8	2-Chlorophenol	9.1E+01
95-94-3	1,2,4,5-Tetrachlorobenzene	1.7E+00
95-95-4	2,4,5-Trichlorophenol	1.2E+03
96-12-8	1,2-Dibromo-3-Chloropropane	2.0E-01
97-65-0	2,6-Dichlorophenol	**TBD**
98-82-8	Isopropylbenzene	4.5E+02
98-86-2	Acetophenone	1.9E+03
98-95-3	Nitrobenzene	1.4E+00
99-09-2	3-Nitroaniline	1.9E+03
100-01-6	4-Nitroaniline	3.8E+01

* The list of analytes in this table is based on the U.S. EPA SOMO2.2 Target Analyte List. Reference: http://www.epa.gov/superfund/programs/clp/target.htm

** The protection standards in this table are based on U.S. EPA's Regional Screening Levels.
Reference: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm

*** TBD stands for 'To Be Determined'. A hazardous constituent flagged "TBD" does not currently have either a Maximum Contaminant Limit or a Risk-Based Standard listed on U.S. EPA's Regional Screening Levels table. Within thirty (30) days of detecting a hazardous constituent (above the Practical Quantitation Limit) flagged as "TBD", the Permittee will initiate discussions with Ohio EPA on developing site- and chemical-specific ground water protection standards for any and all detected "TBD" constituents, using surrogate substitutions, alternate toxicity value sources, or other approvable methods.

Procedures for Adjusting GWPS for Multiple Detected Constituents

The ground water protection standards (GWPS) in the above table are for comparison to a solitary detected hazardous constituent in a given ground water unit only. To determine

the GWPS when multiple constituents are detected in a given ground water unit the following procedure shall be followed:

1) All constituents with a GWPS based on a Maximum Contaminant Level, and lead if detected, do not require adjustment and may be eliminated from the multiple constituent adjustment.

2) All inorganic constituents (i.e., metals) detected at levels equal to or below the appropriate background level may be eliminated from the multiple constituent adjustment.

3) All remaining detected constituents with a GWPS based on non-carcinogenic effects shall be counted, and the total number of non-carcinogenic constituents detected divided into each single constituent non-carcinogenic effect GWPS, to determine the adjusted non-carcinogenic GWPS for each constituent. The adjusted GWPS shall then be compared to the analytical result to determine if an exceedance is indicated. That is:

   Adjusted $GWPS_{nc}$ = $GWPS_{nc}$ from Table / Total Number of Detected Non-Carcinogenic Constituents

4) All remaining detected constituents with a GWPS based on carcinogenic effects shall be counted, and the total number of carcinogenic constituents detected divided into each single constituent carcinogenic effect GWPS, to determine the adjusted carcinogenic GWPS for each constituent. The adjusted GWPS shall then be compared to the analytical result to determine if an exceedance exists. That is:

   Adjusted $GWPS_{c}$ = $GWPS_{c}$ from Table / Total Number of Detected Carcinogenic Constituents

5) If a hazardous constituent is listed for both non-carcinogenic and carcinogenic effects, the lowest value from adjustment Steps Three and Four shall be the value compared to the analytical result to determine if an exceedance is indicated.

6) Other multiple constituent adjustment methodologies may be employed with prior approval from Ohio EPA.

7) The target excess lifetime cancer risk is 1E-05. The target hazard quotient is 1.0. These targets were used to generate the table, and are thus incorporated into the multiple constituent adjustment analysis procedure.

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

Ground Water Quality or Field Parameters:

-pH,
-Specific conductivity,
-Temperature, and
-Turbidity.

(b) Point of Compliance (POC)

The Permittee has integrated the ground water monitoring programs site-wide. The combined point of compliance (POC) at which the GWPS apply is described below in Section Z.3(b). The point of compliance and the associated monitoring wells will be indicated on a revised figure in Section E of the Permit Application, to be submitted by the Permittee within ninety (90) days of the approval of this permit modification. The Permittee must monitor the wells listed in Permit Condition Z.3(b) to determine if the GWPS has been exceeded at the POC. In the event of such an exceedance it will be necessary to further evaluate if the GWPS also is being exceeded downgradient at the property boundary.

(c) Permit Period

The permit period during which the GWPS applies is until the expiration date of this permit and any permit renewals. The permit period must begin upon adoption of this permit modification and the permit must continue to be renewed until all waste is removed, and any remaining contamination does not require engineering controls to protect human health and the environment. During the permit period the Permittee must establish and implement a monitoring program that will detect, respond to, and report, as necessary to protect human health and the environment, any releases of hazardous constituents above the GWPS at the POC and between the POC and the downgradient facility boundary. The Permittee shall implement corrective action beyond the facility property boundary, where necessary, to protect human health and the environment.

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

(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 shallow till and Berea Sandstone zones which are considered to be the uppermost aquifer. The samples must:

(ii) Represent the quality of ground water passing the POC, between the POC 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 for all potential release pathways to the uppermost aquifer from the waste management units/areas based on site-specific hydrogeologic characterization when hazardous constituents have migrated from the unit/area to the uppermost aquifer; and

(iv) Demonstrate the effectiveness of any ground water corrective action program, should one be necessary. The well system should be effective in determining compliance with the GWPS and in determining the success of any corrective action program. If ground water corrective measures should be required, the Permittee must review the well system to determine if any additional wells are necessary.

(b) The point of compliance and the associated monitoring wells will be indicated on a revised figure in Section E of the Permit Application, to be submitted by the Permittee within ninety (90) days of the approval of this permit. The monitoring system consists of these ground water wells in conformance with the following list:

Well Identifier	**Upgradient/Downgradient**	**Purpose**
SI-3 (Till Zone)	Radial Flow	Point of Compliance
SI-4 (Till Zone)	Radial Flow	Point of Compliance
SI-5 (Till Zone)	Radial Flow	Point of Compliance
SI-6 (Till Zone)	Radial Flow	Point of Compliance
SI-11 (Till Zone)	Radial Flow	Point of Compliance
GWP-18 (Till Zone)	Radial Flow	Point of Compliance
GWP-22 (Till Zone)	Radial Flow	Point of Compliance
MW-8 (Till Zone)	Radial Flow	Point of Compliance
MW-11B (Till Zone)	Radial Flow	Point of Compliance
MW-19 (Till Zone)	Radial Flow	Point of Compliance
MW-23B (Till Zone)	Radial Flow	Point of Compliance
MW-2 (Berea)	Downgradient	Point of Compliance
MW-11A (Berea)	Downgradient	Point of Compliance
New Berea (located	Downgradient	Point of Compliance

between SI-8 and SI-9)		
New Berea (located between SI-10 and MW-12A)	Downgradient	Point of Compliance

(c) Wells identified in Permit Condition Z.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 E of the 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 of the Permit Application contains ground water monitoring well construction diagrams which illustrate compliance with this Permit Condition.

(d) The Permittee must remove or replace any monitoring well in Permit Condition Z.3(b) in accordance with the OAC Rule 3745-50-51 permit modification process. Each change must be accompanied by a revised map as specified in Permit Condition Z.3(b).

(e) Whenever any of the wells specified in Permit Condition Z.3(b) are replaced, the Permittee must demonstrate to Ohio EPA that the ground water quality at the replacement well meets the criteria in Permit Condition Z.3(a) within one (1) year of the date of replacement using means appropriate to the reason for replacement.

Z.4 Sampling and Analysis Procedures

(a) The Permittee must implement an IGWMP per Section E of the Permit Application. This program includes consistent sampling and analysis procedures designed to ensure monitoring results that provide a reliable indication of ground water quality below the units/areas and that are in compliance with this Permit Condition.

(b) The Permittee's IGWMP per Section E of the Permit Application includes sampling and analytical methods that are appropriate for ground water sampling and that accurately measure hazardous constituents in ground water samples.

(c) Field and analytical data must be validated. To properly validate analytical

samples, the full data package from the laboratory, including but not limited to, method blank, laboratory control samples, surrogate recoveries, and matrix spike/matrix spike duplicates should be included with each data report. The package should have adequate information to complete a Tier 1 data validation. The Permittee may submit these data in an electronic format.

Z.5 Ground Water Surface Elevation

The Permittee must determine the ground water surface elevation at each well identified in the table in Permit Condition Z.3(b) each time ground water is sampled using the methods in Section E of the Permit Application.

Z.6 Sampling Frequency

Data on each hazardous constituent specified in Permit Condition Z.2(a) will be collected from all wells listed in Permit Condition Z.3(b). Ground water sampling pursuant to the IGWMP will be conducted by the Permittee within one (1) year of IGWMP approval by Ohio EPA and at least triennially thereafter. After each sampling event, the sampling frequency will be evaluated by the Permittee and Ohio EPA to determine if triennial monitoring is applicable. Criteria in Section E of the Permit Application may require additional sampling.

The sampling procedure for each constituent is described in Section E of the Permit Application.

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.

Z.7 Reserved

Z.8 Operating Record and Reporting
OAC Rules 3745-54-73, 3745-54-75, and 3745-54-77

(a) Operating Record

The Permittee must enter all of the following information obtained in accordance with Permit Module Z 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 metals, volatile and semi-volatile analyses (must include method codes, method detection limits, and units of measurement);

(iii) The date each well was sampled (tabulated);

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

(v) Any field log or laboratory report documentation of deviation from the procedures in Section E of the 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 owner or operator 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 Z.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) Reserved;

(xii) Any change in well status (i.e., going from uncontaminated to contaminated and vice versa);

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

(xiv) Data and results of the 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); and,

(xvi) Evaluation of the efficiency of any corrective actions performed to bring the ground water quality into compliance with the GWPS per Permit Condition Z.2.

(b) Triennial, Sampling Event & Other Periodic Required Reporting

(i) Required Periodic Reporting

The Permittee must submit a periodic report to the Director by March 1st of the year following a sampling event. The 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, the analytical results required by Permit Conditions Z.6 and Z.9, the ground water elevation data required by Permit Conditions Z.5 and Z.8(a)(xiii). In addition, a copy on disk of all ground water and blank data must be submitted electronically in the format supplied by the Director, a hard copy of well-specific information (location (latitude and longitude), depth, construction, etc.) for any new/replacement wells, and any other information specified in the instructions for the periodic report not addressed in this Permit Condition must be submitted in accordance as required by the Director's Supplementary Annual Groundwater Report Form.

(ii) Other Reports

The Permittee must comply with any other reporting requirements that become necessary under Permit Condition Z.9 in accordance with the schedules covered by that permit condition.

Z.9 Integrated Ground Water Monitoring Program (IGWMP)
OAC Rule 3745-54-101

(a) The Permittee is required to establish and implement an integrated site-wide ground water monitoring program under OAC Rule 3745-54-101 and must take corrective action, as

necessary, to ensure that units/areas are in compliance with the GWPS as specified in Permit Condition Z.2. The IGWMP includes:

(i) Installation and maintenance of a ground water monitoring system at the POC as defined in Permit Condition Z.2(b), and, as necessary to protect human health and the environment, between the POC and the downgradient property boundary and beyond the property boundary. The ground water monitoring system must comply with the requirements in Permit Condition Z.3.

(ii) Collection, preservation, and analysis of samples pursuant to Permit Conditions Z.4, Z.5, and Z.6.

(iii) The Permittee must conduct a sampling program as described in Z.6 for each chemical parameter and hazardous constituent specified in Permit Condition Z.2(a) from each well specified in Permit Condition Z.3(b) during the permit period and any extensions due to corrective action implementation.

Sampling shall be taken at an interval (frequency) that assures, to the greatest extent feasible, that an independent sample is obtained, by reference to the uppermost aquifer's effective porosity, hydraulic conductivity, hydraulic gradient, and the fate and transport characteristics of the potential contaminants.

(iv) The Permittee must determine the concentrations of the hazardous constituents specified in Permit Condition Z.2(a), throughout the permit period specified in Permit Condition Z.2(c), and report the concentrations to Ohio EPA, per Permit Condition Z.8. All information reported by the analytical laboratory must be submitted to Ohio EPA for review including estimated values reported between the method detection limit (MDL) and the practical quantitation limit (PQL). The PQL must be below the GWPS for each hazardous constituent specified in Permit Condition Z.2(a), unless a PQL below the GWPS cannot be obtained with a commercially available analytical method and the Permittee can so document to the

satisfaction of Ohio EPA. Analytical data that exceed the PQL will be compared to the GWPS to determine if further action is required. For a constituent with a PQL that exceeds the GWPS, analytical data between the MDL and PQL will be compared to the GWPS to determine if the data indicate a potential trend that requires further action.

The Permittee shall compare the concentration of each hazardous constituent measured at each well specified in Permit Condition Z.3(b) with the GWPS each time ground water quality is determined. If more than one hazardous constituent is detected, the GWPS must be adjusted using the assumption of simple additivity for multiple chemical effects, prior to making the comparisons.

Sampling beyond the property boundary shall be conducted 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.

(v) The Permittee must maintain a record of ground water analytical data as measured and in an appropriate form under Permit Condition Z.8 for the permit period.

(vi) The Permittee must determine the ground water flow rate and direction in the uppermost aquifer during each sampling event using the procedures specified in the IGWMP.

(b) The Permittee must implement, as necessary to protect human health and the environment, a corrective action program that prevents hazardous constituents specified in Permit Condition Z.2(a) from exceeding their respective GWPS specified in Permit Condition Z.2(a) at the compliance point specified in Permit Condition Z.2(b), between the compliance point and the downgradient property boundary, and beyond the property

boundary during the permit period specified in Permit Condition Z.2(c) by removing the hazardous constituents or by treating them in place.

(c) Reserved.

(d) If the Permittee should be required to establish and implement a corrective action ground water monitoring program or modify the existing ground water monitoring program to fully characterize any newly identified contaminated ground water, such a ground water monitoring program must be effective in determining compliance with the GWPS in Permit Condition Z.2 and in determining the success of any corrective action program in this condition. The ground water monitoring program must include:

(i) Installation and maintenance of a ground water monitoring system at the compliance point as defined in Permit Condition Z.2(b), and, as necessary to protect human health and the environment, between the compliance point and the downgradient property boundary and beyond the property boundary. The ground water monitoring system must comply with the requirements in Permit Condition Z.3.

(ii) Collection, preservation, and analysis of samples pursuant to Permit Conditions Z.4, Z.5, and Z.6.

(iii) The Permittee must conduct a sampling program for each chemical parameter and hazardous constituent specified in Permit Condition Z.2(a) from each well specified in Permit Condition Z.3(b) during the permit period and any extensions due to corrective action implementation. Ohio EPA will determine the appropriate sampling frequency based on site-specific conditions. At minimum, this sampling frequency will be semi-annual.

Sampling shall be conducted at an interval (frequency) that assures, to the greatest extent feasible, that an independent sample is obtained, by reference to the uppermost aquifer's effective porosity, hydraulic conductivity, hydraulic gradient, and the fate and transport characteristics of the potential contaminants.

(iv) The Permittee shall compare the concentration of each hazardous constituent measured at each well at the compliance point specified in Condition Z.2(b), between the compliance point and the downgradient facility boundary, and beyond the facility boundary,

with its clean-up standard each time water quality is determined.

Wells beyond the property boundary must be sampled 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.

(v) Reserved

(vi) The Permittee must determine the ground water flow rate and direction in the uppermost aquifer at least annually using the procedures specified in Section E of the Permit Application.

(vii) Reserved

(e) Response Action

(i) If, based on the results of the Permittee's ground water monitoring program, the GWPS detailed in Permit Condition Z.2(a) have not been exceeded, the Permittee shall continue under routine IGWMP monitoring.

If a ground water sample is found to exceed any GWPS detailed in Permit Condition Z.2(a), the Permittee must resample the subject well(s) within thirty (30) days and analyze for the constituent(s) exceeded. If the exceedance is not confirmed by the resample event, then the Permittee must again resample the subject well(s) one year after the original sampling event and analyze for the constituent(s) exceeded. If both resampling events determine that no GWPS is exceeded at the monitoring location, then the facility shall return to routine monitoring under the integrated ground water monitoring program (IGWMP).

If the exceedance is confirmed in any resampling event, the GWPS detailed in Permit Condition Z.2(a) have been exceeded.

If, based on the results of the Permittee's ground water monitoring program, the GWPS detailed in Permit Condition Z.2(a) have been exceeded, the Permittee must:

- Notify Ohio EPA within seven (7) days of determining that the GWPS have been exceeded,

- Within sixty (60) days of determining that the GWPS have been exceeded, submit to Ohio EPA an evaluation of the exceedance and a proposed response plan for Ohio EPA approval. The response plan should address measures, if necessary, to identify the source of the contamination, evaluate corrective actions, if necessary, to remove or treat in place any hazardous constituents specified in Permit Condition Z.2(a) that exceed their respective GWPS specified in Permit Condition Z.2(a) in ground water, and evaluate whether any other response measures are needed to protect human health and the environment.

Ohio EPA will consider whether the constituent at the detected level poses a substantial present or potential hazard to human health or the environment. Ohio EPA will either: approve the proposed response, approve the proposed response with conditions, disapprove the proposed response, or require the Permittee to conduct an alternate response.

(ii) Within the time approved by Ohio EPA regarding the response plan in Condition Z.9(e)(i), the Permittee must submit detailed plans and an engineering report describing the corrective actions to be taken and a description of how the ground water monitoring program will assess the adequacy of the corrective action. The Permittee must implement the corrective actions as approved and directed by Ohio EPA within the time period established by Ohio EPA.

(iii) The Permittee must continue corrective action measures during the permit period to the extent necessary to ensure that the GWPS is not exceeded. If the Permittee is conducting corrective action at the end of the period, the Permittee must continue corrective action for as long as necessary to achieve compliance with the GWPS.

Once GWPS listed in Permit Condition Z.2(a) have not been exceeded for three consecutive years at any well in Permit Condition

Z.3(b) for any parameter listed in Permit Condition Z.2(a), the Permittee may return to routine IGWMP monitoring.

(iv) If, based on the results of the Permittee's ground water monitoring program, the GWPS detailed in Permit Condition Z.2(a) have been exceeded, the Permittee may demonstrate that a source other than the Permittee's facility 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 a demonstration in addition to, or in lieu of, the response actions identified in sub-sections (i) through (iii) above; however, the Permittee is not relieved of the required time frame to complete the response actions identified in sub-sections (i) through (iii) above unless the demonstration made successfully shows that a source other than the Permittee's facility caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation.

A demonstration of an alternate source unrelated to facility activities must include the following actions:

(a) Notify Ohio EPA in writing within seven (7) days of determining a GWPS exceedance at the POC that the Permittee intends to submit an alternate source demonstration;

(b) Within ninety (90) days of determining a GWPS exceedance at the POC, submit a report to Ohio EPA which demonstrates that a source other than the Permittee's facility caused the contamination or that the contamination resulted from error in sampling, analysis, or evaluation; and,

(c) Continue to monitor in accordance with the IGWMP.

(f) The Permittee must report in writing to the Director on the effectiveness of the ground water corrective action program being conducted pursuant to Permit Condition Z.9(d) quarterly according to Permit Condition Z.8.

(g) If the Permittee determines the ground water 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 per OAC Rule 3745-50-51 to make any appropriate changes to the program.

Z.10. Ground Water Monitoring Program Prior to IGWMP

Until an approvable IGWMP is submitted by the Permittee, approved by Ohio EPA, and implemented, the Permittee must continue to monitor ground water in accordance with its previously approved ground water monitoring program. References in this module to figures, procedures and other information in Section E of the permit application refer to figures, procedures and information to be submitted by the Permittee as part of the IGWMP for review and approval by Ohio EPA. Such figures, procedures and other information are not incorporated by reference into this module until approval and acceptance of the IGWMP by Ohio EPA.

END OF CONDITIONS