



## Modified Ohio Hazardous Waste Facility Installation and Operation Permit

Division of Environmental Response and Revitalization

Permittee: Systech Environmental Corporation U.S. EPA ID: OHD 005 048 947

Facility Name: Systech Environmental Corporation

Mailing Address: P.O. Box 266

City: Paulding State: OH Zip: 45879-0266

Operator Name: Systech Environmental Corporation

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### 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 August 13, 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in effect until such time as the Ohio Hazardous Waste Facility Installation and Operation Permit is renewed, modified, withdrawn, suspended, or revoked.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 August 13, 2014, renewal permit.

### Permit Modification Approval

Craig W. Butler, Director  
Ohio Environmental Protection Agency

Entered into the Journal of the Director on:

October 10, 2017

Date:

## **MODULE E – CORRECTIVE ACTION REQUIREMENTS**

### **E. Corrective Action Summary**

On August 26 and 27, 1992, a RCRA Facility Assessment (RFA) was performed at the Lafarge Corporation, Paulding county facility located on County Road 176 by A.T. Kearney, Incorporated, a contractor for the United States Environmental Protection Agency (U.S. EPA). The RFA consisted of a preliminary review of existing facility information and a visual site inspection. Systech Environmental Corporation, a wholly-owned subsidiary of the Lafarge Corporation, operates within the boundaries of the Lafarge Corporation facility and was included as part of the RFA. An RFA report was submitted to U.S. EPA on November 10, 1992. The RFA report identified thirty-seven (37) Solid Waste Management Units (SWMUs), twenty (20) of which are on Systech Property. Based on the information in the RFA report, U.S. EPA determined that nine (9) of the SWMUs require further investigation under a RCRA Facility Investigation (RFI).

On July 17, 1995, an RFI workplan was submitted to U.S. EPA by Midwest Environmental Consultants, Inc. on behalf of Systech. The RFI Workplan was never reviewed or approved by U.S. EPA.

U.S. EPA transferred authority for oversight of corrective action to Ohio EPA upon issuance of the permit by Ohio EPA on August 8, 2003. SWMU is a term used by U.S. EPA and is equivalent to the term Waste Management Unit (WMU) used by Ohio EPA. The two terms are considered interchangeable.

The nine WMUs and four locations were ultimately combined into two investigatory groups as follows:

#### Group A

1. Organic Liquid Storage Tanks Nos. 1-6 (SWMUs 5-10)
2. Oil/Water Separator (SWMU No. 18)
3. Rail Off Loading Area (SWMU No. 21)

#### Group B

4. Organic Liquid Burn Tanks No. 7 (SWMUs 11, 11A, 11B)

The 2003 permit required Systech to conduct a RCRA Facility Investigation (RFI). On October 31, 2003, Systech (or Permittee) submitted to Ohio EPA a Phase I RFI Work Plan for its Facility. The RFI work plan was revised on April 27, 2005, June 10, 2005, June 16, 2005, and approved on June 23, 2005. The completed Phase I report was accepted by Ohio EPA in 2006. Following completion of the Phase I RFI, Systech submitted a Phase II RFI work plan that was accepted in July 2006. The completed Phase II RFI Report was submitted on January 12, 2009, revised on December 3, 2009, September 7, 2010, May 17, 2011, and

March 12, 2012. The RFI Phase II report was approved on October 16, 2012, with a requirement to submit a Corrective Measures Study (CMS) by January 14, 2013.

On December 12, 2012, Ohio EPA received a letter from Systech stating that there were no substantive changes made to the CMS submitted on January 12, 2009 and that Ohio EPA should consider the submittal to constitute Systech's CMS. On February 18, 2014, Ohio EPA received a revised CMS from the Permittee. On January 25, 2016, Ohio EPA received a revised Groundwater Monitored Natural Attenuation Plan to be incorporated by reference into the CMS.

The Permittee's CMS included corrective measures for the former oil/water separator (SWMU No. 18) and the SB-17 power pole area (SWMU No. 21). Ohio EPA has reviewed the documents and selected remedies that are outlined in Permit Condition E.9(d).

The documents referenced above are incorporated into the permit and will be governed by the conditions in this module and the applicable corrective action rules.

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. 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 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

- (a) The WMUs listed below were addressed in the RFI. The RFI addressed ground water, surface water, soil, waste, and air media associated with each of the WMUs unless otherwise noted in the list below:

WMU Investigatory Group	WMU Number and Description
WMU Group A	WMU 5 - Organic Liquid Storage Tank OL-1
	WMU 6 - Organic Liquid Storage Tank OL-2
	WMU 7 - Organic Liquid Storage Tank OL-3
	WMU 8 - Organic Liquid Storage Tank OL-4
	WMU 9 - Organic Liquid Storage Tank OL-5
	WMU 10 - Organic Liquid Storage Tank OL-6
	WMU 18 - Oil/Water Separator
	WMU 21 - Rail Off-Loading Area
WMU Group B	WMU 11 - Organic Liquid Burn Tank No. 7 (The containment area contains OL-7, OL-8, and OL-9)

- (b) The following WMUs were carried forward in the CMS:

WMU	WMU Description
WMU 18	Oil/Water Separator
WMU 21 (SB-17)	Rail Off-Loading Area (Power Pole Area)

### E.4 Reserved

### E.5 RCRA Facility Investigation (RFI)

OAC Rule 3745-54-101

The Permittee must conduct an RFI to thoroughly evaluate the nature and extent of the release of hazardous wastes and hazardous constituents from all applicable WMUs identified in Condition E.3. above and Condition E.10. 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

The Permittee must submit a written RFI Workplan to Ohio EPA within **90** days after the effective date of this permit or, in case of a newly discovered waste management unit, on a time frame established by Ohio EPA.

- (i) Within **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 **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 **45** 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 the development and

implementation of an interim measure (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 Class 3 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 will 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 alternatives(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 has submitted a written CMS Workplan to Ohio EPA.

- (i) Within 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 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 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)

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

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

##### (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.

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

##### (b) CMI Workplan

The Permittee must submit a written CMI Workplan to Ohio EPA within ninety (90) days from the notification by Ohio EPA of the requirement to implement corrective measures. The CMI Workplan must contain the Specific Remedies as outlined below.

- (i) Within forty-five (45) days of receipt of Ohio EPA's comments, the Permittee must submit either an amended or new CMI Workplan that addresses Ohio EPA's comments.
- (ii) Ohio EPA will approve or modify and approve, in writing, the amended or new CMI Workplan. The CMI 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 CMI Workplan must be authorized by Ohio EPA.

(c) CMI Workplan Implementation

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

(d) Corrective Measures Specific Remedies

Ohio EPA has determined that a combination of removal, institutional controls/environmental covenants and ground water monitoring will be effective and reliable corrective measures for SWMU 18 (oil/water separator area) and SWMU 21 (SB 17 power pole area).

- (i) The Permittee must implement corrective measures at SWMU 18 as described in the Monitored Natural Attenuation Plan (revised January 25, 2016) and included by reference in Appendix C of the Corrective Measures Study.

The Permittee must implement the pump and treat contingent remedy in SWMU 18, if the following conditions exist:

- (a) Concentrations of Constituents of Concern (COCs) show an increasing trend; and
- (b) The contaminated ground water plume increases in size.

- (ii) The Permittee must implement corrective measures in SWMU 21 as described below:

- (a) Removal of soil in an approximately 25 square foot area around SB-17 to a minimum depth of three (3) feet;
- (b) Removal of soil until the concentration of benzo(a)pyrene is below 210 µg/kg as confirmed by analytical testing;
- (c) Excavation, characterization, and disposal of soils in accordance with applicable federal and state laws and regulations; and
- (d) Backfill of the excavation with soils meeting background concentrations.

- (iii) Within forty-five (45) days after issuance of the director initiated permit modification, the Permittee must obtain an Environmental Covenant in accordance with Ohio's Environmental Covenant law, Ohio Revised Code sections 5301.8 to 5301.92, that will declare the site is restricted to industrial use only and prohibit the use of on-site ground water for potable purposes.

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

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

E.10. NEWLY IDENTIFIED WMUs OR RELEASES  
OAC Rule 3745-54-101

(a) General Information

The Permittee must submit to Ohio EPA, within 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;
- (v) Specification of all waste(s) that have been managed at the unit.

(b) Release Information

The Permittee must submit to Ohio EPA, within 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 that a 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.

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 G - GROUND WATER MONITORING**

### **G. GROUND WATER MONITORING**

This module addresses the ground water monitoring program associated with the former Oil/Water Separator (Solid Waste Management Unit/Area 18) for Systech Environmental Corporation's (Systech) Facility. This unit is monitored under the Part B Permit rules OAC Rules 3745-54-90 through 101. Upon approval of this permit, the Permittee shall conduct a ground water corrective action monitoring program under the permitted facility rules.

The former Oil/Water Separator was located along the northeast corner of the above ground storage tank farm and just outside of the secondary containment. The unit was designed to process onsite stormwater prior to discharge. Oil that was recovered from the unit was returned to onsite storage tanks for potential use as a kiln fuel. Leftover stormwater was discharged to an onsite drainage ditch. Systech closed the unit in 1992 by disconnecting the piping, filling it with an inert solid and then concreting it in-place. The unit was identified during a RFI Phase I as having potentially managed contaminated stormwater.

The Permittee's corrective action ground water monitoring system presently consists of four (4) monitoring wells: two (2) downgradient/sidegradient wells (MW-1 and MW-4) and two (2) upgradient wells (MW-3 and MW-5) where the screened intervals range from 4-10 feet below ground surface (bgs). All four wells are screened in a shallow perched saturated zone consisting of fill (sand and gravel) which extends down to a depth of approximately 8 feet bgs in the immediate area. The shallow perched zone is discontinuous and is separated from the regional uppermost aquifer (Dundee Limestone) by a 40-45 foot thick layer of lacustrine clay and a 15-20 foot thickness of dolomite (Ten Mile Creek formation).

#### **G.1 Applicability**

OAC Rules 3745-50-44(B), 3745-54-90, and 3745-54-91

- (a) The Permittee must comply with the applicable requirements in OAC Rules 3745-54-90 through 101 for purposes of detecting, characterizing, and responding to releases to and from the shallow perched saturated zone for the following unit/area as required in the Statement of Basis

Solid Waste Management Unit/Area – 18 (Oil/Water Separator), hereafter referred to as the Unit/Area, is shown in attached Figure G-1.

- (b) Reserved

- (c) The Permittee is subject to OAC Rules 3745-54-90 through 101 and must conduct a monitoring and response program as follows:

Hazardous constituents under OAC Rule 3745-54-93 from the Unit/Area have been detected in the ground water between the identified unit boundary and the downgradient Facility property boundary. A site-wide RFI and CMS have been conducted. The final RFI and CMS reports have been submitted, and the final RFI report was approved by Ohio EPA on October 16, 2012 and the revised CMS report was received by Ohio EPA on February 18, 2014. As detailed in Module E, Ohio EPA has selected corrective measures for the Unit/Area identified in Permit Condition G.1(a). Therefore, the Permittee must institute a corrective action program in accordance with Permit Condition G.11 and OAC Rule 3745-54-100 through 101(C) to protect human health and the environment for all releases of hazardous wastes or constituents from the Unit/Area and to bring the Unit/Area back into compliance with the standards outlined in Permit Condition G.11.

G.2 Ground Water Protection Standard (GWPS)

OAC Rules 3745-50-44(B), 3745-54-92 through 3745-54-96, and 3745-54-100(A)

Compliance with the GWPS will be met by fulfilling the Monitored Natural Attenuation (MNA) Constituents & Performance Requirements outlined in the Statement of Basis and Module G. The MNA Performance Requirements as described in Module G will hereafter be referred to as the GWPS. The Permittee must ensure that the hazardous constituents under OAC Rule 3745-54-93 detected in the ground water from the Unit/Area listed in Permit Condition G.1(a) do not exceed the concentration limits under OAC Rule 3745-54-94 in the shallow perched saturated zone underlying the waste management area beyond the point of compliance under OAC Rule 3745-54-95 during the compliance period under OAC Rule 3745-54-96. The GWPS has been established in this Permit due to hazardous constituents being detected in the ground water.

(a) Hazardous Constituents and Concentration Limits

OAC Rules 3745-54-93 & 94, and 100(A)(1) and (2)

The Permittee must monitor the ground water to determine whether the Unit/Area is in compliance with the GWPS under OAC Rule 3745-54-92. The site-specific hazardous constituents are those detected in the ground water above their respective PQLs underlying the Unit/Area and reasonably expected to be contained in or derived from the Unit/Area to which the GWPS applies. The site-specific hazardous constituents and their Concentration Limits are listed in Table G-1 below:

**Table G-1 Hazardous Constituents and Concentration Limits**

<b>Hazardous Constituents</b>	<b>Concentration Limit (ug/l)</b>
Arsenic (dissolved)	10
Benzene	5
2-Butanone (MEK)	5,600*
Carbon Disulfide	810*
Chlorobenzene	100
Cobalt (dissolved)	6*
1,2-Dichlorobenzene	600
1,4-Dichlorobenzene	75
1,1-Dichloroethane	27*
Cis-1,2-Dichloroethylene	70
Trans-1,2-dichloroethylene	100
Diethyl phthalate	15,000*
Ethylbenzene	700
Lead (dissolved)	15
2-Methylnaphthalene	36*
Napthalene	1.7*
Tetrachloroethylene	5
Toluene	1,000
Trichloroethylene	5
Vanadium (dissolved)	86*
Vinyl Chloride	2
Xylene	10,000
Zinc (dissolved)	6,000*

Note:

\* Risk goal is based on single chemical concentrations. Non-cancer target values are from the June 2015 Tapwater Regional Screening Level (RSL) Table. Non-cancer target groundwater concentrations are based on a hazard quotient (HQ) of 1. For Chemicals of Concern (COCs) without an MCL, risk-based non-cancer target groundwater concentrations must be cumulatively adjusted if more than one COC is present. Single chemical cancer target groundwater concentrations are based on carcinogenic values from the June 2015 Tapwater RSL Table. For Chemicals of Concern (COCs) without an MCL, risk-based cancer target groundwater concentrations must be cumulatively adjusted if more than one COC is present.

The Permittee must also monitor parameters noted in Table G-2 below for field measurements and to evaluate the degree of natural attenuation:

Table G-2 Field/Attenuation Parameters :

Parameters	Stabilization Criteria / Preservation	Target PQL (mg/l)
Temperature	$\pm 0.5^{\circ}$ Celsius <sup>1</sup>	Field Measurement
pH	$\pm 0.2$ standard units <sup>1</sup>	Field Measurement
Conductivity	$\pm 3\%$ <sup>1</sup>	Field Measurement
Dissolved Oxygen	$\pm 10\%$ of reading value or $+ 0.2$ mg/l, whichever is greater <sup>1</sup>	Field Measurement
Oxidation-reduction potential (ORP)	$\pm 20$ millivolts <sup>1</sup>	Field Measurement
Turbidity	less than or equal to 10 NTUs, or $\pm 10\%$ if turbidity is $> 10$ NTUs <sup>1</sup>	Field Measurement
Iron	HNO <sub>3</sub> to pH $< 2$ , at least 24-hours prior to analysis <sup>1</sup>	0.050
Sulfate	Cool 0-6° C <sup>1</sup>	5.0
Nitrate	Cool 0-6° C <sup>1</sup>	0.1

Note:

1 Ohio EPA Technical Guidance for Ground Water Investigations (Chapter 10, Revised May 2012).

- (b) Point of Compliance  
OAC Rules 3745-54-91(A)(3)/3745-54-95, and 3745-54-100(A)(3) & (E)(1)

The point of compliance at which the GWPS of OAC Rule 3745-54-92 applies is described in Section 2.1.2 and on Figure 3 of the Monitored Natural Attenuation Plan - Paulding Co-Processing Facility (hereafter referred to as the MNAP) (Note: the point of compliance is the approximated extent of the perched groundwater zone as noted in the legend on Figure 3 (and Figure G-1, attached)). The Permittee must monitor the following wells: MW-1, MW-3, MW-4 and MW-5 identified in

Permit Condition G.3(b) representing the quality of ground water passing the point of compliance. The Permittee must also monitor the ground water, as necessary, between the point of compliance and the downgradient Facility property boundary to determine if any Concentration Limits have been exceeded at any point between the compliance point and the downgradient Facility property boundary.

If it is determined after the first quarterly sampling event specified in Permit Condition G.6 that any Concentration Limit found in Table G-1 is exceeded at any well specified in Table G-3, then the Permittee will consult with Ohio EPA to determine the need for the installation and sampling of additional wells necessary to protect human health and the environment. Within ninety (90) days from the date of the above determination, the Permittee shall submit an application for a permit modification pursuant to OAC Rule 3745-50-51 to make any appropriate changes to the program. The installation of any additional well(s) shall conform to those applicable performance standards set forth in Permit Condition G.3. If no Concentration Limit found in Table G-1 is exceeded at any well specified in Table G-3 after the first quarterly sampling event, the Permittee shall implement ground water monitoring in support of corrective action as specified in this Module (G).

(c) Compliance Period  
OAC Rule 3745-54-96

- (i) The compliance period during which the GWPS of OAC Rule 3745-54-92 applies is equal to the permit period. The permit must continue to be renewed until all hazardous constituents in ground water are below the Concentration Limits found in Table G-1 for three consecutive years per Permit Condition G.11(f). During the compliance period, the Permittee must establish and implement a monitoring program that will detect, respond and report as necessary to protect human health and the environment all releases of hazardous constituents above the Concentration Limits listed in Table G-1.
- (ii) If the Permittee is engaged in a corrective action program at the end of the compliance period specified above, the compliance period is extended until the Permittee can demonstrate that the GWPS of OAC Rule 3745-54-92 has not been exceeded for a period of three consecutive years and that contaminated ground water in the shallow perched saturated zone displays a decreasing trend of the hazardous constituents listed in Table G-1 in Permit Condition G.2(a).
- (iii) The Permittee may discontinue corrective action activities during

the compliance period as specified in Permit Condition G.11(e)(iv).

(iv) Reserved

G.3 Well Location, Installation, Maintenance, and Removal  
OAC Rules 3745-54-95, 3745-54-97(A) to (C), and 3745-54-100(D) & (E)

- (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 perched saturated zone. The samples must:
  - (i) Represent the quality of background water that has not been affected by leakage from the Unit/Area;
  - (ii) Represent the quality of ground water passing the point of compliance, between the point of compliance and the downgradient Facility property boundary, and beyond the Facility property boundary, where necessary, to protect human health and the environment. The point of compliance, as defined in OAC Rule 3745-54-95, is a vertical surface located at the hydraulically downgradient limit of the waste management area that extends down into the uppermost aquifer (shallow perched saturated zone) underlying the regulated unit/area;
  - (iii) Allow for the detection and measurement of contamination for all potential release pathways to the shallow perched saturated zone from the Unit/Area based on site-specific hydrogeologic characterization; and
  - (iv) Reserved
  - (v) Demonstrate the effectiveness of the corrective action program. The monitoring well system must be as effective as the compliance ground water monitoring system required by OAC Rule 3745-54-99 in determining compliance with the ground water protection standard and in determining the success of the corrective action program under OAC Rule 3745-54-100.
- (b) The monitoring system consists of the ground water monitoring wells as specified in Section 2.1 and Figure 3 of the MNAP and Figure G-1 of this Permit in conformance with Table G-3:

**Table G-3 Ground Water Monitoring Wells**

Unit/Area Name	Monitored Zone	Type of Well	Well ID
WMU-18	shallow perched saturated zone	Background/Upgradient	MW-3, MW-5
		Sidegradient	MW-4
WMU-18	shallow perched saturated zone	Point of Compliance (downgradient)	MW-1

- (c) Monitoring wells identified in Permit Condition G.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 2.1.1 of the MNAP. 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. Appendix A of the MNAP contains ground water monitoring well construction diagrams which illustrate compliance with OAC Rule 3745-54-97(A) to (C).
- (d) The Permittee must remove or replace any monitoring well in Permit Condition G.3(b) in accordance with the Appendix to OAC Rule 3745-50-51 permit modification process. Each change must be accompanied by a revised well location map to replace Figure 3 in the MNAP and Figure G-1 of this Permit referenced in Permit Condition G.3(b).
- (e) Whenever any of the wells specified in Permit Condition G.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 G.3(a) within a 365 day period of the date of replacement using means appropriate to the reason for replacement.
- (f) The Permittee must record in the Facility's operating record the total depth of any replacement wells installed in accordance with Permit Condition G.3(e) and the surveyed elevation of the top of casing, ground surface and/or apron elevation, and the protective casing of the monitoring well(s) within thirty (30) days of the date of installation (with as-built drawings and latitude/longitude measurements).
- (g) The Permittee shall maintain the monitoring wells identified in Permit Condition G.3(b) in accordance with the detailed plans and specifications presented in Section 2.1 of the MNAP.

- (h) All monitoring wells removed or replaced in accordance with Permit Condition G.3(e) shall be plugged and abandoned in accordance with Chapter 9 of the Ohio EPA Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring. Well plugging and abandonment methods, certification and justification shall be submitted to the Director within thirty (30) days from the date the well was removed from the monitoring program.

G.4 Sampling and Analysis Procedures  
OAC Rule 3745-54-97 (D) and (E)

- (a) The Permittee must submit and implement a ground water monitoring program that meets corresponding performance standards found in the most recent version of Ohio EPA's Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring. This program includes consistent sampling and analysis procedures designed to ensure monitoring results that provide a reliable indication of ground water quality below the waste management area and are in compliance with OAC Rule 3745-54-97(D).
- (b) The Permittee's ground water monitoring program, Section 2.2 of the MNAP, includes sampling and analytical methods that are appropriate for ground water sampling and that accurately measure hazardous constituents in ground water samples in compliance with OAC Rule 3745-54-97(E).
- (c) Field and analytical data must be validated in accordance with the procedures specified in Section 2.3.5 of the MNAP.

G.5 Ground Water Surface Elevation  
OAC Rule 3745-54-97(F)

The Permittee must determine the ground water surface elevation at each well identified in Table G-3 of Permit Condition G.3(b) each time ground water is sampled at that well using the methods in Section 2.2.1 of the MNAP.

G.6 Sampling Frequency  
OAC Rule 3745-54-97(G)

Data on each constituent specified in Table G-1 and G-2 in Permit Condition G.2(a) will be collected quarterly from those wells identified in Table G-3 in Permit Condition G.3(b) [MW-1, MW-3, MW-4 and MW-5] during the first year of sampling; semiannually during the second year of sampling and annually thereafter. The sampling procedure and interval for each constituent are

described in Sections 2.2 and 2.5 of the MNAP.

- (a) Reserved
- (b) Reserved
- (c) Reserved

G.7 Statistical Procedures  
OAC Rule 3745-54-97 (H) and (I)

The Permittee must use the following statistical procedures in evaluating ground water monitoring results for each hazardous constituent in Permit Condition G.2(a) in each monitoring well in Permit Condition G.3(b) to identify statistically significant evidence of the effectiveness of corrective action:

- (a) Reserved
- (b) The Permittee's statistical procedures must be protective of human health and the environment, provide reasonable confidence that the migration of hazardous constituents from the Unit/Area into and through the shallow perched saturated zone will be indicated, will determine whether such leakage of hazardous constituents into the ground water exceeds specified concentration limits and have the ability to determine the effectiveness of corrective action. The statistical procedures must comply with the following performance standards:
  - (i) The statistical evaluation of ground water monitoring data must be conducted separately for each hazardous constituent specified in Table G-1 in Permit Condition G.2(a) in each well identified in Table G-2 in Permit Condition G.3(b) by comparing ground water analytical data to the Concentration Limits specified in Table G-1 on a one-to-one basis following each sampling event. For each of the constituents identified in Table G-1, within the third year after beginning corrective action implementation, the Permittee shall present a graph of analysis results versus time using all historical analysis results. The Permittee shall provide a qualitative discussion concerning any anomalies, trends or changes in ground water in accordance with Permit Condition G.8(b).
  - (ii) Reserved
  - (iii) Reserved
  - (iv) Reserved

(v) Reserved

(vi) When practical quantitation limits (PQLs) are used in any statistical procedures, the PQL must be approved in the permit as part of the statistical procedures in Condition G.7. The statistical method must account for data below the limit of detection with one or more statistical procedures. Any practical quantitation limit (PQL) approved in the permit that is used in the statistical method must be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the Permittee per OAC Rule 3745-54-97(I)(5).

(vii) Reserved

G.8 Operating Record and Reporting

OAC Rules 3745-50-58(H-L), 54-73(B)(5) and (6), 77(C), 97(J), and 100(G)

(a) Operating Record

The Permittee must enter all of the following information obtained in accordance with Permit Module G in the operating record:

- (i) Ground water monitoring data collected in accordance with this permit including actual levels of constituents;
- (ii) The laboratory results from each of the wells and their associated qualifiers including the laboratory sheets for the full volatile and semi-volatile analyses (must include method codes, method detection limits, and units of measurement);
- (iii) The date each well was sampled (tabulated);
- (iv) The date, time, and identification of all blanks and duplicates;
- (v) Any field log documentation of deviation from the procedures in the MNAP 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 accuracy and precision of the analytical data and determined its quality;

- (viii) The results of the data validation review per Permit Condition G.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) Any statistical evaluation of the data (must include all computations, results of statistical tests, and date the statistical evaluation was completed);
  - (xii) Any change in well status (i.e., going from unaffected to affected status and vice versa);
  - (xiii) Ground water surface elevations taken at the time of sampling each well;
  - (xiv) Data and results of the annual determination of the ground water flow rate and semiannual determination of ground water flow direction and potentiometric surface;
  - (xv) Evaluation of the whether the ground water monitoring system still consists of a sufficient number of wells installed at appropriate locations and depths to meet the requirements of Permit Condition G.3.
  - (xvi) 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).
  - (xvii) Evaluation of the efficiency of the corrective actions performed to bring the ground water quality into compliance with the GWPS per Permit Condition G.2 including comparisons to Concentration Limits in Table G-1.
- (b) Annual, Semi-Annual & Other Periodic Required Reporting
- (i) Required Annual Reporting

The Permittee must submit a Supplementary Annual Ground Water

Monitoring Report to the Director by March 1<sup>st</sup> of the following year. The annual reports must reference the titles and dates of any other periodic reports required by the permit or any updates to those reports but generally do not need to include duplicates of hard copies previously submitted.

The Supplementary Annual Ground Water Monitoring Report must include, at a minimum, the analytical results required by Permit Conditions G.6 and G.11, the ground water elevation data required by Permit Condition G.5 and G.8(a)(xiii - xv), the results of any statistical analyses required by Permit Condition G.7 and G.11, and the evaluations in G.8(a)(xvii). 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 annual report not addressed in this Permit Condition must be submitted in accordance with the annual reporting form supplied by the Director and OAC Rule 3745-54-97(J).

(ii) Required Quarterly/Semiannual/Annual Reports

Reports will be due seventy-five (75) days after each quarterly, semi-annual and annual sampling event and must include a potentiometric surface map (including water levels), laboratory analytical results, field sample and stabilization forms, summary tables, documentation of deviations in sampling procedures and data evaluation including comparisons to Concentration Limits in Table G-1.

(iii) Required Corrective Action Effectiveness Annual Reporting

The Permittee must report, in writing, annually to the Director on the effectiveness of the Monitored Natural Attenuation (MNA) corrective action program. These reports must be submitted on March 1 of each year until the corrective action program has been completed. This report may be combined with the required annual reporting in Permit Condition G.8(b)(i). Each report must reference the titles and dates of any other periodic reports required by the permit or any updates to those reports, but generally does 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 G.5 and G.6, and the results of the statistical analyses required by Permit Condition G.7.

This report shall include:

- a. progress in meeting the GWPS;
- b. projected time frame for meeting the GWPS;
- c. a summary of newly acquired data since the last report;
- d. the effectiveness of the institutional controls;
- e. a trend analysis for constituents listed in Table G-1;
- f. any statistical evaluations from Permit Condition G.7; and
- g. an evaluation of whether MNA remains a timely and effective remediation strategy in accordance with the response requirements in G.11(b).

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

The Permittee must comply with any reporting requirements that become necessary under Permit Condition G.11 in accordance with the schedules covered by that permit condition and as required by OAC Rule 3745-54-77(C).

G.9 Detection Monitoring Program (Reserved)

G.10 Compliance Monitoring Program (Reserved)

G.11 Corrective Action Program  
OAC Rules 3745-50-44(B)(8), 3745-54-100 and 3745-54-101(C)

- (a) The Permittee is required to establish and implement a ground water corrective action program under OAC Rules 3745-54-90 to 3745-54-100 and must take corrective action to ensure that the Unit/Area is in compliance with the GWPS in OAC Rule 3745-54-92 as specified in Permit Condition G.2.
- (b) The Permittee must implement a corrective action program that prevents hazardous constituents specified in Permit Condition G.2(a) from exceeding their respective Concentration Limits specified in Table G-1 at

the compliance point specified in Permit Condition G.2(b) by removing the hazardous waste constituents or by treating them in place. The Permittee shall implement MNA at the Unit/Area with ground water monitoring.

- (c) The Permittee must begin corrective action required under this Permit Condition upon approval of this permit modification.
- (d) In conjunction with the corrective action program, the Permittee must establish and implement a ground water monitoring program to fully characterize contaminated ground water as required by OAC Rule 3745-50-44(B)(8)(a) and to demonstrate the effectiveness of the corrective action program. Ground water monitoring must be as effective as the compliance monitoring program in OAC Rule 3745-54-99 in determining compliance with the GWPS in Permit Condition G.2 and in determining the success of the 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 G.2(b), and, as necessary to protect human health and the environment, between the compliance point and the downgradient Facility property boundary and beyond the Facility property boundary. The ground water monitoring system must comply with the requirements in Permit Condition G.3.
  - (ii) Collection, preservation, and analysis of samples conducted pursuant to Permit Conditions G.4, G.5, and G.6. Statistical analysis must be conducted pursuant to Permit Condition G.7.
  - (iii) The Permittee must conduct a sampling program for each chemical parameter and hazardous constituent specified in Permit Condition G.2(a) from each well specified in Permit Condition G.3(b) [MW-1, MW-3, MW-4 and MW-5] during the compliance period and any extensions due to corrective action implementation. The sampling procedure and frequency for each well is described in Sections 2.2 and 2.5 of the MNAP; data will be collected quarterly during the first year of sampling; semiannually during the second year of sampling and annually thereafter.
  - (iv) The Permittee must maintain a record of ground water analytical data as measured and in a form necessary for the determination of statistical significance under Permit Conditions G.7 and G.8 for the compliance period defined in Permit Condition G.2(c).
  - (v) The Permittee must determine the ground water flow rate annually

and direction of flow in the shallow perched saturated zone semiannually after each sampling event specified under Permit Condition G.6 for the compliance period defined in Permit Condition G.2(c) using the procedures specified in Section 2.4 of the MNAP. The Permittee must submit the determinations in accordance with Permit Conditions G.8(b)(i) and (ii).

- (vi) Reserved
- (vii) Reserved
- (viii) Reserved
- (e) The Permittee must conduct a corrective action program to remove or treat in place any hazardous constituents specified in Permit Condition G.2(a) that exceed their respective concentration limits specified in Permit Condition G.2(a) in ground water:
  - (i) Between the compliance point specified in Permit Condition G.2(b) and the downgradient facility property boundary, in accordance with the procedures specified in the Permit Application.
  - (ii) Beyond the Facility boundary, where necessary to protect human health and the environment, unless the Permittee demonstrates to Ohio EPA 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.
  - (iii) Corrective action measures required under Permit Condition G.11(e) must be initiated within 180 days of permit approval
  - (iv) Corrective measures under Permit Condition G.11(e) may be terminated once the GWPS detailed in Permit Condition G.2 has not been exceeded for three consecutive years in accordance with OAC Rule 3745-54-100 and concentrations of hazardous constituents noted in Permit Condition G.2(b) display a decreasing trend.
- (f) The Permittee must continue corrective action measures during the compliance period specified in Permit Condition G.2(c) to the extent necessary to ensure that the GWPS are not exceeded.

If the Permittee is conducting corrective action at the end of the compliance period, the Permittee must continue corrective action for as long as necessary to achieve compliance with the GWPS. The Permittee may terminate corrective action measures taken beyond the compliance period if the Permittee can demonstrate, based on data from the ground water monitoring program under Permit Condition G.11(d), that the GWPS detailed in Permit Condition G.2 has not been exceeded for three consecutive years in accordance with OAC Rule 3745-54-100 and concentrations of hazardous constituents noted in Permit Condition G.2(b) display a decreasing trend.

- (i) If after three years of implementing the MNA alternative, the GWPS continues to be exceeded and/or hazardous constituents display an increasing trend, then a contingency alternative will be implemented as detailed in Section 3.0 of the MNAP. As part of this contingency, installation and sampling of additional wells may be necessary to protect human health and the environment. Within ninety (90) days from the date of the above determination, the contingency alternative must be initiated and a schedule submitted of detailed plans. The corrective action must be implemented within one hundred eighty (180) days from the date of the above determination.
- (g) The Permittee must report in writing to the Director on the effectiveness of the MNA corrective action monitoring program annually according to Permit Condition G.8(b)(iii).
- (h) If the Permittee determines the corrective action program established by this permit no longer satisfies the requirements of OAC Rule 3745-54-100, the Permittee must, within ninety (90) days of that determination, submit an application for a permit modification pursuant to OAC Rule 3745-50-51 to make any appropriate changes to the program.

#### **End of Permit Conditions**

**Attachment 1**

**Figure G-1  
Waste Management Unit / Area – 18  
Oil / Water Separator**

