09/03/2026

Patricia Carlson
The Lubrizol Corporation
155 Freedom Road
Painesville, OH 44077-1234

RE: DRAFT AIR POLLUTION PERMIT-TO-INSTALL

Facility ID: 0243000024
Permit Number: P0141275
Permit Type: Administrative Modification
County: Lake

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED
No	MAJOR GHG
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

Dear Permit Holder:

A draft of the Ohio Administrative Code (OAC) Chapter 3745-31 Air Pollution Permit-to-Install for the referenced facility has been issued for the emissions unit(s) listed in the Authorization section of the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit public comments on the permit. A public notice will appear in the Ohio Environmental Protection Agency (Ohio EPA) ***Weekly Review and Public Notices*** website. A copy of the public notice and the draft permit are enclosed. This permit can be accessed electronically on the Ohio EPA document search webpage: ***eDocument Search***. Comments will be accepted as a marked-up copy of the draft permit or in narrative format. Any comments must be sent to the following:

Andrea Moore
Permitting Section
Ohio EPA, DAPC
50 West Town Street, Suite 700
P.O. Box 1049
Columbus, Ohio 43216-1049

and

Ohio EPA DAPC, Northeast District Office
2110 East Aurora Rd.
Twinsburg, OH 44087

Comments and/or a request for a public hearing will be accepted within 30 days of the date the notice is published on the Ohio EPA ***Weekly Review and Public Notices*** website. You will be notified in writing if a public hearing is scheduled. A decision on issuing a final permit-to-install will be made after consideration of comments received and oral testimony if a public hearing is conducted. Any permit fee that will be due upon issuance of a final Permit-to-Install is indicated in the Authorization section. Please do not submit any payment now. If you have any questions, please contact Ohio EPA DAPC, Northeast District Office at (330)963-1200.

Sincerely,

Robert Hodanbosi
Chief, Division of Air Pollution Control

cc: U.S. EPA Region 5 - *Via E-Mail Notification*
Ohio EPA-NEDO; Pennsylvania; Canada

PUBLIC NOTICE

The following matters are the subject of this public notice by the Ohio Environmental Protection Agency. The complete public notice, including any additional instructions for submitting comments, requesting information, a public hearing, or filing an appeal may be obtained at: ***Weekly Review and Public Notices | Ohio Environmental Protection Agency*** or Hearing Clerk, Ohio EPA, 50 W. Town St., Columbus, Ohio 43215. Ph: 614-644-3037 email: ***HClerk@epa.ohio.gov***

Draft Air Pollution Permit-to-Install Administrative Modification

The Lubrizol Corporation
155 Freedom Road
Painesville, OH 44077-1234

ID#: P0141275
Date of Action: 09/03/2026
Permit Desc: Facility-initiated administrative modification to incorporate RACT standards. Pursuant to Part D of Title I of the Clean Air Act (CAA), Ohio EPA is required to establish a State Implementation Plan (SIP) for the attainment and maintenance of the NAAQS. The above-mentioned permit is a part of Ohio's SIP for attainment and maintenance of the 2015 ozone NAAQS and will be submitted to United States Environmental Protection Agency (U.S. EPA) as a modification of the SIP.
The permit and complete instructions for requesting information or submitting comments may be obtained at: https://ohioepa.commentinput.com - Search by entering the permit P0141275 in the "Search Projects" search box. The public comment period will run until 10/05/2026 at 11:59 PM.

Environmental Protection Agency

Draft Permit-to-Install
The Lubrizol Corporation
Permit Number: P0141275
Facility ID: 0243000024
Effective Date: To be entered upon final issuance

Permit Strategy Write-Up

1. Check all that apply:

   ☐ Synthetic Minor Determination ***N/A***

   ☐ Netting Determination ***N/A***

2. Source Description:

   Emissions unit N001 – Waste Heat Recovery Incinerator (WHRI). As required by the reclassification to serious nonattainment for ozone under the 2015 ozone National Ambient Air Quality Standards (NAAQS) promulgated by U.S. EPA, this facility has submitted a NO_X Reasonably Available Control Technology (RACT) study on March 26, 2026 (subsequently revised on May 15, 2026, and July 24, 2026) to address the feasibility of controlling NO_X emissions from the WHRI. This facility does not have any prior source-specific NO_X RACT established under OAC rule 3745-110. This permit modification includes the implementation of the proposed RACT limits in the July 2026 revision of the RACT study. Section C of this permit cites the RACT limits under OAC rule 3745-110-03(J), and the applicable rules table implements this under an OAC rule 3745-31-05(D) synthetic minor restriction for the affected unit.

   Pursuant to Part D of Title I of the Clean Air Act (CAA), Ohio EPA is required to establish a State Implementation Plan (SIP) for the attainment and maintenance of the NAAQS. This permit is part of Ohio's SIP for attainment and maintenance of the 2015 ozone NAAQS and will be submitted to United States Environmental Protection Agency (U.S. EPA) as a modification of the SIP.

3. Facility Emissions and Attainment Status:

   This is a Title V facility. Lake County was designated as "serious" nonattainment for the 2015 ozone NAAQS but is now a maintenance county. The county is currently designated attainment for all NAAQS (criteria) pollutants which include ozone, $PM_{2.5}$, PM_{10}, CO, NO_2, lead and SO_2.

4. Source Emissions:

   Emissions unit N001 has NO_X emissions that are subject to the NO_X RACT requirements. The NO_X RACT determination for this emissions unit is to maintain and operate the WHRI in accordance with the manufacturer's specifications, with any modifications deemed necessary by the permittee, and with good combustion practices, including appropriate fuel-to-air ratios; stable burner operation; and proper operation of the rotary hearth and secondary combustion chamber burners, for the control of NO_X emissions from this EU.

5. Conclusion:

   The permit modification establishes NO_X RACT limits as proposed by The Lubrizol Corporation in their NO_X RACT study as part of the requirements for the 2015 ozone NAAQs nonattainment and maintenance areas under the reclassification to serious nonattainment for the Cleveland area. The NO_X RACT limits established in this permit are to be implemented within the timeline specified by the permit terms.

6. Please provide additional notes or comments as necessary:

   None

7. Total Permit Allowable Emissions Summary (for informational purposes only):

Pollutant	Tons Per Year
NO_X	21.3

Ohio Environmental Protection Agency

DRAFT

Division of Air Pollution Control

Permit-to-Install

for

The Lubrizol Corporation

Facility ID:	0243000024
Permit Number:	P0141275
Permit Type:	Administrative Modification
Issued:	09/03/2026
Effective:	To be entered upon final issuance

Ohio Environmental Protection Agency

Division of Air Pollution Control

Permit-to-Install

for

The Lubrizol Corporation

Table of Contents

Authorization

Facility ID:	0243000024
Facility Description:	Manufacturer of specialty chemicals
Application Number(s):	A0082360
Permit Number:	P0141275
Permit Type:	Permit-To-Install
Permit Fee:	$0.00 *DO NOT send payment at this time, subject to change before final issuance*
Issue Date:	09/03/2026
Effective Date:	To be entered upon final issuance

This document constitutes issuance of a Permit-to-Install for the emissions unit(s) identified on the following page to:

The Lubrizol Corporation
155 Freedom Road
Painesville, OH 44077-1234

Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Ohio EPA DAPC, Northeast District Office
2110 East Aurora Rd.
Twinsburg, OH 44087
(330)963-1200

The above-named entity is hereby granted this Permit-to-Install for the air contaminant source(s) (emissions unit(s)) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the described emissions unit(s) will operate in compliance with applicable State and Federal laws and regulations and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

John Logue

Director

Authorization (continued)

Permit Number:P0141275

Permit Description:Facility-initiated administrative modification to incorporate RACT standards. Pursuant to Part D of Title I of the Clean Air Act (CAA), Ohio EPA is required to establish a State Implementation Plan (SIP) for the attainment and maintenance of the NAAQS. The above-mentioned permit is a part of Ohio's SIP for attainment and maintenance of the 2015 ozone NAAQS and will be submitted to United States Environmental Protection Agency (U.S. EPA) as a modification of the SIP.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

Emissions Unit ID:	N001
Company Equipment ID:	Waste Incinerator
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

List of Commonly Used Abbreviations

AP-42 = U.S. EPA's Compilation of Air Pollution Emissions Factors	HVLP = high volume, low pressure	PER = Permit Evaluation Report
ASTM = American Society for Testing and Materials	LAER = lowest achievable emission rate	PM = particulate matter
BACT = Best Available Control Technology	lb(s)/hr = pound(s) per hour	PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns
BAT = Best Available Technology	LDAR = leak detection and repair	$PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
CAA = Clean Air Act	LPG = liquefied petroleum gas/propane	ppb = parts per billion
CAM = compliance assurance monitoring	MACT = maximum achievable control technology	ppm = parts per million
CEMS = continuous emissions monitoring system	MAGLC = maximum acceptable ground level concentration	PSD = Prevention of Significant Deterioration
CFC = chlorofluorocarbon	mg/m3 = milligrams per cubic meter	psi = pounds per square inch
CFR = Code of Federal Regulations	MM = million	psia = pounds per square inch absolute
CH_4 = methane	MMBtu = million British Thermal Units	PTE = potential-to-emit
CI = compression ignition	MSDS = material safety data sheet	PTI = Permit-to-Install
CO = carbon monoxide	MSW = municipal solid waste	PTIO = Permit-to-Install and Operate
CO_2 = carbon dioxide	NAAQS = National Ambient Air Quality Standard	PTO = Permit-to-Operate
COM = continuous opacity monitor	NESHAP = National Emission Standard for Hazardous Air Pollutants	PWR = process weight rate
DAPC = Division of Air Pollution Control	NG = natural gas	RACM = reasonably available control measures
DO/LAA = District Office/Local Air Agency	ng/m3 = nanograms per cubic meter	RACT = reasonably available control technology
dscf = dry standard cubic foot	NH_3 = ammonia	RATA = relative accuracy test audit
EAC = emissions activity category	NMHC = non-methane hydrocarbons	RTO = regenerative thermal oxidizer
eDocs = electronic documents database	NMOC = non-methane organic compound	SB265 = Senate Bill 265
ERAC = Environmental Review Appeals Commission	NO = nitrogen oxide	scfm = standard cubic feet per minute
ESP = electrostatic precipitator	NO_2 = nitrogen dioxide	SI = spark ignition
EU = emissions unit	NO_x = nitrogen oxides	SIP = State Implementation Plan
FEPTIO = Federally Enforceable Permit-to-Install and Operate	NSPS = New Source Performance Standard	SO_2 = sulfur dioxide
FER = Fee Emissions Report	NSR = New Source Review	SSMP = startup, shutdown, and malfunction plan
FR = Federal Register	NTV = Non-Title V	TDS = total dissolved solids
GACT = generally achievable control technology	O&M = operation and maintenance	TLV = threshold limit value
GHG = greenhouse gases	OAC = Ohio Administrative Code	TO = thermal oxidizer
gr/dscf = grains per dry standard cubic foot	OC = organic compound	TPH = ton(s) per hour
H_2S = hydrogen sulfide	Ohio EPA = Ohio Environmental Protection Agency	TPY = ton(s) per year
H_2SO_4 = sulfuric acid	ORC = Ohio Revised Code	TSP = total suspended particulates
HAP = hazardous air pollutant	Pb = lead	VE = visible particulate emissions
HCl = hydrogen chloride	PBR = Permit-By-Rule	VMT = vehicle miles traveled
HF = hydrogen fluoride	PCB = polychlorinated biphenyl	VOC = volatile organic compound
Hg = mercury	PE = particulate emissions	WPP = work practice plan
hp = horsepower	PEMS = predictive emissions monitoring system	µg/m3 = micrograms per cubic meter

A. Standard Terms and Conditions

1. Federally Enforceable Standard Terms and Conditions

a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under state law only:

(1) Standard Term and Condition A.2.a), Severability Clause

(2) Standard Term and Condition A.3.c) through A. 3.e), General Requirements

(3) Standard Term and Condition A.6.c), Compliance Requirements

(4) Standard Term and Condition A.9., Reporting Requirements

(5) Standard Term and Condition A.10., Applicability

(6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install

(7) Standard Term and Condition A.14., Public Disclosure

(8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

(9) Standard Term and Condition A.16., Fees

(10) Standard Term and Condition A.17., Permit Transfers

2. Severability Clause

a) A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.

b) All terms and conditions designated in parts B. and C. of this permit are federally enforceable as a practical matter, if they are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA and the state and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under state law only, only if specifically identified in this permit as such.

3. General Requirements

a) Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act and is grounds for enforcement action or for permit revocation, revocation and re-issuance, or modification.

b) It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.

c) This permit may be modified, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.

d) This permit does not convey any property rights of any sort, or any exclusive privilege.

e) The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

4. Monitoring and Related Record Keeping and Reporting Requirements

a) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:

(1) The date, place (as defined in the permit), and time of sampling or measurements.

(2) The date(s) analyses were performed.

(3) The company or entity that performed the analyses.

(4) The analytical techniques or methods used.

(5) The results of such analyses.

(6) The operating conditions existing at the time of sampling or measurement.

b) Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

c) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:

(1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Ohio EPA DAPC, Northeast District Office.

(2) Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the Ohio EPA DAPC, Northeast District Office. The written reports shall be submitted quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.

(3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the Ohio EPA DAPC, Northeast District Office every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semiannual report, which states that no deviations occurred during that period.

(4) This permit is for an emissions unit located at a Title V facility. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the Ohio EPA DAPC, Northeast District Office in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

6. Compliance Requirements

a) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the appropriate Ohio EPA District Office or contracted local air agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the electronic signature date shall constitute the date that the required application, notification or report is considered to be "submitted". Any document requiring signature may be represented by entry of the personal identification number (PIN) by responsible official as part of the electronic submission process or by the scanned attestation document signed by the Authorized Representative that is attached to the electronically submitted written report.

Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a Responsible Official that, based on

information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete

b) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:

(1) At reasonable times, enter upon the permittee's premises where a source is located, or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.

(3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.

(4) As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.

c) The permittee shall submit progress reports to the Ohio EPA DAPC, Northeast District Office concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:

(1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.

(2) An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

7. Best Available Technology

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.

8. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

9. Reporting Requirements

The permittee shall submit required reports in the following manner:

a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Ohio EPA DAPC, Northeast District Office.

b) Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will

be taken, shall be submitted to the Ohio EPA DAPC, Northeast District Office. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

10. Applicability

This permit-to-install is applicable only to the emissions unit(s) identified in the permit-to-install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s) not exempt from the requirement to obtain a permit-to-install.

11. Construction of New Sources(s) and Authorization to Install

a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation. This deadline may be extended once by twelve months if application is made to the Director within a reasonable time before the termination date and the permittee shows good cause for any such extension.

c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as "permanently shut down" in "Air Services" along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update electronically will constitute notifying the Director of the permanent shutdown of the affected emissions unit(s).

d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a

subsequent "modification" or "installation" as defined in OAC Chapter 3745-31). All records relating to any permanently shut down emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

Unless otherwise exempted, no emissions unit certified by the responsible official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31 and OAC Chapter 3745-77 if the restarted operation is subject to one or more applicable requirements.

e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or any other reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

12. Permit-To-Operate Application

The permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77. The permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve months after commencing operation of the emissions units covered by this permit. However, if operation of the proposed new or modified source(s) as authorized by this permit would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d) must be obtained before operating the source in a manner that would violate the existing Title V permit requirements.

13. Construction Compliance Certification

The applicant shall identify the following dates in the "Air Services" facility profile for each new emissions unit identified in this permit.

a) Completion of initial installation date shall be entered upon completion of construction and prior to start-up.

b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

14. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

16. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable permit-to-install fees within 30 days after the issuance of any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

17. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the "Owner/Contact Change" functionality in "Air Services" once the transfer is legally completed. The change must be submitted through "Air Services" within thirty days of the ownership transfer date.

18. Risk Management Plans

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

19. Title IV Provisions

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.

B. Facility Wide Terms and Conditions

1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

   a) None.

2. Chemical Accident Prevention Provisions, 40 CFR Part 68: Risk Management Programs Under the CAA, §112(r)(7).

   Chemicals covered are those regulated substances present above the threshold quantity in a process, as listed under 40 CFR 68.130 and determined under 40 CFR 68.115.

   This facility developed and registered a risk management plan pursuant to §112(r) of the CAA and is required to comply with the requirements of §112(r) and the regulations adopted thereunder.

3. Voluntary Requirements to Limit Facility-wide HAPs

   a) Voluntary emission limitations established according to OAC rule 3745-77-07(B)

      (1) Beginning no later than May 10, 2008, the emissions of HAPs, as defined in §112(b) of Title III of the CAA, from all the EUs at this facility, shall not exceed 9.9 TPY for any individual HAP and 24.9 TPY for total combined HAPs, as rolling, 12-month summations.

      The company proposed these emission limits to avoid being classified as a major source for HAPs as defined in §63.2 of 40 CFR Part 63 for any MACT standards with an initial compliance date on or after November 10, 2006 (i.e., Miscellaneous Organic Chemical Manufacturing MACT, 40 CFR Part 63, Subpart FFFF; and the Organic Liquid Distribution (Non-Gasoline) MACT), 40 CFR Part 63, Subpart EEEE).

      (2) Compliance with the emission limitation for individual HAP and total combined HAP shall be based upon a rolling, 12-month summation of the monthly emissions beginning no later than November 10, 2006, utilizing data for the previous 12 months.

   b) Monitoring and Recordkeeping

      (1) In order to determine compliance with the facility-wide emission limitations, the permittee shall maintain monthly records of the information designated in B.3.b)(2)a – l, for the following EU categories:

         a. Combustion Units (B001, B002, B003, B004, B009, and insignificant units B008 and B052);

         b. Waste Incinerator (N001);

         c. Reactor Process Vents (P006, P007, P012, P013, P014, P015, P018, P020, P022, P029, P030, P034, P036, P051, P052, P053, P074, P124, P129 and P131);

         d. Loading Operations (P038, P039, P040, P041, P042, P044, P045, P046, P049, P055, P056, P057, P058, P060, P061, P062, P063, P067, P068, P071, P075, P130 and P132);

         e. All Storage Tanks;

         f. Insignificant EUs; and

         g. Fugitive emissions from leaking components in HAP service, not otherwise included in the categories above.

All other EUs listed in the Title V permit do not emit HAPs, or the emissions are so negligible that they cannot be reliably quantified. Total HAP emissions from these sources are presumed to be less than 0.1 TPY (the difference between the emission limitation in this permit and the major source threshold).

(2) HAP emissions shall be calculated as follows:

a. For storage tanks, loading operations, and reactor process vents, the permittee shall use the same calculation methodologies for determining HAP emissions as specified in this permit for determining VOC emissions, and then multiplying the VOC emissions by the weight percent HAPs present in the vapor and adjusting for the control efficiency of any emissions control system. Control efficiencies for organic HAPs shall be the same as the VOC control efficiencies determined in accordance with Title V requirements. Flares shall be assumed to have 98% control efficiency for organic HAPs and VOCs. See AP-42 section 13.5-4 (January 1995). Control efficiencies for inorganic HAPs (i.e., HCl, and halides) shall be determined by an engineering assessment. Such an engineering assessment will be completed by November 10, 2006, and submitted to the agency for review and approval. The control efficiencies so determined will be used to compute emissions for the 12-month period from November 2005 to November 2006 and thereafter. The permittee may revise the control efficiencies by submitting new information sufficient to demonstrate to the Ohio EPA Northeast DO that another control efficiency is more representative of actual control device operating conditions. A change in a control efficiency factor shall constitute a minor modification to this permit. (See further details below.)

b. For boilers, HAP emissions shall be computed using emission factors from U.S. EPA's FIRE database based on SCC codes, and the amount of fuel burned. The permittee shall keep records of the amount of fuel burned each month for each EU or category. The permittee may propose, and the Ohio EPA Northeast DO shall approve new emission factors to replace these FIRE emission factors upon demonstrating that the new factors are more accurate and better representative of actual emissions from the relevant EUs. A change in these emission factors shall constitute a minor modification to this permit.

c. For the Waste Incinerator (N001), HAP emissions shall be determined based on site-specific emissions factors (expressed in lb/hr) developed from source test and continuous monitoring data multiplied by actual hours of incinerator operation each month. The current emission factors for the incinerator are:

HAP	Em. Factor	Units
Lead	0.00087300	lb/hr burning waste
Mercury	0.00013650	lb/hr burning waste
Arsenic	0.00005480	lb/hr burning waste
Beryllium	0.00000170	lb/hr burning waste
Cadmium	0.00001130	lb/hr burning waste
Chromium	0.00008650	lb/hr burning waste
Phenol	0.00000003	lb/hr burning waste
Naphthalene	0.00000460	lb/hr burning waste
Chlorine	0.00100000	lb/hr burning waste

Hydrochloric acid emissions shall be based upon the chlorine content of the quarterly waste analysis.

The permittee may propose, and the Ohio EPA Northeast DO shall approve new emission factors to replace these emission factors upon demonstrating that the new factors are more accurate and better representative of actual emissions from the relevant EUs. A change in these emission factors shall constitute a minor modification to this permit.

d. Fugitive emissions of HAPs from equipment leaks shall be computed using the emission factors from "Protocol for Equipment Leak Emission Estimates" EPA-453/R-95/017 issued November 1995, or other approved alternate, and the number of pumps, valves, flanges, etc. to calculate the lb/hr of fugitive VOC emissions, using SOCMI leak/no-leak, or ppmv screening value factors. The monthly fugitive HAP emissions (in pounds) shall be calculated by multiplying lb/hr VOC emission rate by the percent HAPs in the fluid and multiplying the result by the monthly hours of operation of the equipment with HAPs present. If necessary, monitoring data to establish typical percent leaks or ppmv screening factors for sources in HAP service will be conducted prior to November 10, 2006, and will be used to determine emissions for the 12-month period from November 2005 to November 2006. Monitoring methods to establish leakage rates and maintenance methods are further described in 4.

e. HAP emissions from other fugitive and stack sources shall be maintained monthly using other Ohio EPA-approved calculation methods. These shall include ball houses, drip trays, and painting. Emissions from spills, hold tanks, charge tanks, filter cake hoppers, filters, and filter tanks, shall be included as parts of reactor processes.

The specific methodology used to calculate HAP emissions, example calculations using the approved methodology, and the emission factors shall be submitted upon final issuance of this permit and shall be subject to the review and approval of the Ohio EPA Northeast DO on or before November 10, 2006. The permittee may revise the calculation methodologies by submitting methodology revisions subject to the review and approval of the Ohio EPA Northeast DO. A change in the calculation methodology shall constitute a minor modification to this permit. Calculations of all HAP emission factors shall be kept on site and available for Ohio EPA review.

f. For reactor vents, HAP emissions shall be determined based on product-specific emission factors (expressed in pounds per batch of each product) multiplied by the number of batches of that product made in a month, to determine the pounds of HAP emitted per product per month and summed to reflect the total emissions from all products processed in the reactors in a month. The emission factors for the reactor vents shall be computed based on calculation methods from the Emission Inventory Improvement Program Guidance Document, Volume II, Chapter 16: Methods for Estimating Air Emissions from Chemical Manufacturing Facilities or other Ohio EPA-approved calculation methods. The specific methodology used to calculate the HAP emissions, example calculations using the approved methodology, and the emission factors shall be submitted upon final issuance of this permit and shall be subject to the review and approval of the Ohio EPA Northeast DO. Calculations of all HAP emission factors shall be kept on site and available for Ohio EPA review.

Similar products may be grouped together provided that the emission factor assigned to that group reflects the highest calculated emission factor for all products in the group. For new products that require a new emission factor, the permittee shall calculate the emission factor using the method described above and maintain the calculation onsite and available for Ohio EPA's Northeast DO review. The new emission factor can be used immediately to determine monthly emissions but any adjustments to the emission factor required after Ohio EPA's review must be applied retroactively to the date the new product was introduced. A change in these emission factors shall constitute a minor modification to this permit. For reactor vents, the permittee shall submit HAP emission factors for all products produced in each process EU.

g. For reactor process vents, the permittee shall collect and record the following information for each month:

i. The name of each HAP emitted from the EU;

ii. The HAP emission rate for each HAP, before control, in pounds per month for each EU, using the following equation:

E (Uncontrolled) = (amount of each HAP emitted, in pounds/month);

iii. The HAP emissions for each HAP, after control, in pounds per month for each EU, using the following equation:

E (Controlled) = (uncontrolled HAP emission rate, in lbs/month) x (1 - (CE/100))

where:

CE = the overall control efficiency of the emissions control system. For organic HAPs this shall be the same as the VOC control efficiency. For inorganic HAPs the control efficiency shall be determined by an engineering assessment pursuant to B.3.b)(2)a.

iv. The total individual HAP emission rate, after control (in lbs of HAP/month, determined by adding the values for each EU);

v. The rolling, 12-month summation of the monthly HAP emissions for each individual HAP (in pounds, calculated by summing the monthly HAP emissions for the preceding 11 months plus the HAP emissions for the current month for all EU); and

vi. The total combined HAP emissions, in tons per month and tons per rolling, 12-month period (the sum of each HAP emitted in pounds divided by 2000 lbs/ton for all EUs).

A listing of the HAPs can be found in §112(b) of the CAA or can be obtained by contacting the Ohio EPA Northeast DO.

h. For loading operations, the permittee shall collect and record each month the following information:

i. The throughput of each liquid containing HAPs, in gallons;

ii. The loading method for each liquid loaded;

iii. The method of HAP destruction used for each type of liquid loaded and the estimated overall HAP control efficiency (if applicable), in percent;

iv. The true vapor pressure of the liquid, in psia;

v. The molecular weight of vapors, in lb/lb-mol;

vi. The bulk temperature of liquid loaded, in degrees Fahrenheit; and

vii. The weight percent of each individual HAP in the vapors.

i. For loading operations, the permittee shall record every month the sum of HAP emissions (MHAP) for each individual HAP from each liquid loaded according to the following equation:

MHAP = the sum, from i=1 to i=n, of [(%HAP) x (LL) x (MTL / 1000) x (1-C) x (ton/2000 lbs)]

where:

%HAP = the weight% HAP in the vapors;

i = each individual liquid loaded;

n = the total number of liquids loaded;

MTL = throughput of each liquid, in gal/month; and

C = overall control efficiency of the emissions control system (for organic HAPs this shall be the same as the VOC control efficiency).

For inorganic HAPs the control efficiency shall be determined by an engineering assessment pursuant to B.3.b)(2)a.

LL = the loading loss, in lb/1000 gal of liquid loaded, and is calculated according to the following equation from AP-42 at 5.2-4:

LL= (12.46 SPM)/ (T+460)

where:

S = saturation factor from AP-42 (1/95) Table 5.2.1, Saturation(s) Factors for Calculating Petroleum Liquid Loading Losses;

P = true vapor pressure of the liquid, in psia;

M = molecular weight of vapors, in lb/lb-mol; and

T = bulk temperature of liquid loaded, in degrees Fahrenheit.

j. For storage tanks containing HAPs, the permittee shall maintain monthly records documenting the following information:

i. The name of the material being stored;

ii. The weight percent of each individual HAP in the vapors; and

iii. The monthly throughput of liquid, in gallons.

k. For storage tanks containing HAPs, HAP emissions shall be computed using the throughput data, the storage tank dimensions, and U.S. EPA emission factors and equations found in AP-42, Section 7.1.3, "Emission Factors for Organic Liquid Storage Tanks" (September 1997), accounting for the weight percent HAPs in the vapors and adjusting for the control efficiency of any emissions control system.

l. The permittee shall maintain records for the entire facility each month of the following information:

i. The total facility-wide emissions (and associated calculations) for each individual HAP, in pounds or TPY (calculated by summing the individual HAP emission rates from all the EUs at the facility);

ii. The total facility-wide emissions (and associated calculations) for total combined HAPs, in pounds or TPY (calculated by summing total combined HAPs emission rates from all the EUs at the facility);

iii. The rolling, 12-month summation of the total individual HAP emissions rates for each HAP from all the EUs at the facility, in tons; and

iv. The rolling, 12-month summation of the total combined HAP emissions rates from all the EUs at the facility, in tons.

c) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports, with the requirements specified in the Standard Terms and Conditions, including the following information:

a. An identification of each month during which the rolling, 12-month individual HAP emissions rate (from the facility) exceeded 9.9 tons, and the actual rolling, 12-month summation of each individual HAP emissions rate (from the facility) for each such month; and

b. An identification of each month during which the rolling, 12-month combination of all HAP emissions rates (from the facility) exceeded 24.9 tons, and the actual rolling, 12-

month summation of the combination of all HAP emissions rates (from the facility) for each such month.

(2) The permittee shall submit annual reports that summarize the annual emissions of the total combined HAP emissions for the facility and, if the total combined HAP emissions are 10 TPY or more, the annual emissions of each individual HAP. These reports shall cover the previous calendar year and shall be submitted by April 30 of each year.

d) Testing Requirements

(1) Compliance with the allowable emission limitations in B.3.a)(1) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitations:

Beginning no later than May 10, 2008, the emissions of HAPs, as defined in Section 112(b) of Title III of the CAA, from all the EUs at this facility, shall not exceed 9.9 TPY for any individual HAP and 24.9 TPY for total combined HAPs, as rolling, 12-month summations.

Applicable Compliance Methods:

Compliance shall be demonstrated based upon the recordkeeping requirements specified in B.3.b)(1) and B.3.b)(2).

4. Methodology to Monitor and Establish Fugitive Piping Leakage Rates and Maintain Equipment, as referenced in B.3.b)(2)d:

a) Calculation Methods Using SOCMI Factors:

(1) Fugitive piping emissions shall be computed using SOCMI factors consistent with EPA document "Protocol for Equipment Leak Emission Estimates" EPA-453/R-95/017 issued November 1995. This document contains several different types of SOCMI kg/hr emission factors:

a. SOCMI average emission factors (Table 2-1);

b. SOCMI screening range emission factors (Table 2-5), with leak/no-leak factors for > vs < 10,000 ppmv TOC;

c. SOCMI leak rate/screening value correlations (Table 2-9). (These use specific ppmv values.); and

d. Default-zero values: SOCMI process units (Table 2-11).

The appropriate SOCMI kg/hr emission factors to use for computing fugitive piping leakage rates from each source at the facility will be determined according to B.4.a)(2) and B.4.a)(3) below.

(2) Equipment Using Instrument Monitoring for Leaks:

a. A representative sample of specific types of equipment (reactors, blend tanks, storage tanks, and filtration systems) in HAP service will be monitored prior to November 10,

2006, to measure ppmv TOC emissions from the following components: valves, flanges, pump seals, mixer seals, compressor seals, open ended lines, and pressure relief valves.

b. The representative sample of equipment shall account for at least 25% of potential fugitive piping HAP emissions from all such equipment *in HAP service* based on SOCMI average emission factors (Sources *in HAP Service* are defined to contain at least 5% HAP for 300 hrs/yr or more). The specific equipment in the representative sample may be changed as needed to continue to account for at least 25% of potential fugitive piping HAP emissions.

c. For the monitored equipment, emissions will be computed based on the appropriate SOCMI leak/no-leak or ppmv factors from SOCMI Table 2-5, 2-9, or 2-11.

d. A list of the specific representative equipment to be monitored shall be supplied to the Ohio EPA Northeast DO by the compliance date (currently November 10, 2006). This list shall also identify the approximate percent of potential fugitive piping HAP emissions accounted for by the representative equipment.

e. The ppm TOC values measured for the representative equipment shall be used to determine the average leakage rate for each component type (Component types would include valves, flanges, pump seals, etc. in light liquid, heavy liquid, or gas service.) (Leakage rates will be based on SOCMI leak rate factors from Table 2-5, 2-9, or 2-11). The average leakage rate data for each type of component determined from representative equipment monitoring data may be used to estimate the leakage rate of such sources for other equipment that was not monitored.

(3) Equipment Not Using Instrument Monitoring for Leaks:

a. If the vapor pressure of the fluid is less than 0.147 psia at processing temperatures, fugitive emissions may be estimated using SOCMI no-leak factors from Table 2-5. (Texas Natural Resources Conservation Commission document "Air Permit Technical Guidance for Chemical Sources: Equipment Leak Fugitives", dated October 2000, states that the theoretical saturation concentration as ppmv TOC cannot exceed 10,000 if the fluid vapor pressure is less than 0.147 psia.) Alternatively, emissions may be estimated as in B.4.a)(3)b below.

b. If the vapor pressure of the fluid is greater than or equal to 0.147 psia at processing temperatures, fugitive emissions will be estimated based on the leakage rate data for each type of component from representative equipment monitoring, and the appropriate SOCMI leak rate factors from Table 2-5 or 2-9. This method may also be used if the vapor pressure is < 0.147 psia.

c. The number of each type of component (valves, flanges, pump seals, mixer seals, compressor seals, open ended lines, and pressure relief valves) associated with unmonitored equipment can be estimated based on the average number of such components for a type of equipment.

d. Fugitive piping HAP emissions will be computed for reactors, blend tanks, storage tanks, and filtration systems containing liquids with 0.1% or more of any individual HAP based on engineering judgment including but not limited to MSDS information.

b) Continuous CAM and Maintenance Methods:

(1) The representative equipment will be monitored for ppmv TOC values yearly. Any components found to have >1000 ppmv TOC will be repaired. A reasonable effort will be made to complete repairs within 15 days.

(2) All storage tanks in HAP service, and their associated pumps and piping, shall be inspected monthly for leaks by audio, olfactory, and visual checks. A reasonable effort will be made to repair any leaks found within 15 days. During time periods when a component source was known to be leaking, emissions for the component shall be computed using the SOCMI factors for > 10,000 ppmv TOC unless ppmv data is available. If the sensory checks detect a leak, the permittee may choose to measure the ppmv TOC using a properly calibrated monitoring instrument, and compute emissions using the SOCMI emission factors most appropriate to the size of the leak.

(3) All reactor system tanks in continuous HAP service, and their associated pumps and piping, shall be inspected monthly for leaks by audio, olfactory, and visual checks. A reasonable effort will be made to repair any leaks found within 15 days. During time periods when a component source was known to be leaking, emissions for the component shall be computed using the SOCMI factors for > 10,000 ppmv TOC unless ppmv data is available. If the sensory checks detect a leak, the permittee may choose to measure the ppmv TOC using a properly calibrated monitoring instrument, and compute emissions using the SOCMI emission factors most appropriate to the size of the leak.

(4) Reactor system tanks in non-continuous HAP service making products containing 5% or more HAPs, and their associated pumps and piping, shall be inspected for leaks by audio, olfactory, and visual checks. Such inspections shall be made monthly, or per batch if such products are made less frequently than monthly. A reasonable effort will be made to repair any leaks found within 15 days. During time periods when a component source was known to be leaking, emissions for the component shall be computed using the SOCMI factors for > 10,000 ppmv TOC unless ppmv data is available. If the sensory checks detect a leak, the permittee may choose to measure the ppmv TOC using a properly calibrated monitoring instrument, and compute emissions using the SOCMI emission factors most appropriate to the size of the leak.

c) Recordkeeping Requirements:

For fugitive emissions of HAPs from equipment leaks, the permittee shall collect and record the following information:

(1) Monthly Records:

a. The name of each fluid containing HAPs in the equipment;

b. The type of fluid (light liquid, heavy liquid, or vapor);

c. The hours that the fluid was present in the equipment;

d. The vapor pressure of the fluid in the equipment, in psia;

e. The lb/hr leakage rate for the equipment based on the appropriate SOCMI emission factors;

f. The weight % of each individual HAP in the leaks;

g. Records of audio, olfactory, visual or instrument checks of equipment in HAP service inspected monthly; and

h. Dates when components were found to be leaking, and date when repaired.

(2) Annual Records:

a. Ppmv TOC readings for representative equipment components;

b. The identification of each representative equipment component;

c. Dates when representative equipment components were found to be leaking, and date when repaired; and

d. The average leakage rate of each type of component for the representative equipment per SOCMI Table 2-5, 2-9, or 2-11.

(3) Batch Records:

a. Records of audio, olfactory, visual or instrument checks of equipment in HAP service inspected each batch; and

b. Dates when components were found to be leaking, and date when repaired.

5. 40 CFR Part 63, Subpart JJJJJJ, NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources.

Ohio EPA has determined that EUs B001, B002, and B003 are exempted from the requirements of Subpart JJJJJJ, NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources pursuant to §63.11195(e) and the definition of a gas-fired boiler.

The EUs shall burn liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year per EU. Sufficient records shall be kept to demonstrate the times of liquid fuel usage.

At this time, Ohio EPA is not accepting delegation for area sources subject to the MACT rules. The requirements of this rule, that are applicable to the area source(s) (for HAP) identified in this permit, shall be enforceable by U.S. EPA Region 5. The complete requirements of this rule (including the Part 63 General Provisions) may be accessed via the Internet from the Electronic CFR (e-CFR) website http://www.ecfr.gov/ or by contacting the Ohio EPA Northeast DO.

6. 40 CFR Part 63, Subpart ZZZZ, NESHAP for Stationary Reciprocating Internal Combustion Engines - Area Source

Ohio EPA has determined that EUs B015, B016, B017, B018, B019, B020, B021, B022, P076, P077, P080, P081, P123, and P133 are subject to the requirements of Subpart ZZZZ, NESHAP for Stationary Reciprocating Internal Combustion Engines. EUs installed or reconstructed after the effective date of this permit maybe be subject to this rule and shall be evaluated upon installation or reconstruction. At this time, Ohio EPA is not accepting delegation for area sources subject to the MACT NESHAP rules. The requirements of this rule, that are applicable to the area source(s) (for HAPs) identified in this permit, shall be enforceable by U.S. EPA Region 5. The complete

requirements of this rule (including the Part 63 General Provisions) may be accessed via the Internet from the e-CFR website http://www.ecfr.gov/ or by contacting the Ohio EPA Northeast DO.

7. 40 CFR Part 63, Subpart VVVVVV NESHAP for HAP for Chemical Manufacturing Area Sources

   Ohio EPA has determined that this facility is subject to the requirements of 40 CFR Part 63, Subpart VVVVVV (6V), NESHAP for Chemical Manufacturing Area Sources. At this time, Ohio EPA is not accepting delegation for area sources subject to the MACT NESHAP rules. The requirements of this rule, that are applicable to the area source(s) (for HAPs) identified in this permit, shall be enforceable by U.S. EPA Region 5. The complete requirements of this rule (including the Part 63 General Provisions) may be accessed via the Internet from the e-CFR website http://www.ecfr.gov/ or by contacting the Ohio EPA Northeast DO.

8. Determination of uncontrolled VOC emissions generated during the production of final products in the process EUs

   a) Monitoring and Recordkeeping Requirements

      (1) The permittee shall develop emission factors for the amount of uncontrolled VOC emitted, either for each final product generated or for each batch run in the EU and shall include emissions from flushing. The emission factors shall be in units of pounds of VOC emitted per kilogram of final product generated, or pounds of VOC emitted per batch run.

      (2) The emission factors for the reaction vessels, and all other pieces of equipment associated with this EU shall be computed based on calculation methods from the Emission Inventory Improvement Program Guidance Document, Volume II, Chapter 16: Methods for Estimating Air Emissions from Chemical Manufacturing Facilities or other Ohio EPA-approved calculation methods. The VOC emission factors and detailed calculations shall be kept on site and available for Ohio EPA review.

      (3) If necessary, the permittee shall conduct emission testing, at the request of the Ohio EPA Northeast DO, during the production of a specific final product to confirm the accuracy of the emission factor.

      (4) The permittee shall keep records of all materials used in this EU for the purpose of determining the emission factors.

9. Requirements for the operation of AC-12 Fm Inc thermal incinerator controlling OC emissions.

   a) Monitoring and Recordkeeping Requirements

      (1) The acceptable average combustion temperature for any three-hour block of time when an EU is in operation and the process vent stream is vented to the incinerator, is not less than 1,600°F, or shall meet the manufacturer's design specifications for temperature.

      (2) The permittee shall properly operate and maintain equipment to continuously monitor and record the average combustion temperature at all times when an EU is in operation and the process vent stream is vented to the incinerator, including periods of startup and shutdown. Units shall be in degrees Fahrenheit. The monitoring equipment shall be capable of accurately measuring the desired parameter. The monitoring equipment shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee.

(3) The permittee shall record the following information each day when an EU is in operation and the process vent stream is vented to the incinerator:

a. The average combustion temperature within the incinerator, in three-hour blocks; and

b. A log of the downtime for the capture (collection) system, control device, and monitoring equipment.

(4) Whenever the average combustion temperature deviates from the operating limitation while an EU is in operation and the process vent stream is vented to the incinerator, the permittee shall promptly investigate the cause of the deviation.

The permittee shall maintain records of the following information for each investigation:

a. The date and time the deviation began and the magnitude of the deviation at that time;

b. The date(s) the investigation was conducted;

c. The names of the personnel who conducted the investigation; and

d. The findings and recommendations.

(5) In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment above the acceptable operating limitation, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended.

The permittee shall maintain records of the following information for each corrective action taken:

a. A description of the corrective action;

b. The date it was completed;

c. The date and time the deviation ended;

d. The total period of time (minutes) during which there was a deviation;

e. The average combustion temperature immediately after the corrective action; and

f. The names of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

b) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify the following information concerning the operation of the control equipment when an EU is in operation and the process vent stream is vented to the incinerator:

a. Any three-hour block of time when the average combustion temperature within the incinerator was less than the operating limitation;

b. An identification of each incident of deviation described in b)(1)a where a prompt investigation was not conducted;

c. An identification of each incident of deviation described in b)(1)a where prompt corrective action, that would bring the average combustion temperature within the incinerator into compliance with the acceptable value, was determined to be necessary and was not taken; and

d. An identification of each incident of deviation described in b)(1)a where proper records were not maintained for the investigation and/or the corrective action.

(2) The permittee shall submit quarterly summaries that include a log of the downtime for the incinerator when an EU was in operation and the process vent stream was vented to the incinerator.

c) Testing Requirements

(1) The permittee shall conduct, or have conducted, emission testing for the AC-12 Fm Inc in accordance with the following requirements:

a. The emission testing shall be conducted within one year of issuance of the initial and/or renewal permit and between 54 months and 66 months thereafter. Issuance of Title V permit modifications do not require additional testing unless required by the director.

b. The emission testing for AC-12 Fm Inc shall be conducted to demonstrate compliance with the destruction efficiency limitation for VOC.

c. The following test methods shall be employed to demonstrate compliance with the destruction efficiency limitation for VOC: Methods 1-4, 25 or 25A of 40 CFR Part 60, Appendix A or an alternative U.S. EPA approved test method, with prior approval from Ohio EPA.

d. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) of the incinerator(s) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10.

e. The permittee shall demonstrate that the testing will be performed during the worst-case emission conditions.

f. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an Intent to Test (ITT) notification to the Ohio EPA Northeast DO. The ITT notification shall describe in detail the proposed test methods and procedures, the EU operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast DO's refusal to accept the results of the emission test(s).

g. Personnel from the Ohio EPA Northeast DO shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the EU and the testing procedures provide a valid characterization of the emissions from the EU and/or the performance of the control equipment.

h. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA

Northeast DO within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA Northeast DO.

10. Requirements for AC-12 Fm Inc SO_2 emissions

a) Applicable Emissions Limitations and/or Control Requirements per OAC rule 3745-31-05(F)

(1) The total allowable SO_2 emissions for the incinerator system for any hour shall be the sum of the individual allowable SO_2 emissions limitations for those EUs that are in operation during any part of that hour. The total allowable SO_2 emission rate from the EUs vented to the incinerator system for any rolling, three-hour period shall be the average of the three, one-hour allowables comprising the three-hour period. A summary of the individual allowable SO_2 emission limitations:

P006	26.99 lbs/hr
P012	160.0 lbs/hr
P013	25.0 lbs/hr
P014	10.0 lbs/hr
P022	20.0 lbs/hr
P029	68.80 lbs/hr
P030	30.0 lbs/hr
P052	21.05 lbs/hr

(2) The total annual SO_2 emissions from AC-12 Fm Inc shall not exceed 100 TPY.

b) Monitoring and Recordkeeping Requirements

(1) The permittee shall maintain hourly records of the following information:

a. The actual SO_2 emission rate from the incinerator system, in lbs/hr;

b. The rolling, three-hour average, actual SO_2 emission rate from the incinerator system, in lbs/hr;

c. The total allowable SO_2 emission rate, in lbs/hr, for all the EUs (P006, P012, P013, P014, P022, P029, P030, and P052) in operation during the hour; and

d. The rolling, three-hour average, allowable SO_2 emission rate, in lbs/hr.

The permittee shall maintain records that document which EUs (P006, P012, P013, P014, P022, P029, P030, and P052) were in operation during each hour. If an EU is in operation during any portion of an hour, it is considered to be in operation for the entire hour for purposes of determining compliance with the total allowable SO_2 emission rate for all the EUs in operation during any hour. Compliance shall be determined by comparing the rolling, three-hour average, actual and allowable, SO_2 emission rates for each hour.

(2) The permittee shall maintain daily records of the actual SO_2 emission rate from the fume incinerator system, in pounds per day.

(3) The permittee shall operate and maintain existing equipment to continuously monitor and record SO_2 from these EUs, in units of the applicable standard(s). Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part

60.13(d)(1), (e)(2) and (h), respectively. The permittee may request alternative monitoring procedures or requirements and alternative relative accuracy test procedures, in accordance with the relevant provisions of 40 CFR Parts 60.13(i) and (j), by submitting a written request to the director. Any alternative monitoring and/or testing acceptable to the director shall be approved by the U.S. EPA as a revision to the SIP prior to the implementation of the alternative monitoring and/or testing.

A statement of certification of the existing continuous SO_2 monitoring system shall be maintained on site and shall consist of a letter from the Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 6. Proof of Certification shall be made available to the Ohio EPA Northeast DO) upon request.

The permittee shall maintain records of all data obtained by the continuous SO_2 monitoring system including, but not limited to, ppm SO_2 on an instantaneous (one-minute) basis, emissions of SO_2 in units of lbs/hr and lbs/hr rolling, three-hour average, and in the appropriate averaging period (e.g., hourly and hourly rolling of consecutive three-hour periods), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

(4) The permittee shall implement a quality assurance/quality control plan for the continuous SO_2 monitoring system designed to ensure continuous valid and representative readings of SO_2 emission concentrations and exhaust gas flow rates. The plan shall follow the requirements of 40 CFR Part 60, Appendix F and include provisions for conducting a relative accuracy test following each monitor probe replacement. The relative accuracy test shall be performed, and the monitoring system operated, in accordance with the procedures specified in Performance Specification Tests 2 and 6, 40 CFR Part 60, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the continuous SO_2 monitoring system must be kept on site and available for inspection during regular office hours. Each record of any monitoring data, testing data, and support information required shall be retained for a period of five years from the date the record was created. Support information shall include, but not limited to, all calibration and maintenance records and all electronic data for continuous monitoring instrumentation.

c) Reporting Requirements

(1) The permittee shall submit quarterly reports, for the preceding calendar quarter, that specify the total SO_2 emissions (in tons) from EUs P006, P012, P013, P014, P022, P029, P030, and P052, combined, (as determined by recordkeeping required under B.10.b).

(2) Pursuant to OAC rule 3745-15-04, ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit quarterly deviation (excursion) reports that identify all rolling, three-hour periods during which the average SO_2 emission rate exceeded the corresponding total allowable SO_2 emission rate for the incinerator system.

The permittee shall submit quarterly reports documenting any downtime of the SO_2 CEM system and/or control equipment while any of the EUs were on-line. The permittee shall provide the date, time, duration, reason (if known), an estimate of excess emissions, and any

corrective action(s) taken for each such incident. Normal downtimes for daily calibration and zero checks or periods where monitoring is maintained by a backup analyzer when the primary analyzer malfunctions shall not be reportable.

If no deviations occurred during a calendar year, the permittee shall submit a quarterly report that states that no deviations occurred during that quarter. These reports shall also contain the total SO_2 emissions for the calendar quarter (in tons).

d) Testing Requirements

(1) Compliance with the Emissions Limitations and/or Control Requirements specified in section B.10.a) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

The total allowable SO_2 emissions for the fume incinerator system for any hour shall be the sum of the individual allowable SO_2 emissions limitations for those EUs that are in operation during any part of that hour. The total allowable SO_2 emission rate from the EUs vented to fume incinerator system for any rolling, three-hour period shall be the average of the three one-hour allowables comprising the three-hour period. A summary of the individual allowable SO_2 emission limitations:

P006	26.99 lbs/hr
P012	160.00 lbs/hr
P013	25.0 lbs/hr
P014	10.0 lbs/hr
P022	20.0 lbs/hr
P029	68.8 lbs/hr
P030	30.0 lbs/hr
P052	21.05 lbs/hr

Applicable Compliance Method:

Compliance shall be demonstrated by the records of data obtained by the continuous SO_2 monitoring system, as required in B.10.b).

If required, compliance shall be demonstrated based upon emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 6 or 6C and OAC rule 3745-18-04(A), or an alternative U.S. EPA-approved test method with prior approval from Ohio EPA.

b. Emission Limitation:

The total annual SO_2 emissions from AC-12 Fm Inc shall not exceed 100 TPY.

Applicable Compliance Method:

Compliance shall be demonstrated by the records of data obtained by the continuous SO_2 monitoring system, as required in B.10.b).

If required, compliance shall be demonstrated based upon emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix

A, Method 6 or 6C and OAC rule 3745-18-04(A), or an alternative U.S. EPA-approved test method with prior approval from Ohio EPA.

11. Requirement for the operation of F-4 Flare and S-4 Flare required by OAC rule 3745-21-09(LL)

a) Monitoring and Recordkeeping Requirements

(1) The permittee shall perform weekly checks, when the EU is in operation and when the weather conditions allow, for any VE from the flare. The presence or absence of any VE shall be noted in an operations log. If VE are observed, the permittee shall also note the following in the operations log:

a. The location and color of the emissions;

b. Whether the emissions are representative of normal operations;

c. If the emissions are not representative of normal operations, the cause of the abnormal emissions;

d. The total duration of any VE incident; and

e. Any corrective actions taken to eliminate the VE.

At any time, the permittee observes VE from the flare, the permittee shall monitor the VE for a minimum period of 10 minutes in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 22 and record the results in an operations log.

b) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that:

a. Identify all days during which any VE were observed from the flare when the EU is in operation and the process vent stream is vented to the flare;

b. Describe any corrective actions taken to eliminate the VE; and

c. Include all VE readings conducted pursuant to the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 22 as a result of the presence of VE from the flare.

12. Requirements for the operation of carbon adsorbers AM-1 CDrum, AQ-1 CDrum, M-7 CDrum, O-1 CDrum, P-3 CDrum, U-7 CDrum, U-8 CDrum and W-1 CDrum

a) Monitoring and Recordkeeping Requirements

(1) If the control efficiency of the carbon adsorber is always assumed to be zero, and compliance with the emission limitation of 5 tons per rolling, 12-month period from all process vent streams not controlled by an incinerator or flare is demonstrated by the required recordkeeping, then the carbon adsorber is not subject to the requirements specified in B.12.a)(2), B.12.a)(3) and B.12.a)(4).

Pursuant to OAC rule 3745-21-09(LL)(3)(a), if the emission limitation of 5 tons per rolling, 12-month period has been exceeded when assuming the control efficiency of the carbon adsorber is always zero, then the permittee shall comply with the requirements of OAC rule 3745-21-09(LL)(1), as well as all monitoring, recordkeeping, reporting, and testing requirements specified in the terms and conditions for the carbon adsorber.

(2) The carbon adsorber shall be continuously maintained to ensure that the existing carbon is replaced with fresh carbon immediately when breakthrough is indicated.

(3) The permittee shall monitor and record the concentration level of the OCs in the carbon adsorber's exhaust stream daily, or at intervals no greater than 20% of the design carbon replacement interval, whichever is greater.

(4) The permittee shall monitor and record all periods when carbon breakthrough is detected. Existing carbon shall be replaced with fresh carbon immediately upon carbon breakthrough. As an alternative, the permittee shall replace the carbon with fresh carbon at a regular predetermined time interval that is less than the carbon replacement interval, as determined by the maximum design flow rate and the organic concentration in the gas stream.

b) Reporting Requirements

(1) Unless the control efficiency of the carbon adsorber is assumed to be zero, the permittee shall submit quarterly deviation (excursion) reports that identify the following information concerning the operation of the control equipment when the EU is in operation and the process vent stream is vented to the carbon adsorber:

a. All periods during which the existing carbon is not replaced with fresh carbon immediately when breakthrough is indicated.

c) Testing Requirements

(1) The permittee shall conduct, or have conducted, emission testing for each carbon adsorber in accordance with the following requirements unless the control efficiency is assumed to be zero:

a. The emission testing shall be conducted within 2.5 years of issuance of the initial or renewal permit (If the control efficiency is assumed to be zero and subsequently the control efficiency is required to comply with the 5 tons of VOC per rolling, 12-month period, then the emissions testing shall be conducted 90 days after such determination). Issuance of Title V permit modifications does not require additional testing unless required by the director.

b. The emission testing for the carbon adsorber shall be conducted to determine the control efficiency.

c. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10.

d. The permittee shall demonstrate that the testing will be performed during the worst-case emission conditions.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an Intent to Test (ITT) notification to the Ohio EPA Northeast DO. The ITT notification shall describe in detail the proposed test methods and procedures, the EU operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior

to the test(s) may result in the Ohio EPA Northeast DO's refusal to accept the results of the emission test(s).

f. Personnel from the Ohio EPA Northeast DO shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the EU and the testing procedures provide a valid characterization of the emissions from the EU and/or the performance of the control equipment.

g. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA Northeast DO within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA Northeast DO.

13. Requirements for the operation of packed bed wet scrubber, P-2 WScrb

a) Monitoring and Recordkeeping Requirements

(1) If the control efficiency of the P-2 WScrb is always assumed to be zero, and compliance with the emission limitation of five tons per rolling 12-month period from all process vent streams not controlled by an incinerator or a flare is demonstrated by the required recordkeeping, then the scrubber is not subject to the requirements specified in B.13.a)(2), B.13.a)(3), B.13.a)(4), B.13.a)(5), and B.13.a)(6).

Pursuant to OAC rule 3745-21-09(LL)(3)(a), if the emission limitation of 5 tons per rolling, 12-month period has been exceeded when assuming the control efficiency of the scrubber is always zero, then the permittee shall comply with the requirements of OAC rule 3745-21-09(LL)(1), as well as all monitoring, recordkeeping, reporting and testing requirements specified in the terms and conditions for the scrubber.

(2) The acceptable liquid flow rate for P-2 WScrb, when the EU is in operation and the process vent stream is vented to the scrubber, is not less than 2 gallons per minute.

This operating limitation is effective for the duration of this permit. Any changes in the acceptable level must be approved in writing by the Ohio EPA Northeast DO. The permittee may request revisions to the level based upon information obtained during future VOC emission tests that demonstrate compliance with the allowable VOC emission rate for this EU. In addition, approved revisions to the level will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of a minor permit modification.

(3) The permittee shall properly operate and maintain equipment to continuously monitor and record the scrubber liquid flow rate, in gallons per minute, at all times when the EU is in operation and the process vent stream is vented to the scrubber, including periods of startup and shutdown. The monitoring equipment shall be calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee.

(4) The permittee shall record the following information each day when the EU is in operation and the process vent stream is vented to the scrubber:

a. The scrubber liquid flow rate, in gallons per minute.

(5) Whenever the flow rate deviates from the operating limitation, while the EU is in operation and the process vent stream is vented to the scrubber, the permittee shall promptly investigate the cause of the deviation.

The permittee shall maintain records of the following information for each investigation:

a. The date and time the deviation began and the magnitude of the deviation at that time;

b. The date(s) the investigation was conducted;

c. The names of the personnel who conducted the investigation; and

d. The findings and recommendations.

(6) In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the operation of the control equipment above the acceptable operating limitation, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended.

(7) The permittee shall maintain records of the following information for each corrective action taken:

a. A description of the corrective action;

b. The date it was completed;

c. The date and time the deviation ended;

d. The total period of time (in minutes) during which there was a deviation;

e. The flow rate immediately after the corrective action; and

f. The names of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

b) Reporting Requirements

(1) Unless the control efficiency of P-2 WScrb is assumed to be zero, the permittee shall submit quarterly deviations (excursion) reports that identify the following information concerning the operation of the control equipment when the EU is in operation and the process vent stream is vented to the scrubber:

a. Each period of time when the scrubber liquid flow rate was less than the operating limitation;

b. An identification of each incident of deviation described in b)(1)a where a prompt investigation was not conducted;

c. An identification of each incident of deviation described in b)(1)a where prompt corrective action, that would bring the scrubber liquid flow rate into compliance with the acceptable value, was determined to be necessary and was not taken; and

d. An identification of each incident of deviation described in b)(1)a where proper records were not maintained for the investigation and/or the corrective action.

c) Testing Requirements

(1) The permittee shall conduct, or have conducted, emission testing for this EU in accordance with the following requirements for P-2 WScrb (unless the control efficiency is assumed to be zero):

a. The emission testing shall be conducted within 2.5 years of issuance of the initial and/or renewal permit. Issuance of Title V permit modifications do not require additional testing unless required by the Director.

b. The emission testing shall be conducted to determine the control efficiency of P-2 WScrb.

c. The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10.

d. The permittee shall demonstrate that the testing will be performed during the worst-case emission conditions.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an Intent to Test (ITT) notification to the Ohio EPA Northeast DO. The ITT notification shall describe in detail the proposed test methods and procedures, the EU operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast DO's refusal to accept the results of the emission test(s).

f. Personnel from the Ohio EPA Northeast DO shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the EU and the testing procedures provide a valid characterization of the emissions from the EU and/or the performance of the control equipment.

g. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA Northeast DO within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA Northeast DO.

C. Emissions Unit Terms and Conditions

1. N001, Waste Incinerator

Operations, Property and/or Equipment Description:

Waste Heat Recovery Incinerator (WHRI) with a rated capacity of 5,500 lbs/hr with a baghouse to control PE and a wet scrubber to control SO_2 emissions.

a) The following EU terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each EU along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(D) Federally enforceable requirements to comply with OAC rule 3745-110-03(J)	See b)(2)a, c)(1), c)(2), d)(1), and e)(1) below.
b.	OAC rule 3745-17-07(A)(1)	VE from any stack shall not exceed 20% opacity, as a six-minute average, except as provided by the rule.
c.	OAC rule 3745-17-09	PE shall not exceed 0.10 lb/100 lbs of liquid, semi-solid or solid refuse and salvageable material charged.
d.	OAC rule 3745-18-49(B)(12)	SO_2 emissions shall not exceed 100 lbs/hr.
e.	OAC rule 3745-110-03(J)	The emission limitation specified by this applicable rule is as stringent as the emission limitation established pursuant to OAC rule 3745-31-05(D). See b)(2)a below.
f.	40 CFR Part 63, Subpart EEE MACT for Hazardous Waste Combustors	See b)(2)b – b)(2)f, c)(2) – c)(6), d)(2) – d)(11), e)(1) – e)(19), f)(2) and f)(4) below.

(2) Additional Terms and Conditions

a. As required by the reclassification to serious nonattainment for ozone under the 2015 ozone NAAQS promulgated by U.S. EPA, and pursuant to OAC rule 3745-110-03(J) and the NO_X RACT Study submitted by The Lubrizol Corporation on March 26, 2026 (subsequently revised on May 15, 2026, and July 24, 2026):

"The Lubrizol Corporation" (Facility ID: 0243000024) or any subsequent owner or operator of "The Lubrizol Corporation's" facility located at 155 Freedom Road, Painesville, Ohio, shall comply with the following requirements for this EU:

i. Maintain and operate the WHRI in accordance with the manufacturer's specifications, with any modifications deemed necessary by the permittee, and with good combustion practices, including appropriate fuel-to-air ratios; stable burner operation; and proper operation of the rotary hearth and secondary combustion chamber burners, for the control of NO_X emissions from this EU.

b. 40 CFR 63.1203(a): Emission Standards and Operating Limits for Hazardous Waste Incinerators.

The permittee shall comply with the following operating limits, or as established in the most recent Document of Compliance or Notification of Compliance, whichever are currently applicable:

i. Emissions of metals shall be controlled by limiting their feed rates as follows:

(a) The feed rate of Hg shall not exceed 0.0014 lb/hr as a rolling, 12-hour average.

(b) The feed rate of semi volatile metals (Pb and Cd) combined shall not exceed 0.34 lb/hr as a rolling, 12-hour average.

(c) The feed rate of low volatile metals (As, Be, and Cr) combined shall not exceed 0.75 lb/hr as a rolling, 12-hour average.

ii. Other pollutants shall be controlled as follows:

(a) The feed rate of chlorine shall not exceed 32 lbs/hr as a rolling, 12-hour average.

(b) The total ash feed rate shall not exceed 954 lbs/hr as a rolling, 12-hour average.

c. 40 CFR 63.1203(a):

The permittee shall comply with the following emission limits, or as established in the final rule after its compliance date, whichever are currently applicable:

i. Emission limits for existing sources. You must not discharge or cause combustion gases to be emitted into the atmosphere that contain:

(a) For dioxins and furans: Emissions in excess of 0.20 ng TEQ/dscm corrected to 7% oxygen.

(b) Mercury in excess of 130 ug/dscm corrected to 7% oxygen.

(c) Lead and cadmium in excess of 240 ug/dscm* combined emissions per the interim standard, corrected to 7% oxygen (*expected to change to 230 ug/dscm in the final MACT standard, unless otherwise specified in the latest revision to the MACT).

(d) Arsenic, beryllium, and chromium in excess of 97 ug/dscm* combined emissions per the interim standard, corrected to 7% oxygen (*expected to change to 92 ug/dscm in the final MACT standard, unless otherwise specified in the latest revision to the MACT).

(e) For CO:

(i) CO in excess of 100 ppm by volume, over an hourly rolling average (monitored continuously with a CEMS), dry basis and corrected to 7% oxygen. If the permittee elects to comply with this CO standard rather than the hydrocarbon standard under §63.1203(a)(5)(ii), the permittee must also document that, during the destruction and removal efficiency (DRE) test runs or their equivalent as provided by §63.1206(b)(7), hydrocarbons do not exceed 10 ppm by volume during those runs, over an hourly rolling average (monitored continuously with a CEMS), dry basis, corrected to 7% oxygen, and reported as propane.

(f) Hydrochloric acid and chlorine gas in excess of 77 ppm* by volume, combined emissions per the interim standard, expressed as hydrochloric acid equivalents, dry basis and corrected to 7% oxygen (*expected to change to 32 ppm in the final MACT standard, unless otherwise specified in the latest revision to the MACT).

(g) PM in excess of 34 mg/dscm* corrected to 7% oxygen per the interim standard (*expected to change to 0.013 gr/dscf in the final MACT standard, unless otherwise specified in the latest revision to the MACT).

d. §40 CFR 63.1203(c): The permittee shall comply with the following emission limit, or as established in the final rule after its compliance date, whichever is currently applicable:

i. The permittee must achieve a DRE of 99.99% for each principle organic hazardous constituent (POHC) designated under §63.1203(c)(3). The permittee must calculate DRE for each POHC from the following equation:

$DRE = [1 - (W_{out} / W_{in})] * 100\%$

where:

W_{in} = mass feedrate of one POHC in a waste feedstream; and

W_{out} = mass emission rate of the same POHC present in exhaust emissions prior to release to the atmosphere.

e. 40 CFR 63.1206(b): Compliance with standards.

The emission standards and operating requirements set forth in this subpart apply at all times except:

i. During periods of startup, shutdown, and malfunction; and

ii. When hazardous waste is not in the combustion chamber (i.e., the hazardous waste feed to the combustor has been cut off for a period of time not less than the hazardous waste residence time) and the permittee has documented in the operating record that the permittee is complying with all otherwise applicable requirements and standards promulgated under authority of §112 or §129 of the CAA in lieu of the emission standards of §63.1203 - §63.1205; the monitoring and compliance standards of this section and §63.1207 - §63.1209, except the modes of operation requirements of §63.1209(q); and the notification, reporting, and recordkeeping requirements of §63.1210 - §63.1212.

f. 40 CFR 63.1209(q): Operating under different modes of operation.

Operating under otherwise applicable standards after the hazardous waste residence time has transpired. As provided by §63.1206(b)(1)(ii), the permittee may operate under otherwise applicable requirements promulgated under §112 and §129 of the CAA in lieu of the substantive requirements of 40 CFR Part 63, Subpart EEE. Specifically, when operating in the *warm stand-by maintenance mode* as documented in the O&M Plan, only the following otherwise applicable requirements apply:

i. OAC rule 3745-17-07(A), OAC rule 3745-17-09, and OAC rule 3745-18-49(B)(12) per b)(1) above pertaining to PE and SO_2 limits.

c) Operational Restrictions

(1) Install, maintain, and operate this source in accordance with the manufacturer's recommendations, instructions, and operating manual(s) with any modifications deemed necessary by the permittee with good combustion practices and proper incinerator operation for the control of NO_X from this EU.

(2) Maintain and operate Air-to-Fuel Ratio controller appropriately in order to ensure proper operation of the burners to minimize emissions at all times.

(3) 40 CFR Part 63, Subpart EEE:

The permittee shall comply with the following operating limits, or as established in the most recent Document of Compliance or Notification of Compliance, whichever is currently applicable:

a. The pressure drop across the baghouse shall be maintained not to exceed 8 inches of water as an hourly rolling average while burning waste.

b. The permittee shall operate and maintain the wet scrubber at all times the process vent stream is vented to the scrubber, and burning waste in accordance with the following parameters:

i. The pH of the scrubber liquid shall be maintained at or above 3.9 as an hourly rolling average;

ii. The liquid-to-gas ratio shall be maintained at or above 4 gallons per 1,000 actual cubic feet as an hourly rolling average;

iii. The pressure drop across the scrubber shall be maintained at a value of greater than or equal to 3.5 inches of water as an hourly rolling average; and

iv. The blowdown rate for the scrubber shall be maintained above 1.33 gallons per minute as an hourly rolling average.

c. The permittee shall maintain the combustion hearth at the following conditions while burning waste:

i. The hearth flue gas temperature shall be maintained at or above 1369°F as an hourly rolling average; and

ii. The hearth pressure shall be maintained below 0.0 inches of water with a five-second delay.

d. The permittee shall maintain the secondary combustion chamber gas temperature at or above 1,657°F as an hourly rolling average while burning waste.

e. The permittee shall minimize baghouse leaks as follows:

i. The permittee shall maintain an indicator to detect baghouse leaks, and not have a 100% indication for more than 30 minutes while burning waste; and

ii. The temperature of the baghouse inlet gas shall not exceed 488°F as an hourly rolling average while burning waste.

f. The permittee shall maintain waste feed rates as follows:

i. The pumpable waste feed rate shall be maintained below 5,156 lbs/hr as an hourly rolling average; and

ii. The total waste feed rate shall be maintained below 5,192 lbs/hr as an hourly rolling average.

g. The permittee shall maintain combustion gas flow rates (stack gas flow rates) as follows while burning waste:

i. The maximum combustion gas flow rate shall be maintained below 13,734 acfm as an hourly rolling average; and

ii. The minimum combustion gas flow rate shall be maintained above 7,738 acfm (as a rolling, 12-hour average).

h. The permittee shall maintain the combustion air pressure at or above 20 inches water column on an instantaneous basis at all times while feeding liquid waste.

(4) 40 CFR 63.1206(c)(2)(v): Operating under the SSMP.

Compliance with automatic waste feed cutoff (AWFCO) requirements during malfunctions:

a. During malfunctions, the automatic waste feed cutoff requirements of §63.1206(c)(3) continue to apply, except for §63.1206(c)(3)(v) and (c)(3)(vi). If the permittee exceeds a 40 CFR Part 63, Subpart EEE, emission standard monitored by a CEMS or COMS or operating limit specified under §63.1209, the AWFCO system must immediately and automatically cutoff the hazardous waste feed, except as provided by

§63.1206(c)(3)(viii). If the malfunction itself prevents immediate and automatic cutoff of the hazardous waste feed, however, the permittee must cease feeding hazardous waste as quickly as possible.

b. Although the AWFCO requirements continue to apply during a malfunction, an exceedance of an emission standard monitored by a CEMS or COMS or operating limit specified under §63.1209 is not a violation of this subpart if the permittee takes the corrective measures prescribed in the SSMP.

(5) 40 CFR 63.1206(c)(3): AWFCO.

a. General. Upon the compliance date, the permittee must operate the hazardous waste combustor with a functioning system that immediately and automatically cuts off the hazardous waste feed, except as provided by §63.1206(c)(3)(viii):

i. When any of the following are exceeded: Operating parameter limits specified under §63.1209; an emission standard monitored by a CEMS; and the allowable combustion chamber pressure.

ii. When the span value of any CMS detector, except a CEMS, is met or exceeded.

iii. Upon malfunction of a CMS monitoring an operating parameter limit specified under §63.1209 or an emission level.

iv. When any component of the automatic waste feed cutoff system fails.

b. Ducting of combustion gases. During an AWFCO, the permittee must continue to duct combustion gases to the air pollution control system while hazardous waste remains in the combustion chamber (i.e., if the hazardous waste residence time has not transpired since the hazardous waste feed cutoff system was activated).

c. Restarting waste feed. The permittee must continue to monitor, during the cutoff, the operating parameters for which limits are established under §63.1209 and the emissions required under that section to be monitored by a CEMS, and the permittee must not restart the hazardous waste feed until the operating parameters and emission levels are within the specified limits.

d. Failure of the AWFCO system. If the AWFCO system fails to automatically and immediately cutoff the flow of hazardous waste upon exceedance of parameter required to be interlocked with the AWFCO system under §63.1206(c)(3)(i), the permittee has failed to comply with the AWFCO requirements of §63.1206(c)(3).

e. Corrective measures. If, after any AWFCO, there is an exceedance of an emission standard or operating requirement, irrespective of whether the exceedance occurred while hazardous waste remained in the combustion chamber (i.e., whether the hazardous waste residence time has transpired since the hazardous waste feed cutoff system was activated), the permittee must investigate the cause of the AWFCO, take appropriate corrective measures to minimize future AWFCOs, and record the findings and corrective measures in the operating record.

(6) 40 CFR 63.1206(c)(6): Operator training and certification.

a. The permittee must establish training programs for all categories of personnel whose activities may reasonably be expected to directly affect emissions of HAP from the source. Such persons include, but are not limited to, chief facility operators, control room operators, continuous monitoring system (CMS) operators, persons that sample and analyze feedstreams, persons that manage and charge feedstreams to the combustor, persons that operate emission control devices, and ash and waste handlers. Each training program shall be of a technical level commensurate with the person's job duties specified in the training manual. Each commensurate training program shall require an examination to be administered by the instructor at the end of the training course. Passing of this test shall be deemed the *certification* for personnel, except that, for control room operators, the training and certification program shall be as specified in §63.1206(c)(6)(iii) - (c)(6)(vi).

b. The permittee must ensure that the source is operated and maintained at all times by persons who are trained and certified to perform these and any other duties that may affect emissions of HAP. A certified control room operator must be on duty at the site at all times the source is in operation.

c. Hazardous waste incinerator control room operators must:

i. Be trained and certified under a site-specific, source-developed and implemented program that meets the requirements of §63.1206(c)(6)(v); or

ii. Be trained under the requirements of, and certified under, the American Society of Mechanical Engineers (ASME) Standard Number QHO-1-1994 and QHO-1a-1996 Addenda [incorporated by reference-see §63.14(e)]. If the permittee chooses to use the ASME program:

(a) Control room operators must, prior to the compliance date, achieve provisional certification, and must submit an application to ASME and be scheduled for the full certification exam. Within one year of the compliance date, control room operators must achieve full certification;

(b) New operators and operators of new sources must, before assuming their duties, achieve provisional certification, and must submit an application to ASME, and be scheduled for the full certification exam. Within one year of assuming their duties, these operators must achieve full certification; or

iii. Be trained and certified under a state program.

d. Site-specific, source developed and implemented training programs for control room operators must include the following elements:

i. Training in the following subjects:

(a) Environmental concerns, including types of emissions;

(b) Basic combustion principles, including products of combustion;

(c) Operation of the specific type of combustor used by the operator, including proper startup, waste firing, and shutdown procedures;

(d) Combustion controls and CMSs;

(e) Operation of air pollution control equipment and factors affecting performance;

(f) Inspection and maintenance of the combustor, CMSs, and air pollution control devices;

(g) Actions to correct malfunctions or conditions that may lead to malfunction;

(h) Residue characteristics and handling procedures; and

(i) Applicable Federal, state, and local regulations, including Occupational Safety and Health Administration workplace standards.

ii. An examination designed and administered by the instructor; and

iii. Written material covering the training course topics that may serve as reference material following completion of the course.

e. To maintain control room operator qualification under a site-specific, source developed and implemented training program as provided by §63.1206(c)(6)(v), control room operators must complete an annual review or refresher course covering, at a minimum, the following topics:

i. Update of regulations;

ii. Combustor operation, including startup and shutdown procedures, waste firing, and residue handling;

iii. Inspection and maintenance;

iv. Responses to malfunctions or conditions that may lead to malfunction; and

v. Operating problems encountered by the operator.

f. The permittee must record the operator training and certification program in the operating record.

(7) 40 CFR 63.1206(c)(7): O&M plan.

a. The permittee must prepare and at all times operate according to an O&M plan that describes in detail procedures for operation, inspection, maintenance, and corrective measures for all components of the combustor, including associated pollution control equipment, that could affect emissions of regulated HAP.

b. The plan must prescribe how you will operate and maintain the combustor in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels achieved during the CPT.

c. This plan ensures compliance with the operation and maintenance requirements of §63.6(e) and minimizes emissions of pollutants, AWFCOs, and malfunctions.

d. The permittee must record the plan in the operating record.

d) Monitoring and/or Recordkeeping Requirements

(1) In order to ensure the source continues to operate as designed, the permittee shall operate this EU in accordance with the manufacturer's recommendations, instructions, and operating manual(s) with any modifications deemed necessary by the permittee. These manufacturer's recommendations, instructions, and operating manual(s) with any modifications shall be maintained for the life of the EU.

The permittee shall perform the recommended maintenance at the recommended intervals. The permittee shall keep records of the maintenance performed on this EU and shall retain them for a period of five years from the date the record was created.

(2) 40 CFR 63, Subpart EEE: Monitoring and Compliance Provisions.

The permittee shall properly operate and maintain equipment to monitor the pressure drop across the baghouse while the EU is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s).

The permittee shall record the following parameters for the baghouse while burning waste:

a. The leak indicator reading [per §63.1206(c)(7)(ii)];

b. Baghouse inlet gas temperature (as an hourly rolling average) [per §63.1209(k)(1) & §63.1209(n)(1)]; and

c. The pressure drop across the baghouse (as an hourly rolling average) [per §63.1209(g)(2)].

(3) 40 CFR 63, Subpart EEE: Monitoring and Compliance Provisions.

The permittee shall properly install, operate and maintain equipment to continuously monitor the scrubber liquor flow rate of the wet scrubber while the EU is in operation. The monitoring devices and any recorders shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information while burning waste:

a. The pH of the scrubber liquor, (as an hourly rolling average) [per §63.1209(o)(3)(iv)];

b. The liquid-to-gas ratio, in gallons per 1000 cubic feet, (as an hourly rolling average) [per §63.1209(o)(3)(v)];

c. The pressure drop across the scrubber, (as an hourly rolling average) [per §63.1209(o)(3)(ii)];

d. The operating times for the capture (collection) system, control device, monitoring equipment, and the associated EU; and

e. The scrubber blowdown rate gpm (as an hourly rolling average) [per §63.1209(m)(1)(i)(B)(1)(ii)].

(4) 40 CFR 63.1209(a)(2) & (j)(4): Performance specifications.

The permittee shall install, calibrate, maintain, and continuously operate the CEMS and COMS in compliance with the quality assurance procedures provided in the appendix to Subpart EEE and Performance Specifications 4B (CO and oxygen) in appendix B, part 60 of this chapter. Specifically, the permittee shall operate and maintain existing equipment to continuously monitor and record CO from this EU in units of the applicable standard(s). Such continuous monitoring and recording equipment shall comply with the requirements specified in §63.1209(a)(2), (a)(3), (a)(6) and the Appendix to Subpart EEE.

A statement of certification of the existing continuous CO monitoring system shall be maintained on site and shall consist of a letter from Ohio EPA detailing the results of an Agency review of the certification tests and a statement by the Agency that the system is considered certified in accordance with the requirements of 40 CFR Part 60, Appendix B, Performance Specification 4B. Proof of certification shall be made available to the Ohio EPA Northeast DO upon request.

The permittee shall maintain records of all data obtained by the continuous CO monitoring system including, but not limited to, ppm CO on an instantaneous (one-minute) basis, emissions of CO in units of ppm in the appropriate averaging period, results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

(5) The permittee shall implement a quality assurance/quality control plan for the continuous CO monitoring system designed to ensure continuous valid and representative readings of CO emission concentrations and exhaust gas flow rates. The plan shall follow the requirements of the Appendix to Subpart EEE and include provisions for conducting a relative accuracy test following each monitor probe replacement. The relative accuracy test shall be performed, and the monitoring system operated, in accordance with the procedures specified in Performance Specification 4B, 40 CFR Part 60, Appendix B. The quality assurance/quality control plan and a logbook dedicated to the continuous CO monitoring system must be kept on site and available for inspection during regular office hours. Each record of any monitoring data, testing data, and support information required shall be retained for a period of five years from the date the record was created. Support information shall include, but not limited to, all calibration and maintenance records and all original electronic data for continuous monitoring instrumentation.

(6) 40 CFR 63, Subpart EEE:

The permittee shall continuously record the stack flow rate in acfm (as an hourly average) while burning waste. [per §63.1209(j)(2) & (k)(3) & (m)(2) & (n)(5) & (o)(2) & §63.1207(m)(4)(i)]

(7) 40 CFR 63, Subpart EEE:

The permittee shall continuously record the following hourly average lb/hour waste feed rates while burning waste:

a. Total waste feed rate [per §63.1209(j)(3) & (k)(4)]; and

b. The pumpable waste feed rate [per §63.1209(j)(3) & (k)(4)].

(8) 40 CFR 63, Subpart EEE:

The permittee shall record the rolling, 12-hour average lb/hr flow rates of the following while burning waste:

a. The feed rate of low volatile metals (As, Be, and Cr) combined [per §63.1209(n)(2)];

b. The feed rate of semi volatile metals (Pb and Cd) combined [per §63.1209(n)(2)];

c. The Hg feed rate [per §63.1209(l)(1) & §63.1207(m)(4)(i)];

d. The ash flow rate [per §63.1209(m)(3)]; and

e. The chlorine feed rate [per §63.1209(n)(4) & (o)(1)].

(9) 40 CFR 63, Subpart EEE:

The permittee shall continuously record the following combustion temperatures while burning waste:

a. The hearth flue temperature (as an hourly average) [per §63.1209(j)(1) & (k)(2)]; and

b. The secondary combustion chamber temperature (as an hourly average) [per §63.1209(j)(1) & (k)(2)].

(10) 40 CFR 63.1209(p):

The permittee shall continuously record the hearth pressure while burning waste.

(11) The permittee shall continuously record the combustion air pressure while feeding liquid waste. [per §63.1209(j)(4)]

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify each day the EU is not operating in accordance with the manufacturer's specifications, or modifications deemed necessary by the permittee, and with good combustion practices for the control of NO_x emissions.

(2) 40 CFR 63.10(e)(3):

The permittee shall submit quarterly deviation (excursion) reports (excess emissions and CMS performance reports) that identify all periods of time during which the following parameters for the baghouse did not comply with the allowable range specified above while burning waste:

a. The leak indicator reading;

b. Baghouse inlet gas temperature; and

c. The pressure drop across the baghouse.

(3) 40 CFR 63.10(e)(3):

The permittee shall submit quarterly deviation (excursion) reports (excess emissions and CMS performance reports) that identify all periods of time during which the following scrubber parameters were not maintained at or above the required levels for the wet scrubber while burning waste:

a. The pH of the scrubber liquor;

b. The liquid-to-gas ratio;

c. The pressure drop across the scrubber; and

d. The scrubber blowdown rate.

(4) 40 CFR 63.10(e)(3):

The permittee shall submit quarterly deviation (excursion) reports (excess emissions and CMS performance reports) that identify all periods of time during which the ppm CO emission rate was not maintained at or below the required levels while burning waste.

(5) 40 CFR 63.10(e)(3):

The permittee shall submit quarterly deviation (excursion) reports (excess emissions and CMS performance reports) that identify all periods of time during which the combustion gas flow rate (stack gas flow rate) was not maintained as follows while burning waste:

a. At or below the required maximum flow rate in acfm (as an hourly average); and

b. At or above the required minimum flow rate in acfm (as a 12-hour average).

(6) 40 CFR 63.10(e)(3):

The permittee shall submit quarterly deviation (excursion) reports (excess emissions and CMS performance reports) that identify all periods of time during which the following hourly average lb/hr waste feed rates were not maintained at or below the required levels while burning waste:

a. Total waste feed rate; and

b. The pumpable waste feed.

(7) 40 CFR 63.10(e)(3):

The permittee shall submit quarterly deviation (excursion) reports (excess emissions and CMS performance reports) that identify all periods of time during which the rolling, 12-hour average lb/hr flow rates of the following were not maintained at or below the required levels while burning waste:

a. The feed rate of low volatile metals (As, Be, and Cr) combined;

b. The feed rate of semi volatile metals (Pb and Cd) combined;

c. The Hg feed rate;

d. The ash flow rate; and

e. The lb/hr chlorine feed rate.

(8) 40 CFR 63.10(e)(3):

The permittee shall submit quarterly deviation (excursion) reports (excess emissions and CMS performance reports) that identify all periods of time during which the following combustion temperatures were not maintained at or above the required levels while burning waste:

a. The hearth flue temperature (as an hourly average); and

b. The secondary combustion chamber temperature (as an hourly average).

(9) 40 CFR 63.10(e)(3):

The permittee shall submit quarterly deviation (excursion) reports (excess emissions and CMS performance reports) that identify all periods of time during which the hearth pressure was not maintained at or below the required levels while burning waste.

(10) 40 CFR 63.10(e)(3):

The permittee shall submit quarterly deviation (excursion) reports (excess emissions and CMS performance reports) that identify all periods of time during which the combustion air pressure was not maintained at or above the required level while feeding liquid waste.

(11) 40 CFR 63.1211: Recordkeeping and Reporting Requirements

Summary of reporting requirements. The permittee must submit the following reports to the Administrator:

Reference	Report
63.10(d)(5)(i)	Periodic startup, shutdown, and malfunction reports
63.10(d)(5)(ii)	Immediate startup, shutdown, and malfunction reports
63.10(e)(3)	Excessive emissions and CMS performance report and summary report
63.1206(c)(3)(vi)	Excessive exceedances reports

(12) 40 CFR 63.10(d)(5)(i): Periodic startup, shutdown, and malfunction reports.

If actions taken by the permittee during a startup, or shutdown (and the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), or malfunction of an affected source (including actions taken to correct a malfunction) are consistent with the procedures specified in the source's SSMP [see §63.6(e)(3)], the permittee shall state such information in a startup, shutdown, and malfunction report. Such a report shall also include the number, duration, and a brief description of each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. Reports shall only be required if a startup, or shutdown caused the source to exceed any applicable emission limitation in the relevant emission standard, or malfunction occurred during the reporting period. The startup, shutdown, and malfunction report shall consist of a letter, containing the name, title, and signature of the permittee or other responsible official who is certifying its accuracy, that shall

be submitted to the Ohio EPA Northeast DO semiannually (or on a more frequent basis if specified otherwise in a relevant standard or as established otherwise by the permitting authority in the source's Title V permit). The startup, shutdown, and malfunction report shall be delivered or postmarked by the 30th day following the end of each calendar half (or other calendar reporting period, as appropriate).

If the permittee is required to submit excess emissions and CMS performance (or other periodic) reports under this part, the startup, shutdown, and malfunction reports required under this paragraph may be submitted simultaneously with the excess emissions and CMS performance (or other) reports.

Alternatively, the permittee may submit the periodic startup, shutdown, and malfunction reports quarterly along with the deviation (excursion) reports.

(13) 40 CFR 63.10(d)(5)(ii): Immediate startup, shutdown, and malfunction reports.

Notwithstanding the allowance to reduce the frequency of reporting for periodic startup, shutdown, and malfunction reports under §63.10(d)(5)(i), any time an action taken by a permittee during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's SSMP, and the source exceeds any applicable emission limitation in the relevant emission standard, the permittee shall report the actions taken for that event within two working days after commencing actions inconsistent with the plan followed by a letter within seven working days after the end of the event. The immediate report required under §63.10(d)(5)(ii) shall consist of a telephone call or email to the Ohio EPA Northeast DO within two working days after commencing actions inconsistent with the plan, and it shall be followed by a letter, delivered or postmarked within seven working days after the end of the event, that contains the name, title, and signature of the permittee or other responsible official who is certifying its accuracy, explaining the circumstances of the event, the reasons for not following the SSMP, and describing all excess emissions and/or parameter monitoring exceedances which are believed to have occurred. Notwithstanding the requirements of the previous sentence, after the effective date of an approved permit program in the State in which an affected source is located, the permittee may make alternative reporting arrangements, in advance, with the permitting authority in that State. Procedures governing the arrangement of alternative reporting requirements under §63.10(d)(5)(ii) are specified in §63.9(i).

(14) 40 CFR 63.10(e)(3): Excess emissions and CMS performance report and summary report.

Excess emissions and parameter monitoring exceedances are defined in relevant standards. The permittee of an affected source required to install a CMS by a relevant standard shall submit an excess emissions and CMS performance report and/or a summary report to the Ohio EPA Northeast DO semiannually.

(15) 40 CFR 63.10(e)(3)(v): Content and submittal dates for excess emissions and monitoring system performance reports.

All excess emissions and monitoring system performance reports and all summary reports, if required, shall be delivered or postmarked by the 30th day following the end of each calendar half or quarter, as appropriate. Written reports of excess emissions or exceedances of process

or control system parameters shall include all the information required in §63.10(c)(5) - (c)(13), in §63.8(c)(7) and §63.8(c)(8), and in the relevant standard, and they shall contain the name, title, and signature of the responsible official who is certifying the accuracy of the report. When no excess emissions or exceedances of a parameter have occurred, or a CMS has not been inoperative, out of control, repaired, or adjusted, such information shall be stated in the report.

(16) 40 CFR 63.10(e)(3)(vi): Summary report.

As required under §63.10(e)(3)(vii) and (e)(3)(viii), one summary report shall be submitted for the HAPs monitored at each affected source (unless the relevant standard specifies that more than one summary report is required, e.g., one summary report for each HAP monitored). The summary report shall be entitled "Summary Report--Gaseous and Opacity Excess Emission and CMS Performance" and shall contain the following information:

a. The company name and address of the affected source;

b. An identification of each HAP monitored at the affected source;

c. The beginning and ending dates of the reporting period;

d. A brief description of the process units;

e. The emission and operating parameter limitations specified in the relevant standard(s);

f. The monitoring equipment manufacturer(s) and model number(s);

g. The date of the latest CMS certification or audit;

h. The total operating time of the affected source during the reporting period;

i. An emission data summary (or similar summary if the permittee monitors control system parameters), including the total duration of excess emissions during the reporting period (recorded in minutes for opacity and hours for gases), the total duration of excess emissions expressed as a percent of the total source operating time during that reporting period, and a breakdown of the total duration of excess emissions during the reporting period into those that are due to startup/shutdown, control equipment problems, process problems, other known causes, and other unknown causes;

j. A CMS performance summary (or similar summary if the permittee monitors control system parameters), including the total CMS downtime during the reporting period (recorded in minutes for opacity and hours for gases), the total duration of CMS downtime expressed as a percent of the total source operating time during that reporting period, and a breakdown of the total CMS downtime during the reporting period into periods that are due to monitoring equipment malfunctions, non-monitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and other unknown causes;

k. A description of any changes in CMS, processes, or controls since the last reporting period;

l. The name, title, and signature of the responsible official who is certifying the accuracy of the report; and

m. The date of the report.

(17) 40 CFR 63.10(e)(3)(vii):

If the total duration of excess emissions or process or control system parameter exceedances for the reporting period is less than 1% of the total operating time for the reporting period, and CMS downtime for the reporting period is less than 5% of the total operating time for the reporting period, only the summary report shall be submitted, and the full excess emissions and CMS performance report need not be submitted unless required by the Administrator.

(18) 40 CFR 63.10(e)(3)(viii):

If the total duration of excess emissions or process or control system parameter exceedances for the reporting period is 1% or greater of the total operating time for the reporting period, or the total CMS downtime for the reporting period is 5% or greater of the total operating time for the reporting period, both the summary report and the excess emissions and CMS performance report shall be submitted.

Alternatively, the permittee may submit the excess emissions and CMS performance report and summary report quarterly along with the Title V deviation (excursion) reports.

(19) 40 CFR 63.1206(c)(3)(vi): Excessive exceedance reporting.

a. For each set of 10 exceedances of an emission standard or operating requirement while hazardous waste remains in the combustion chamber (i.e., when the hazardous waste residence time has not transpired since the hazardous waste feed was cutoff) during a 60-day block period, you must submit to the Ohio EPA Northeast DO a written report within five calendar days of the 10th exceedance documenting the exceedances and results of the investigation and corrective measures taken.

b. On a case-by-case basis, the Administrator may require excessive exceedance reporting when fewer than 10 exceedances occur during a 60-day block period.

(20) 40 CFR 63.1206(c)(2)(v)(A)(3): Excessive exceedances during malfunctions.

a. For each set of 10 exceedances of an emission standard or operating requirement while hazardous waste remains in the combustion chamber (i.e., when the hazardous waste residence time has not transpired since the hazardous waste feed was cutoff) during a 60-day block period, you must:

i. Within 45 days of the 10th exceedance, complete an investigation of the cause of each exceedance and evaluation of approaches to minimize the frequency, duration, and severity of each exceedance, and revise the SSMP as warranted by the evaluation to minimize the frequency, duration, and severity of each exceedance; and

ii. Record the results of the investigation and evaluation in the operating record, and include a summary of the investigation and evaluation, and any changes to the SSMP, in the excess emissions report required under §63.10(e)(3).

(21) The reports contained in this permit shall be submitted in accordance with the reporting requirements specified in Part 1 - General Terms and Conditions, Section A of this permit.

f) Testing Requirements

(1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

VE from any stack shall not exceed 20% opacity, as a six-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon VE observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9, and OAC rule 3745-17-03(B)(1) or an alternate U.S. EPA-approved test method with prior approval from Ohio EPA.

b. Emission Limitation:

PE shall not exceed 0.10 lb/100 lbs of liquid, semi-solid or solid refuse and salvageable material charged.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 - 5, and OAC rule 3745-17-03(B)(9) or an alternate U.S. EPA-approved test method with prior approval from Ohio EPA.

c. Emission Limitation:

SO_2 emissions shall not exceed 100 lbs/hr.

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon emissions testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 - 4 and Method 6 or 6C and OAC rule 3745-18-04(A) or an alternate U.S. EPA-approved test method with prior approval from Ohio EPA.

(2) 40 CFR 63.1206(c)(3)(vii): Testing.

The AWFCO system and associated alarms must be tested at least monthly to verify operability. The permittee must document and record in the operating record AWFCO operability test procedures and results.

(3) 40 CFR 63.1207(d)(4): Performance Testing.

a. Frequency of testing.

Except as otherwise specified in §63.1207(d)(4), the permittee must conduct testing periodically as prescribed in §63.1207(d)(1) - (d)(3). The date of commencement of the

initial comprehensive performance test is the basis for establishing the deadline to commence the initial confirmatory performance test and the next comprehensive performance test. The permittee may conduct performance testing at any time prior to the required date. The deadline for commencing subsequent confirmatory and comprehensive performance testing is based on the date of commencement of the previous comprehensive performance test. Unless the Administrator grants a time extension under §63.1207(i), the permittee must conduct testing as follows:

b. Comprehensive performance testing.

Except as otherwise specified in §63.1207(d)(4), the permittee must commence testing no later than 61 months after the date of commencing the previous comprehensive performance test. If the permittee submits data in lieu of the initial performance test, you must commence the subsequent comprehensive performance test within 61 months of commencing the test used to provide the data in lieu of the initial performance test.

c. Confirmatory performance testing.

Except as otherwise specified in §63.1207(d)(4), the permittee must commence confirmatory performance testing no later than 31 months after the date of commencing the previous comprehensive performance test. If the permittee submits data in lieu of the initial performance test, the permittee must commence the initial confirmatory performance test within 31 months of the date six months after the compliance date. To ensure that the confirmatory test is conducted approximately midway between comprehensive performance tests, the Administrator will not approve a test plan that schedules testing within 18 months of commencing the previous comprehensive performance test.

d. Duration of testing.

The permittee must complete performance testing within 60 days after the date of commencement, unless the Administrator determines that a time extension is warranted based on the permittee's documentation in writing of factors beyond the permittee's control that prevent the permittee from meeting the 60-day deadline.

(4) 40 CFR 63.1207(h): Operating conditions during subsequent testing.

Current operating parameter limits established under §63.1209 are waived during subsequent comprehensive performance testing.

Current operating parameter limits are also waived during pretesting prior to comprehensive performance testing for an aggregate time not to exceed 720 hours of operation (renewable at the discretion of the Administrator) under an approved test plan or if the source records the results of the pretesting.

g) Miscellaneous Requirements

(1) None.

NO_X RACT STUDY
N001 – WASTE HEAT RECOVERY INCINERATOR (WHRI)

The Lubrizol Corporation

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1. BACKGROUND

On March 25, 2022, Ohio EPA promulgated revisions to the existing NO_X regulations under Chapter 3745-110 of the Ohio Administrative Code (OAC) following the reclassification of the Cleveland area to moderate nonattainment for the 2015 8-hour Ozone National Ambient Air Quality Standard (NAAQS), as well as the reclassification of the Cincinnati area to marginal nonattainment.

For affected NO_X-emitting sources that were not subject to presumptive emission limits and were not otherwise exempt, or for sources subject to presumptive NO_X RACT emission limits where the owner or operator claimed the applicable limit was technically infeasible and/or economically unreasonable (i.e., not cost-effective), the owner or operator was required to conduct a detailed engineering study. This study was required to evaluate the technical and economic feasibility of reducing NO_X emissions and to establish RACT for the affected sources. Lubrizol submitted a RACT study in March 2023 for an 81 MMBtu/hr natural gas-fired boiler (B004) at its chemical manufacturing facility in Painesville, Ohio (the Painesville Facility).

On April 1, 2025, Ohio EPA promulgated additional revisions to the NO_X regulations under Chapter 3745-110 of the OAC following the reclassification of the Cleveland area to serious nonattainment for the 2015 8-hour Ozone NAAQS. One of these revisions lowered the exemption threshold in OAC 3745-110-03(K)(16) from 25 tons per year (tpy) to 10 tpy for sources located in Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, and Summit counties.

The Painesville Facility operates three (3) natural gas or #2 fuel oil fired steam boilers (Ohio EPA Emission Unit IDs B001, B002, and B003) and a Reactor Process Vent System (Ohio EPA Emission Unit ID P030). These four (4) emission units all have potential NOx emissions between 10 and 25 tpy. However, they all remain exempt from this RACT study. The three (3) boilers meet the definition of a small boiler in OAC 3745-110-01(S)(1) and will comply with the requirements for small boilers at OAC 3745-110-03(A). P030 includes Lubrizol's fume incinerator system (Ohio EPA Control Device ID AC-12 Fm Inc) which includes two (2) thermal incinerators, each with a potential NOx emissions value of 6.57 tons per year. Pursuant to OAC 3745-110-03(K)(14), air pollution control devices are not subject to RACT. The remainder of potential NOx emissions from P030 is well below the 10 tpy threshold. Therefore, P030 is exempt from NOx RACT requirements.

The Painesville Facility also operates a waste heat recovery incinerator (Ohio EPA Emission Unit ID N001) that was previously exempt from the requirements of OAC 3745-110 because its potential NO_X emissions were less than 25 tpy. However, due to the recent revision to the exemption threshold in OAC 3745-110-03(K)(16), emission unit N001 no longer qualifies for this exemption. Accordingly, Lubrizol is submitting this RACT study for N001 in accordance with OAC 3745-110-03(J).

2. FACILITY OVERVIEW

2.1 General Facility Information

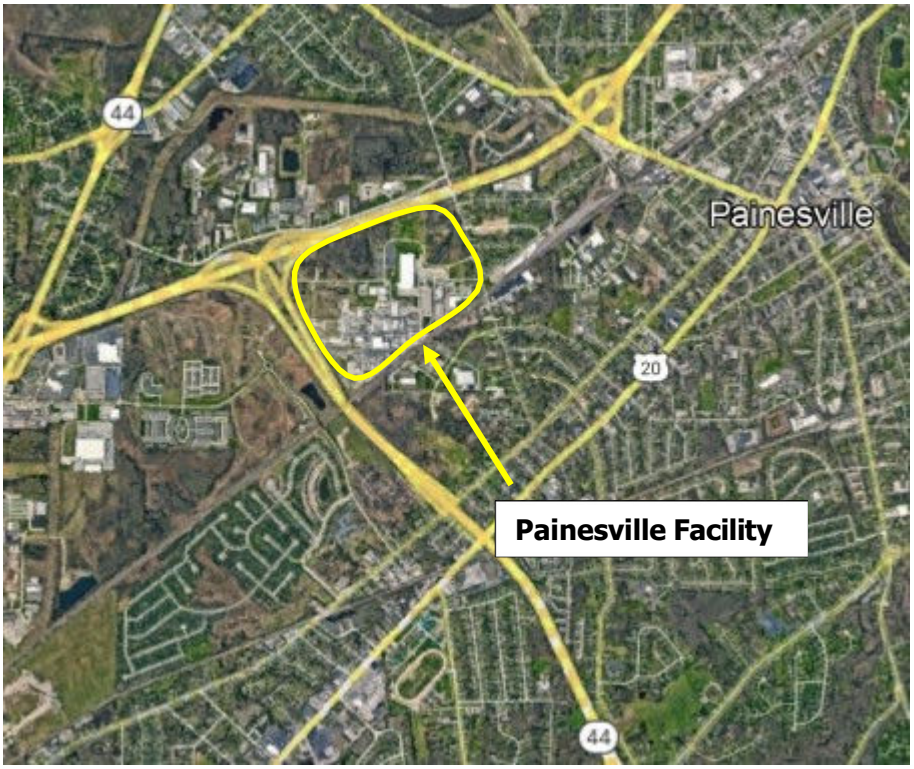
Lubrizol owns and operates a chemical products manufacturing plant located in Lake County. The facility is located at 155 Freedom Road, Painesville, OH 44077. The Painesville Facility manufactures specialized chemical products for a variety of applications. These include specialty additive systems for lubricating oils used in:

- Gasoline and diesel engines
- Automatic transmissions
- Gear drives
- Marine engines
- Tractors
- Metalworking.

The Painesville Facility also supplies specialty products for industrial fluids, fuel additives, process chemicals, and coating additives.

Figure 2-1 presents an area map showing the site location relative to major geographical features such as highways and railroads.

Figure 2-1. Area Map for Lubrizol



Facility information required by sections (a) through (d) of OAC 3745-110-03(J)(1) is provided as follows:

a) The complete facility name, Ohio EPA air program facility identification number, and address:

The Lubrizol Corporation
Facility ID 0243000024
155 Freedom Road
Painesville, Ohio 44077

b) The name, title, address and telephone number of the owner or operator's representative within the company who is the contact person for this facility regarding the engineering study and affected sources, and

Ross Weirich
Environmental Assurance Engineer
155 Freedom Rd
Painesville, OH 44077
Ross.Weirich@Lubrizol.com

c) The name, title, address, and telephone number of the official who is responsible for approval of the engineering study:

Patrick Newby
Senior Plant Manager
155 Freedom Rd
Painesville, OH 44077
Patrick.Newby@Lubrizol.com

d) The standard industrial classification code and source classification code numbers which are applicable to the facility's operation:

SIC: 2896
SCC: 5-03-005-05

3. RACT DEFINITION AND METHODOLOGY

"RACT," "BACT," and "LAER" are acronyms for different levels of emissions control. The least stringent is RACT, more stringent is BACT, and the most stringent is LAER. The type of control required depends on the size of the stationary source and whether it is located in an attainment or nonattainment area.

- RACT, or Reasonably Available Control Technology, is required for certain existing major sources of NO_x and VOC in ozone nonattainment areas.
- BACT, or Best Available Control Technology, is required for new major stationary sources and major modifications in attainment areas subject to Prevention of Significant Deterioration (PSD) permitting requirements.
- LAER, or Lowest Achievable Emission Rate, is required for new major stationary sources and major modifications in non-attainment areas subject to Nonattainment New Source Review permitting requirements.

At the federal level, RACT is not defined by statute or rule, rather it is defined in EPA guidance as "the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility."

Considering this definition, RACT involves identifying implementable control technologies with due consideration given to technological and economic feasibility. Since RACT considers the technological and economic impacts of controls, the analysis and determination may differ from source to source and location to location.

3.1 Top-down Approach

In this RACT study, Lubrizol is using the U.S. Environmental Protection Agency's (USEPA's) top-down approach to determining the feasibility of control technology where the most stringent control available for a similar or identical source or source category is identified. This control option is used to establish the RACT emission limitation, unless the applicant can demonstrate (and the permitting authority agrees) that it is not "achievable" due to technical infeasibility or not being cost effective and potentially having other adverse environmental or energy consequences of implementing the technology. If the top control alternative is eliminated, then the next most stringent level of control is evaluated. This process continues until RACT is selected. The five steps in a top-down RACT evaluation can be summarized as follows:

- Step 1. Identify all possible control technologies
- Step 2. Eliminate technically infeasible options
- Step 3. Rank the technically feasible control technologies based upon emission reduction potential
- Step 4. Evaluate ranked controls based on energy, environmental, and/or economic considerations
- Step 5. Select RACT

The following sections contain a description of the five (5) basic steps of this "top-down" approach.

3.2 Step 1 – Identify All Control Options

In this step, available control technologies with the practical potential for application to the emission unit and regulated air pollutant in question are identified. The selected control technologies vary widely depending on the process technology and pollutant being controlled. The application of demonstrated control technologies in other similar source categories to the emission unit in question may also be considered in this step.

The following resources are typically consulted when identifying potential technologies for criteria pollutants:

- EPA's RACT/BACT/LAER Clearinghouse (RBLC) database
- NSPS, NESHAP, and RACT regulations for similar operations
- Engineering experience with similar control applications
- Information provided by air pollution control equipment vendors with significant market share in the industry

3.3 Step 2 – Eliminate Technically Infeasible Options

In this step, "technically infeasible" control options from the list of "potentially available" control options are eliminated. A control option is "technically feasible" if it has been "demonstrated" or if it is both "available" and "applicable."

3.4 Step 3 – Rank Remaining Control Options

All remaining technically feasible control options are ranked based on their overall control effectiveness for the pollutant under review. If there is only one remaining option or if all the remaining technologies could achieve equivalent control efficiencies, ranking based on control efficiency is not required. Collateral effects are usually not considered until step four of the five step top-down RACT analysis.

3.5 Step 4 – Evaluation of Most Effective Control Option

After identifying and ranking available and technically feasible control technologies, the economic, environmental, and energy impacts are evaluated to select the best control option. If collateral impacts do not disqualify the top-ranked option from consideration, it is selected as the basis for the RACT limit. Alternatively, in the judgment of the permitting agency, if economic, environmental, or energy considerations impact the top control option, the next most stringent option is evaluated. This process continues until a control technology is identified. This step validates the suitability of the top control option identified or provides a clear justification as to why the top option should not be selected as RACT.

3.6 Step 5 – Select RACT

In the final step, the RACT is determined for each emission unit under review based on evaluations from the previous step.

4. TOP-DOWN RACT ANALYSIS

As discussed in Section 3 above, Lubrizol is required to perform a RACT study for N001 pursuant to OAC 3745-110-03(J). The following sections include a detailed description of the source followed by the top-down RACT analysis.

4.1 Source Overview

The waste heat recovery incinerator (WHRI) utilizes high-intensity vortex burners designed to provide the stable, high-temperature, and highly turbulent conditions necessary for effective combustion and destruction of hazardous and non-hazardous wastes while maintaining required operating temperatures. Combustion within the WHRI occurs in two (2) primary zones: the rotary hearth (primary combustion chamber) and the secondary combustion chamber (SCC). NO_X emissions are generated during the high-temperature combustion of auxiliary fuels and waste-derived organic materials in these combustion zones.

The rotary hearth serves as the primary combustion chamber and is equipped with four (4) tangentially fired, high-intensity vortex burners. The burners are located at approximately 90-degree intervals around the perimeter of the primary combustion chamber and are each rated at approximately 4 MMBtu/hr. The vortex burner design promotes rapid mixing of combustion air and fuel or waste-derived vapors by creating intense internal recirculation and turbulence within the combustion zone. The high temperatures and excess oxygen conditions required for complete destruction of organic constituents result in the formation of thermal NO_X from nitrogen in the combustion air, as well as potential fuel NO_X from nitrogen compounds present in the waste-derived fuel streams.

The secondary combustion chamber (SCC) is equipped with a single, higher-capacity high-intensity vortex burner rated at approximately 16 MMBtu/hr. The SCC burner fires axially along the centerline of the chamber to maintain uniform temperature distribution and ensure complete oxidation of combustion gases exiting the rotary hearth. Additional NO_X formation may occur in the SCC due to the elevated temperatures maintained to ensure destruction of remaining organic compounds and products of incomplete combustion.

The burners in both the rotary hearth and SCC operate on fuel oil during startup, recovered organic material (waste-derived fuel) during normal operation, and natural gas pilots for flame stabilization. NO_X emissions from the WHRI therefore primarily result from high-temperature combustion associated with these burners and the oxidation of waste-derived organic materials under the operating conditions necessary to achieve required destruction efficiency.

Appendix B provides the source specific information required by OAC 3745-110-03(J)(1)(e) through (g).

4.2 Overview of Potentially Applicable NO_X Control Technologies

NO_X control technologies can lower emissions by minimizing NO_X formation or reducing emissions to atmosphere after it is generated. Thermal NO_X is formed through high temperature oxidation of nitrogen found in the combustion air. The rate at which NO_X is formed depends on the reaction temperature, nitrogen and oxygen concentrations, as well as the residence time at a given temperature. The concentration of thermal NO_X can be controlled by regulating the nitrogen and oxygen molar concentrations as well as the combustion temperature. Fuel NO_X is formed by the reaction of burning fuels that contain nitrogen with oxygen in the combustion air. Fuel NO_X can be controlled by utilizing other types of fuels that contain lower nitrogen such as blast furnace gas, reducing flame temperatures as well as reducing excess

oxygen. Lastly, prompt NO_X is formed during the early stages of combustion and occurs in the presence of hydrocarbon radicals in fuel rich flames.

OAC 3745-110-03(J)(1)(h) provides a list of at least 22 NO_X control measures that should be evaluated as part of the NO_X RACT study. However, not all of the listed control measures are applicable to the WHRI included in this RACT study. The following sections outline the applicability and technical feasibility of each of the listed NO_X control measures to the emission unit included in this study.

4.2.1 Close Coupled or Separated Over-Fire Ports

Close coupled or separated over-fire ports implement air staged combustion to create a fuel-rich mixture in the main combustion zone. Since the combustion air supplied to the primary combustion zone is sub-stoichiometric, the combustion temperature is reduced, which in turn lowers thermal NO_X formation. After the initial stage of combustion take place, the excess air needed to complete combustion is admitted through over-fire ports mostly located downstream of the primary combustion zone. This technology is generally applicable to large boilers where sufficient furnace volume and residence time are available to support staged combustion. This option is not applicable to the WHRI, where secondary air delivery is fully integrated within the combustion system design and rapidly transitions to the waste heat boiler, precluding the introduction of distinct over-fire air staging zones.

4.2.2 Burners Out of Service (BOOS)

Burners Out of Service (BOOS) is a form of fuel-staged combustion that reduces the formation of thermal NO_X by reducing combustion temperature. Staged combustion is achieved by having multiple burners out of service (i.e., not firing fuel and instead supplying air or recirculated flue gas), while the balance of the fuel required to maintain the unit firing rate is supplied by the remaining burners. Some of the disadvantages of this technique include high CO emissions, potentially uneven temperature profiles, and oxygen imbalances. WHRI systems rely on stable, high-temperature conditions and consistent heat distribution to ensure complete oxidation of combustion gases and compliance with destruction efficiency requirements. Implementation of BOOS would introduce the potential for incomplete combustion, elevated CO emissions, and temperature stratification within the combustion chamber, which could adversely affect both emissions performance and device operability. Accordingly, BOOS is not considered an applicable control option for this RACT study.

4.2.3 Flue Gas Recirculation

Flue Gas Recirculation (FGR) is another type of NO_X control measure that reduces the formation of thermal NO_X by reducing combustion temperature. The flame temperature is lowered by recirculating cooled flue gas and diluting the oxygen content of the combustion air. However, FGR is not applicable for the WHRI since it is designed to operate at consistently high temperatures to ensure complete oxidation of combustion gases and maintain required destruction efficiencies. Introduction of recirculated flue gas would reduce combustion zone temperatures and oxygen availability, potentially resulting in incomplete combustion, elevated CO emissions, and reduced destruction performance. In addition, implementation of FGR would disrupt the thermal balance of the unit and could require supplemental firing to maintain operating temperatures, thereby increasing fuel usage and potentially offsetting any NO_X reduction benefit. Accordingly, FGR is not considered an applicable control option for this RACT study.

4.2.4 Low-NO_X Burners (LNB) with External Flue Gas Recirculation

Low NO_X Burners (LNBs) with external flue gas recirculation use cooled flue gases from the exhaust stream to dilute the combustion process. The inert compounds in the flue gas streams (nitrogen, water vapor, and

carbon dioxide) serve as heat sinks and can reduce combustion temperature significantly. The WHRI is not configured with conventional burner arrays and instead relies on stable, high-temperature oxidation of combustion gases to achieve required destruction efficiencies. Incorporation of external FGR would require substantial system modifications, including additional ductwork, fans, and reconfiguration of the combustion system, and would disrupt established thermal and oxygen profiles within the unit. Furthermore, the introduction of inert flue gas could reduce combustion temperatures and oxygen availability, increasing the potential for incomplete combustion and elevated CO emissions. Accordingly, LNBs with external FGR cannot be reasonably adapted to the WHRI and are not considered an applicable control option for this RACT study.

4.2.5 Steam/Water Injection

Steam/water injection is a type of control measure whereby water or steam is injected into the combustion zone to lower the flame temperature. The WHRI must maintain stable, high-temperature conditions and sufficient oxygen availability to ensure complete oxidation of combustion gases and compliance with required destruction efficiencies. Injection of steam or water would reduce combustion temperatures and dilute oxygen concentrations, increasing the potential for incomplete combustion and elevated CO emissions. In addition, this approach imposes a significant efficiency penalty due to the energy required for steam generation and the heat of vaporization, which would require increased supplemental fuel usage to maintain operating conditions. Accordingly, steam/water injection cannot be reasonably adapted to the WHRI and is not considered an applicable control option for this RACT study.

4.2.6 Dry Low NO_X Burners

Dry LNBs are special types of burners used to reduce NO_X emissions from gas fired turbines. The configuration of this control technology is only suitable for gas turbines. This control measure is not applicable to a WHRI; as such, this control is not applicable for this RACT study.

4.2.7 Ignition Time Retard

Internal combustion engines use ignition timing to control maximum temperature and residence time. This control measure is not applicable to a WHRI; as such, this control is not applicable for this RACT study.

4.2.8 Adjustment of Air/Fuel Ratio (for internal combustion engines only)

Internal combustion engines use air-to-fuel ratio to control maximum temperature and residence time, resulting in lower NO_X emissions. This control measure is not applicable to a WHRI; as such, this control is not applicable for this RACT study.

4.2.9 Fuel Emulsification

Fuel emulsification reduces thermal NO_X formation by injecting water into liquid fuel to lower flame temperature. This approach is not applicable to a WHRI, which does not utilize fuel systems amenable to water injection. Accordingly, fuel emulsification is not included in this RACT study.

4.2.10 Separate Circuit After-Cooling

This control technology is applicable to internal combustion engines and works by adding a separate water circuit to cool the engine's intake air. This control measure is not applicable to a WHRI; as such, this control is not applicable for this RACT study.

4.2.11 Non-Selective Catalytic Reduction (NSCR)

Non-Selective Catalytic Reduction (NSCR) is an add-on NO_X control technology which uses catalysts to reduce NO_X emissions from internal combustion engines. To achieve optimum NO_X reduction, the oxygen content of the exhaust stream must be low. This control measure is not applicable to a WHRI; as such, this control is not applicable for this RACT study.

4.2.12 Incineration (for sources other than boilers)

Incineration is a standalone control approach typically applied to treat emissions from discrete sources such as paint lines or hazardous waste streams. The WHRI is an integral process unit designed to combust and recover heat from hazardous wastes rather than serving as an add-on control device. Accordingly, use of a separate incinerator is not applicable to the affected source and is excluded from further consideration.

4.2.13 Scrubbing (for sources other than boilers)

Wet scrubbers can control NO_X emissions from certain industrial process streams through absorption into a liquid scrubbing medium. However, combustion-related NO_X emissions from WHRIs are primarily in the form of nitric oxide (NO), which is poorly soluble in water and not effectively controlled by conventional wet scrubbing systems. Implementation of wet scrubbing for NO_X control would require complex oxidation and reagent systems that are not technically or economically reasonable for this application. Accordingly, wet scrubbing is not considered an applicable control option for this RACT study.

4.2.14 Process Modification

Process modification is not considered an applicable NO_X control option for the WHRI because the unit is designed and operated to maintain specific combustion temperatures, residence times, and oxygen concentrations necessary to ensure complete oxidation of hazardous combustion gases and compliance with required destruction efficiencies. Significant modification of process operating conditions, including changes to combustion temperature, air distribution, firing rates, or waste feed characteristics, could adversely affect combustion stability and result in incomplete combustion, elevated CO emissions, or reduced destruction performance. In addition, the WHRI serves an integral process and waste management function, limiting the ability to implement operational changes without adversely impacting process reliability, heat recovery performance, and regulatory compliance. Accordingly, process modification is not considered a technically feasible or reasonable control option for this RACT study.

4.2.15 Low Excess Air (LEA)

Low Excess Air (LEA) is a type of control measure whereby the net excess air flow is limited to reduce combustion temperature and oxygen availability, minimizing potential NO_X formation. Even though LEA is applicable to combustion sources that burn all types of fuels, insufficient air supply can result in lower combustion efficiency due to incomplete combustion and thus increased CO emissions. Further, LEA can also lead to uneven temperature profiles and heat distribution, which is incompatible with the stringent temperature control necessary for proper destruction efficiency, heat recovery, and downstream process stability. Due to the preceding justification, this technology cannot be reasonably adapted to a WHRI and is therefore not applicable for this RACT study.

4.2.16 Gaseous Fuels Reburn

Fuel reburning involves injecting supplemental fuel into the combustion zone to create a reducing environment that converts NO_X to nitrogen and lowers peak combustion temperatures. While effective in some applications, its use in a WHRI is not appropriate. Reburning can disrupt established temperature

profiles and combustion stability, which are critical for maintaining consistent heat recovery and proper destruction of waste. Accordingly, fuel reburning is not applicable for this RACT study.

4.2.17 Mid-Kiln Firing

Mid-kiln firing is specific to rotary kiln systems and accordingly is not applicable for this RACT study.

4.2.18 Mid-Kiln Air Injection

Mid-kiln air injection is specific to rotary kiln systems and accordingly is not applicable for this RACT study.

4.2.19 Selective Catalytic Reduction

Selective Catalytic Reduction (SCR) is a post-combustion add-on control technology in which ammonia is injected into the flue gas stream upstream of the catalyst bed to reduce NO_X into elemental nitrogen and water. SCR systems employ metal-based catalysts with activated sites to increase the reduction rate of NO_X. Critical parameters which affect the reduction rate of NO_X include reaction temperature range, residence time available in the optimum temperature range, molar ratio of injected ammonia to uncontrolled NO_X, degree of mixing between ammonia and NO_X, and ammonia slip. The reaction temperature for the reduction reaction ranges between 480-800 °F with optimum NO_X removal occurring at approximately 700 °F. Efficient SCR systems require stable flue gas streams regarding temperature, flow rate, and NO_X concentrations. If designed and operated efficiently, SCR systems can reduce NO_X emissions by 70% - 90%.[1] SCR is potentially applicable to the affected source; as such, this control measure is included for consideration in this study.

4.2.20 Selective Non-Catalytic Reduction

Selective Non-Catalytic Reduction (SNCR) is a post-combustion NO_X control technology that reduces nitrogen oxides through the injection of a nitrogen-based reagent, typically ammonia or urea, into the flue gas stream. Effective operation requires reagent injections within a relatively narrow temperature window, typically between 1,600°F and 2,000°F, along with adequate residence time and mixing to allow the reaction to occur. Different factors such as temperature, residence time, type of reducing agent, reagent injection rate, uncontrolled NO_X level affect the reduction potential of this technology. The reaction temperature is critical since heat is needed to drive the reaction. At lower temperatures, reaction kinetics are slow, resulting in potential ammonia slip. At higher temperatures, ammonia oxidizes resulting in additional NO_X formation. If designed and operated efficiently, SNCR systems can reduce NO_X emissions by 70% - 90.[2] SNCR is potentially applicable to the affected source; as such, this control measure is included for consideration in this study.

4.2.21 Low-NO_X Burners

Low-NO_X burners (LNBs) are a combustion modification technology designed to reduce the formation of nitrogen oxides by controlling flame temperature, limiting oxygen availability in the primary combustion zone, and promoting staged combustion. These design features typically reduce the formation of thermal NO_X during fuel combustion and are commonly applied to utility boilers and industrial combustion units firing

[1] U.S. EPA Cost Control Manual, 2002. https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution#cost%20manual

[2] *Ibid*

relatively uniform fuels under stable operating conditions. LNBs are potentially applicable to the affected source; as such this control measure is included for consideration in this study.

4.2.22 Fuel Switching

The WHRI is designed to combust waste-derived fuels as part of its intended operation and therefore does not have the flexibility to switch to alternative fuels for NO_X control purposes. Accordingly, fuel switching is not considered an applicable control option for this RACT study.

4.2.23 RACT Alternatives

The U.S. EPA RACT/BACT/LAER Clearinghouse (RBLC) database was reviewed to identify NO_X control technologies evaluated for similar combustion and incineration sources, including thermal oxidizers, afterburners, hazardous waste incinerators, and related combustion devices. The review included RBLC categories associated with combustion-based emission control devices and waste combustion systems. No additional NO_X control technologies applicable to the WHRI were identified beyond those already evaluated in this analysis; therefore, no additional control technologies were carried forward for consideration in this RACT study.

4.3 Step 1. Identify All Control Options

Lubrizol identified the following technologies as potentially applicable for reducing NO_x emissions from N001:

- Low-NO_x Burners;
- Selective Catalytic Reduction; and
- Selective Non-Catalytic Reduction.

The technical feasibility of each of these options is discussed in Step 2 below.

4.4 Step 2. Eliminate Technically Infeasible Options

4.4.1 Selective Catalytic Reduction (SCR)

Application of SCR to N001 was evaluated as part of this RACT study. Based on the design and operating characteristics of the WHRI, as well as the relatively low NO_X emission levels from the unit, installation of an SCR system is considered technically infeasible for several reasons.

First, the WHRI combusts a combination of hazardous and non-hazardous waste-derived organic materials along with auxiliary fuels. As a result, the exhaust gas stream contains variable concentrations of particulate matter, acid gases, and trace organic compounds. These constituents have the potential to foul, poison, or deactivate SCR catalyst materials, particularly due to the presence of sulfur, halogens, and trace metals that may be present in the waste streams. Catalyst fouling or poisoning can significantly reduce catalyst effectiveness and require frequent catalyst replacement, creating substantial operational reliability concerns.

In addition, SCR systems require operation within a relatively narrow flue gas temperature window, typically between approximately 550°F and 750°F, to achieve optimal NO_X reduction efficiency. Available space around the WHRI and the potential fouling of the SCR catalyst material by soot would likely lead to an SCR system being installed after the baghouse. The inlet gas temperature to the baghouse must be maintained below the operating parameter limit of 488°F. Maintaining the appropriate temperature range for SCR

operation would require installation of supplemental reheating systems or significant modifications to the existing heat recovery configuration. Such modifications would interfere with the fundamental design and purpose of the WHRI, which is to recover thermal energy from the incineration process.

Retrofitting an SCR system would also present significant design and integration challenges. SCR systems require substantial space for catalyst modules, reagent storage and handling systems, ammonia injection grids, and associated ductwork. Incorporating these components into the existing WHRI exhaust system would require extensive modifications to the current configuration and may not be feasible within the available physical footprint of the unit.

Finally, the actual NO_X emissions from the WHRI are low, historically remaining below the current exemption threshold at OAC 3745-110-03(K)(16), as shown in Appendix B. The relatively small magnitude of NO_X emissions from this source further limits the practicality of implementing a complex catalytic control system such as SCR, which is typically applied to sources with significantly larger emission profiles.

4.4.2 Selective Noncatalytic Reduction (SNCR)

Application of SNCR to the WHRI was evaluated as part of this RACT analysis. Based on the design and operating characteristics of the WHRI, installation of an SNCR system is considered technically infeasible.

The WHRI consists of a rotary hearth primary combustion chamber and a secondary combustion chamber (SCC) designed to achieve complete destruction of hazardous and non-hazardous wastes. Combustion conditions within these chambers are characterized by high turbulence. The high-intensity vortex burner configuration promotes rapid mixing and highly turbulent combustion conditions, which are beneficial for waste destruction but complicate the controlled introduction and distribution of SNCR reagent. Achieving consistent reagent mixing and adequate residence time under these conditions would be difficult, limiting the potential effectiveness of SNCR.

Soot build up between the SCC and baghouse would require introduction of SNCR reagent after the baghouse. The inlet gas temperature to the baghouse must be maintained below the operating parameter limit of 488°F. Maintaining the appropriate temperature range for SNCR operation would then require installation of supplemental reheating systems or significant modifications to the existing heat recovery configuration. Such modifications would interfere with the fundamental design and purpose of the WHRI, which is to recover thermal energy from the incineration process.

Implementation of SNCR would also require installation of reagent storage and handling systems, multiple injection points, and associated controls and monitoring equipment. Integrating these systems into the existing WHRI configuration would require significant modifications to the combustion chambers or downstream ductwork and could interfere with the current combustion process.

Finally, the actual NO_X emissions from the WHRI are low, historically remaining below the current exemption threshold at OAC 3745-110-03(K)(16), as shown in Appendix B. Given the relatively small magnitude of NO_X emissions from this unit, installation of a complex reagent-based control system such as SNCR would represent a disproportionate retrofit relative to the scale of emissions being controlled.

4.4.3 Low NO_X Burners

Application of LNBs to the WHRI presents several technical challenges and limitations. The burners installed in the WHRI are high-intensity vortex burners specifically designed to provide the high temperatures, turbulence, and mixing required to ensure effective destruction of hazardous and non-hazardous wastes.

These burners promote rapid mixing of fuel, combustion air, and waste-derived vapors to maintain the combustion conditions necessary to meet destruction efficiency requirements. In contrast, LNBs typically rely on staged combustion and controlled mixing to suppress peak flame temperatures. Implementing such design features could interfere with the combustion characteristics necessary to ensure complete destruction of waste-derived materials.

In addition, the WHRI operates using a combination of fuel oil, recovered organic material (waste-derived fuel), and natural gas pilots, and combustion conditions may vary depending on waste feed composition and operating requirements. LNB designs are generally optimized for relatively consistent fuel characteristics and stable combustion conditions. The variable nature of the waste-derived fuels and the need to maintain reliable waste destruction performance may limit the effectiveness of LNB technology for this application.

Retrofitting LNBs would also require replacement or significant modification of the existing vortex burner assemblies in both the rotary hearth primary combustion chamber and the SCC. The existing burners were selected to achieve the combustion intensity and mixing necessary for incineration, and replacement with alternative burner designs could affect flame stability, combustion performance, and the ability of the unit to maintain required operating conditions.

Despite these technical limitations, LNBs were evaluated further as part of this analysis because they represent the lowest-cost potential control option for reducing NO_X emissions from the WHRI. Compared to post-combustion control technologies such as SCR or SNCR, installation of modified burner systems would involve less auxiliary infrastructure and operational complexity. Accordingly, the economic feasibility of installing LNBs on the WHRI was evaluated to determine whether this technology could represent a reasonable control option for the unit.

The results of the economic feasibility analysis for LNBs are presented in the following sections.

4.5 Step 3. Rank Remaining Control Options

For the reasons discussed above, LNBs are the only control option evaluated further in this study.

4.6 Step 4. Evaluation of Remaining Control Options

As discussed in the previous section, installation of LNB was evaluated as a potential control option for the WHRI. Although several technical limitations exist due to the combustion design and operating characteristics of the unit, LNB were evaluated further because they represent the least complex and potentially lowest-cost control technology capable of reducing NO_X emissions from the source.

The cost estimate for installing LNBs on the WHRI was developed using an internal engineering evaluation performed by Lubrizol personnel. The estimate was based in part on a vendor quote previously provided to Lubrizol for burner replacement on a boiler unit. This vendor information was used as the basis for estimating equipment and installation costs for an LNB retrofit. However, this approach likely underestimates the actual cost that would be associated with installing LNBs on the WHRI. Unlike a conventional boiler, the WHRI utilizes high-intensity vortex burners integrated into a rotary hearth and secondary combustion chamber designed for incineration service, which would make burner replacement significantly more complex. Additional engineering, structural modifications, and integration challenges would likely be required to retrofit alternative burner designs into the WHRI, resulting in costs that would be expected to far exceed those estimated using the boiler-based vendor quote. For purposes of the cost effectiveness analysis, a 50 percent reduction in NO_X emissions was assumed. This assumption is likely overstated, potentially significantly, given the operational and design limitations associated with applying

LNB technology to the WHRI. LNBs typically achieve their emission reductions by lowering peak flame temperatures and staging combustion to limit oxygen availability during the initial combustion phase. However, the WHRI burners are specifically designed to generate high-temperature, highly turbulent combustion conditions necessary to ensure effective destruction of hazardous and non- hazardous wastes. The combustion intensity and mixing required for this process limit the degree to which flame temperatures and oxygen distribution can be modified without adversely affecting incinerator performance.

In addition, the WHRI operates with variable waste-derived fuels and supplemental fuels, which can result in fluctuations in combustion conditions and NO_X formation rates. LNB performance is generally optimized for systems with relatively stable fuel characteristics and combustion conditions. As a result, achieving NO_X reductions approaching 50 percent may be difficult in practice for this type of combustion unit. For these reasons, the assumed 50 percent control efficiency likely overestimates the achievable NO_X reduction that could reasonably be expected from installation of five LNB on this source. Since there are no studies that show the difference in NO_X reduction when replacing a single burner or all burners within a WHRI, Lubrizol assumed a conservative 25 percent reduction for the single burner cost effectiveness analysis for the reasons stated above.

For the cost of the LNB replacements to be economically feasible the total capital investment would need to cost less than $401,000 at the conservative NO_X reduction of 50 percent. To exceed the economic feasibility threshold at a lower NO_X reduction percentage, the total capital investment value would be lower than $401,000. If Lubrizol determined that any LNB installation is feasible by performing additional engineering studies, which would include structural modifications and updates to control systems, Lubrizol will need to perform a VOC Destruction Removal Efficiency test and a Comprehensive Performance Test after installation. These tests cost $11,500 in 2021 and $361,148 in 2024, respectively. Lubrizol would potentially need to update the Human Health and Risk Assessment too. The testing costs alone bring the cost of retrofitting the WHRI near the economic feasibility threshold. Therefore, no matter what the size of the LNB is, installing any LNB in any configuration will exceed the economic feasibility threshold.

Based on the estimated costs and the assumed 50 percent control efficiency, the calculated cost effectiveness of installing LNB is approximately $28,000 per ton of NO_X removed if all five burners were replaced, and approximately $11,000 per ton of NO_X removed if one of five burners were replaced as shown in Table 4-1 below. The detailed cost calculations are provided in Appendix C.

Table 4-1. Cost-Effectiveness of LNB for N001

Number of Burners Replaced	Total Capital Investment	Total Indirect Annual Costs	Assumed NO_X Removed (tons/year)	Cost Effectiveness ($/ton)
5	$2,234,243	$296,186	10.6	27,859.58
1	$446,849	$59,237	5.3	11,143.83

Given the relatively low baseline NO_X emissions from the WHRI and the operational limitations associated with applying LNB technology to this source, LNBs are considered economically infeasible for control of NO_X emissions from the WHRI for purposes of this RACT analysis.

4.7 Step 5. Select RACT

Based on the evaluation of available NO_X control technologies, **good combustion practices** are proposed as RACT for the WHRI. Installing, maintaining, and operating the source in accordance with the manufacturer's specifications and with good combustion practice for the control of NOx emissions from the emissions unit. This includes maintaining proper combustion conditions, including appropriate fuel-to-air

ratios, stable burner operation, and proper operation of the rotary hearth and secondary combustion chamber burners, serves to minimize the formation of NOX while ensuring reliable incinerator performance. Accordingly, continued implementation of good combustion practices, including proper operation and maintenance of the combustion system and associated controls, represents the most reasonable approach for minimizing NO_X emissions from the WHRI and is therefore proposed as RACT for this source.

APPENDIX A. POTENTIAL-TO-EMIT DOCUMENTATION

Appendix Table A-1. N001 NO_x Potential to Emit

OEPA Emission Unit ID	Source Description	Maximum Annual Feed (lb/yr)	Emission Factor (lb/lb feed)	Potential Emissions (tpy)[a]
N001	Waste Heat Recovery Incinerator	45,481,920	9.35E-04	21.3

[a]Potential NO_x emissions = Maximum annual feed (lb/yr) x NO_x Emission Factor (lb NO_x / lb feed) / 2,000 (lbs/ton)

Appendix Table B-1. General Source Information

OEPA Emission Unit ID	Source Description	Installation Date (Month and Year)	Operating Schedule (hrs/day / days/week/ weeks/yr)	Control Equipment	Control Device Installation Date
N001	Waste Incinerator	1/1972	24/7/365	Baghouse to control PM emissions.	1987
				Wet scrubber to control SO_2 emissions.	1996

Appendix Table B-2. Annual Production Rates for 2022-2024

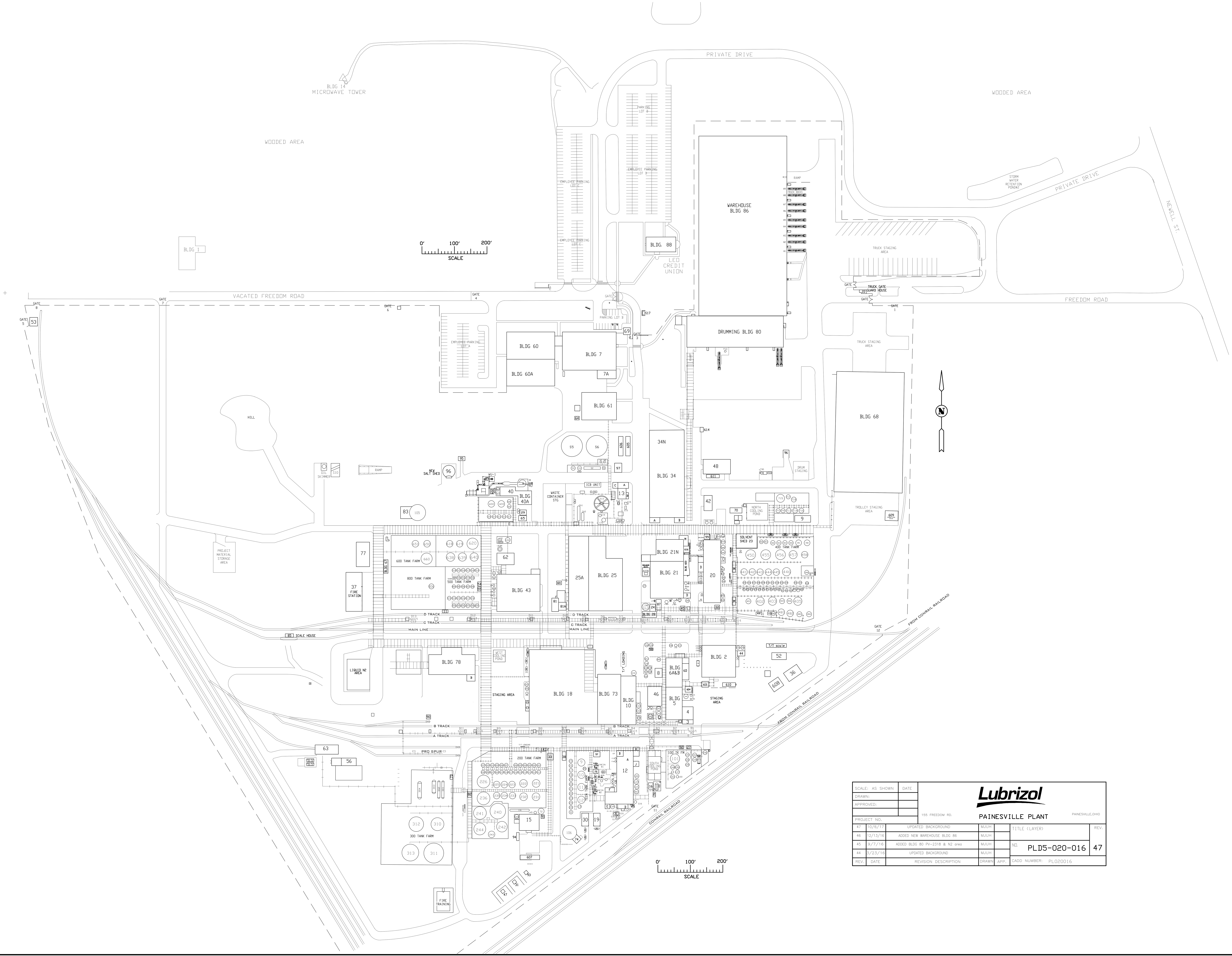
Emission Unit ID	Production Units	Average Daily Production Rates			Maximum Daily Production Rates			Annual Production Rates		
		2022	2023	2024	2022	2023	2024	2022	2023	2024
N001	Tons Hazardous Waste	30.40	28.33	30.98	42.18	45.86	47.43	9,940.92	8,892.98	9,168.47

Appendix Table B-3. Average and Maximum Daily and Annual NO_X Emissions[a]

OEPA Emission Unit ID	Emission Unit Description	Average Daily NO_x Emissions (lb/day)	Maximum Daily NO_x Emissions (lb/day)	Maximum Annual NO_x Emissions (tpy)
N001	Waste Incinerator	58	89	9.29

a. As specified by OAC 3745-110-03(J)(1)(g), the average daily, maximum daily, and maximum annual NO_x emissions are based upon the highest production rates for each of the three full calendar years preceding the effective date of the rule (i.e., 2022-2024).

Appendix Figure B-1. Facility Plot Plan


PRIVATE DRIVE
WOODED AREA
BLDG 14
MICROWAVE TOWER
WOODED AREA
BLDG 1
EMPLOYEE PARKING LOT C
EMPLOYEE PARKING LOT B
PARKING LOT 8
BLDG 88
LEO CREDIT UNION
WAREHOUSE BLDG 86
RAMP
STORM WATER RETENTION POND
PRIVATE DRIVE
NEWELL ST.
TRUCK STAGING AREA
TRUCK GATE GUARD HOUSE
FREEDOM ROAD
VACATED FREEDOM ROAD
0' 100' 200'
SCALE
GATE 8
GATE 5
53
GATE 7
GATE 6
GATE 4
PARKING LOT 3
EMPLOYEE PARKING LOT A
BLDG 60
BLDG 60A
BLDG 7
7A
69
DRUMMING BLDG 80
TRUCK STAGING AREA
BLDG 68
BLDG 61
HILL
55
56
34N
BLDG 34
48
DRUM STAGING
RAMP
SKIMMER
96
NEW SALT SHED
95
97
40
BLDG 40A
WASTE CONTAINER STG
13
42
70
NORTH COOLING POND
9
TRILLEY STAGING AREA
609
83
PROJECT MATERIAL STORAGE AREA
77
37 FIRE STATION
600 TANK FARM
800 TANK FARM
500 TANK FARM
62
BLDG 43
25A
BLDG 25
BLDG 21N
BLDG 21
20
SOLVENT SHED 23
400 TANK FARM
D TRACK
C TRACK
MAIN LINE
SCALE HOUSE
GATE 12
FROM CONRAIL RAILROAD
LIQUID N2 AREA
BLDG 78
WEST COOLING POND
STAGING AREA
BLDG 18
BLDG 73
BLDG 10
BLDG 6A&B
BLDG 2
52
36
608
46
BLDG 5
4
STAGING AREA
FROM CONRAIL RAILROAD
B TRACK
A TRACK
63
PRO SPUR
56
200 TANK FARM
300 TANK FARM
312
310
313
311
15
30
19
12
SOUTH COOLING POND
GATE 11
CONRAIL RAILROAD
FIRE TRAINING
0' 100' 200'
SCALE

SCALE: AS SHOWN	DATE	155 FREEDOM RD.	**Lubrizol** PAINESVILLE PLANT	PAINESVILLE,OHIO
DRAWN:				
APPROVED:				
PROJECT NO.				

REV.	DATE	REVISION DESCRIPTION	DRAWN	APP.
47	10/6/17	UPDATED BACKGROUND	MJUH	
46	12/13/16	ADDED NEW WAREHOUSE BLDG 86	MJUH	
45	9/7/16	ADDED BLDG 80 PV-2318 & N2 area	MJUH	
44	3/23/16	UPDATED BACKGROUND	MJUH	

TITLE (LAYER)

NO. PLD5-020-016 REV. 47

CADD NUMBER: PL020016

APPENDIX C. COST CALCULATIONS

Appendix Table C-1. Five LNB Cost Calculations

ASSUMPTIONS

Cost Year	2026		
Equipment Life	20	yrs	*Engineering Assumption*
Annual Interest Rate	6.75	%	*Current bank prime rate*

DIMENSIONAL ANALYSIS

Time Conversion	8,760	hr/yr
Mass Conversion	2,000	lb/ton

BASIC INPUTS

Maximum Potential Waste Feed Rate	5,192	lb/hr	
Maximum Potential Waste Feed Rate	45,481,920	lb/yr	*= Maximum Potential Feed Rate (lb/hr) x 8,760 (hrs/yr)*
Current NOx Emission Rate	9.35E-04	lb NOx / lb fuel	*Engineering Estimate*
Post Low-NOx Burner Emission Rate	4.68E-04	lb NOx / lb fuel	*Conservatively assumes 25% reduction*
Current NOx Potential-to-Emit	21.3	tons/yr	*= Current NOx Emission Rate x Maximum Potential Waste Feed Rate x 8,760 (hr/yr) / 2,000 (lb/ton)*
Post Low-NOx Burner Potential-to-Emit (PTE)	10.6	tons/yr	*= Post Low-NOx Burner Emission Rate x Maximum Potential Waste Feed Rate x 8,760 (hr/yr) / 2,000 (lb/ton)*
NO_x Removed	10.6	tons/yr	*= Pre low-NOx Burner Emissions (tpy) - Post low-NOx Burner Emissions (tpy)*
Capital recovery factor, CRF	0.0926		

TOTAL CAPITAL INVESTMENT

Individual Burner Replacement Cost with Inflation	$ 446,849		*Engineering estimate based on a boiler quote provided to Lubrizol in 2018*
Total Cost of Burner Replacement	$ 2,234,245		*Total of 1 burner to be replaced*
Total Capital Investment, TCI	$ 2,234,245		

TOTAL ANNUAL COSTS

Direct Annual Costs			
Annual Maintenance Costs	$ -		
Annual Operator Labor Cost	$ -		
Total direct annual cost, DAC	$ -		
Indirect Annual Costs			
Annual Administrative Cost	$ 44,685		*2% of TCI*
Property Tax	$ 22,342		*1% of TCI*
Insurance	$ 22,342		*1% of TCI*
Capital recovery, CR	$ 206,817		
Total indirect annual costs, IDAC	$ 296,186		
Total annual cost, TAC	$ 296,186		*= DAC + IDAC*

COST EFFECTIVENESS

Cost Effectiveness ($/ton NOx removed)	$ 27,859.58	$/ton

Appendix Table C-2. One LNB Cost Calculations

ASSUMPTIONS

Cost Year	2026		
Equipment Life	20	yrs	*Engineering Assumption*
Annual Interest Rate	6.75	%	*Current bank prime rate*

DIMENSIONAL ANALYSIS

Time Conversion	8,760	hr/yr
Mass Conversion	2,000	lb/ton

BASIC INPUTS

Maximum Potential Waste Feed Rate	5,192	lb/hr	
Maximum Potential Waste Feed Rate	45,481,920	lb/yr	*= Maximum Potential Feed Rate (lb/hr) x 8,760 (hrs/yr)*
Current NOx Emission Rate	9.35E-04	lb NOx / lb fuel	*Engineering Estimate*
Post Low-NOx Burner Emission Rate	7.01E-04	lb NOx / lb fuel	*Conservatively assumes 25% reduction*
Current NOx Potential-to-Emit	21.3	tons/yr	*= Current NOx Emission Rate x Maximum Potential Waste Feed Rate x 8,760 (hr/yr) / 2,000 (lb/ton)*
Post Low-NOx Burner Potential-to-Emit (PTE)	15.9	tons/yr	*= Post Low-NOx Burner Emission Rate x Maximum Potential Waste Feed Rate x 8,760 (hr/yr) / 2,000 (lb/ton)*
NO_x Removed	5.3	tons/yr	*= Pre low-NOx Burner Emissions (tpy) - Post low-NOx Burner Emissions (tpy)*
Capital recovery factor, CRF	0.0926		

TOTAL CAPITAL INVESTMENT

Individual Burner Replacement Cost with Inflation	$ 446,849		*Engineering estimate based on a boiler quote provided to Lubrizol in 2018*
Total Cost of Burner Replacement	$ 446,849		*Total of 1 burner to be replaced*
Total Capital Investment, TCI	$ 446,849		

TOTAL ANNUAL COSTS

Direct Annual Costs			
Annual Maintenance Costs	$ -		
Annual Operator Labor Cost	$ -		
Total direct annual cost, DAC	$ -		
Indirect Annual Costs			
Annual Administrative Cost	$ 8,937		*2% of TCI*
Property Tax	$ 4,468		*1% of TCI*
Insurance	$ 4,468		*1% of TCI*
Capital recovery, CR	$ 41,363		
Total indirect annual costs, IDAC	$ 59,237		
Total annual cost, TAC	$ 59,237		*= DAC + IDAC*

COST EFFECTIVENESS

Cost Effectiveness ($/ton NOx removed)	$ 11,143.83	$/ton

Public Notice
Ohio Environmental Protection Agency
Draft State Implementation Plan
NOx Reasonably Available Control Technology (RACT)
for The Lubrizol Corporation (Facility ID 0243000024)

Lake County

Notice is hereby given that the Director of the Ohio Environmental Protection Agency, (Ohio EPA) is submitting to the United States Environmental Protection Agency (U.S. EPA) Reasonably Available Control Technology (RACT) for The Lubrizol Corporation (Facility ID 0243000024) for approval into Ohio's state implementation plan (SIP) for the 2015 ozone National Ambient Air Quality Standard (NAAQS).

On March 17, 2025, Ohio submitted a revision to Ohio's SIP to address RACT requirements for the 2015 8-hour ozone NAAQS. As noted in this submittal, OAC rule 3745-110-03(J) requires facilities that have the potential to emit of fifty tons per year or more, but less than one hundred tons per year of nitrogen oxides (NOx) and are located in nonattainment counties to submit a RACT study if they are not subject to the NOx RACT limits in OAC rule 3745-110-03(A) to OAC rule 3745-110-03(G), the exemptions under OAC rule 3745-110-03(K), or that are subject to the aforementioned presumptive NOx RACT limits but claim that they are technically infeasible or economically unreasonable to achieve.

Ohio is now submitting source-specific NOx RACT for The Lubrizol Corporation (Facility ID 0243000024) for approval into Ohio's SIP. This facility is located in the Cleveland 2015 ozone maintenance area and has no prior existing source-specific RACT established in OAC rule 3745-110-03.

The updated RACT Study was submitted per OAC rule 3745-110-03(J). Ohio has determined that the updated RACT study, along with supplemental information submitted subsequently, is sufficient to justify implementing good combustion and operating practices and maintaining the existing NOx emission limit pursuant to OAC rule 3745-31-05(D) proposed by the facility to act as RACT under the 2015 ozone standard.

Ohio EPA is now requesting approval of the proposed RACT for The Lubrizol Corporation into Ohio's SIP.

Ohio EPA is seeking public comment to satisfy U.S. EPA requirements for public involvement in SIP related activities in accordance with 40 CFR 51.102.

The public comment period will run until October 5, 2026. Written comments should be submitted at: https://ohioepa.commentinput.com - Search by entering the permit # (P0141275 for The Lubrizol Corporation) in the "Search Projects" search box.

A public hearing on this action may be requested by contacting Kathryn Jobe at 614-728-0671 or kathryn.jobe@epa.ohio.gov no later than 30 days from the draft public notice. If a public hearing is requested, a new notification will be published to identify the time and location of the public hearing. The public hearing will be held at least 30 days after the date of the new notification.

All interested persons are entitled to comment on these changes. All comments submitted to the above address by the close of business 30 days from when the draft public notice is issued will be considered by Ohio EPA prior to final action on this action. Written statements submitted after this time period may be considered as time and circumstances permit but will not be part of the official record.

Questions or comments about this document should be directed to Kathryn Jobe at 614-728-0671 or kathryn.jobe@epa.ohio.gov.

DATE

Ms. Anne Vogel
Regional Administrator
U.S. EPA, Region 5
77 West Jackson Blvd.
Chicago, Illinois 60604

Re: Revision to Ohio's Reasonably Available Control Technology (RACT) State Implementation Plan for the 2015 Ozone National Ambient Air Quality Standards – Source-Specific Nitrogen Oxides (NOx*)* RACT for The Lubrizol Corporation (Facility ID 0243000024)

Dear Administrator Vogel:

On March 17, 2025, Ohio submitted a revision to Ohio's State Implementation Plan (SIP) to address Reasonably Available Control Technology (RACT) requirements for the 2015 8-hour ozone National Ambient Air Quality Standards (NAAQS) for areas classified as serious. As noted in this submittal, Ohio EPA adopted requirements in OAC rule 3745-110-04 for facilities in the nonattainment areas that emit fifty tons per year or more, but less than one hundred tons per year of NOx from sources not controlled by the presumptive NOx RACT limits in OAC rule 3745-110-03(A) to OAC rule 3745-110-03(G), the exemptions under OAC rule 3745-110-03(K), or that are subject to the aforementioned presumptive NOx RACT limits but claim that they are technically infeasible or economically unreasonable to achieve to submit an updated RACT study within one year of the effective date of the rule. Upon review of the RACT study, Ohio EPA evaluated if the RACT proposed by the facility is appropriate to satisfy RACT requirements under the 2015 ozone standard.

Ohio is now submitting source-specific NOx RACT for The Lubrizol Corporation (Facility ID 0243000024) for approval into Ohio's SIP. This facility is located in the Cleveland 2015 ozone maintenance area and has no prior existing source-specific RACT established in OAC rule 3745-110-03.

The updated NOx RACT Study was submitted per OAC rule 3745-110-03. Ohio has determined that the updated RACT study, along with supplemental information submitted subsequently, is sufficient to justify implementing good combustion and operating practices and maintaining the existing NOx emission limit pursuant to OAC rule 3745-31-05(D) proposed by the facility to act as RACT under the 2015 ozone standard. The RACT study is provided in Appendix A, and the permit that incorporated RACT is provided as Appendix B. Within the permit, we have highlighted the terms and conditions

associated with RACT and request only those provisions are subject to this SIP revision request. Appendix C provides the permit strategy write-up for the permit.

Ohio held a public comment period on Ohio's RACT determination from September 3 to October 5, 2026. Appendix D contains the public notice. ***[Ohio's response to comments received during the public comment period is in Appendix E/No comments were received during the public comment period].***

This SIP does not include the relaxation of any existing requirements and therefore will not interfere with the attainment or maintenance of the NAAQS in accordance with section 110(l) of the CAA.

Ohio EPA is now requesting approval of the proposed RACT for The Lubrizol Corporation into Ohio's SIP.

Ohio EPA is submitting this SIP via U.S. EPA's State Planning Electronic Collaboration System (SPeCS). If you have questions, please contact Jennifer Van Vlerah in our Division of Air Pollution Control at (614) 644-3696.

Sincerely,

John Logue
Director

Cc: Bob Hodanbosi, Chief, Division of Air Pollution Control, Ohio EPA

Enclosures